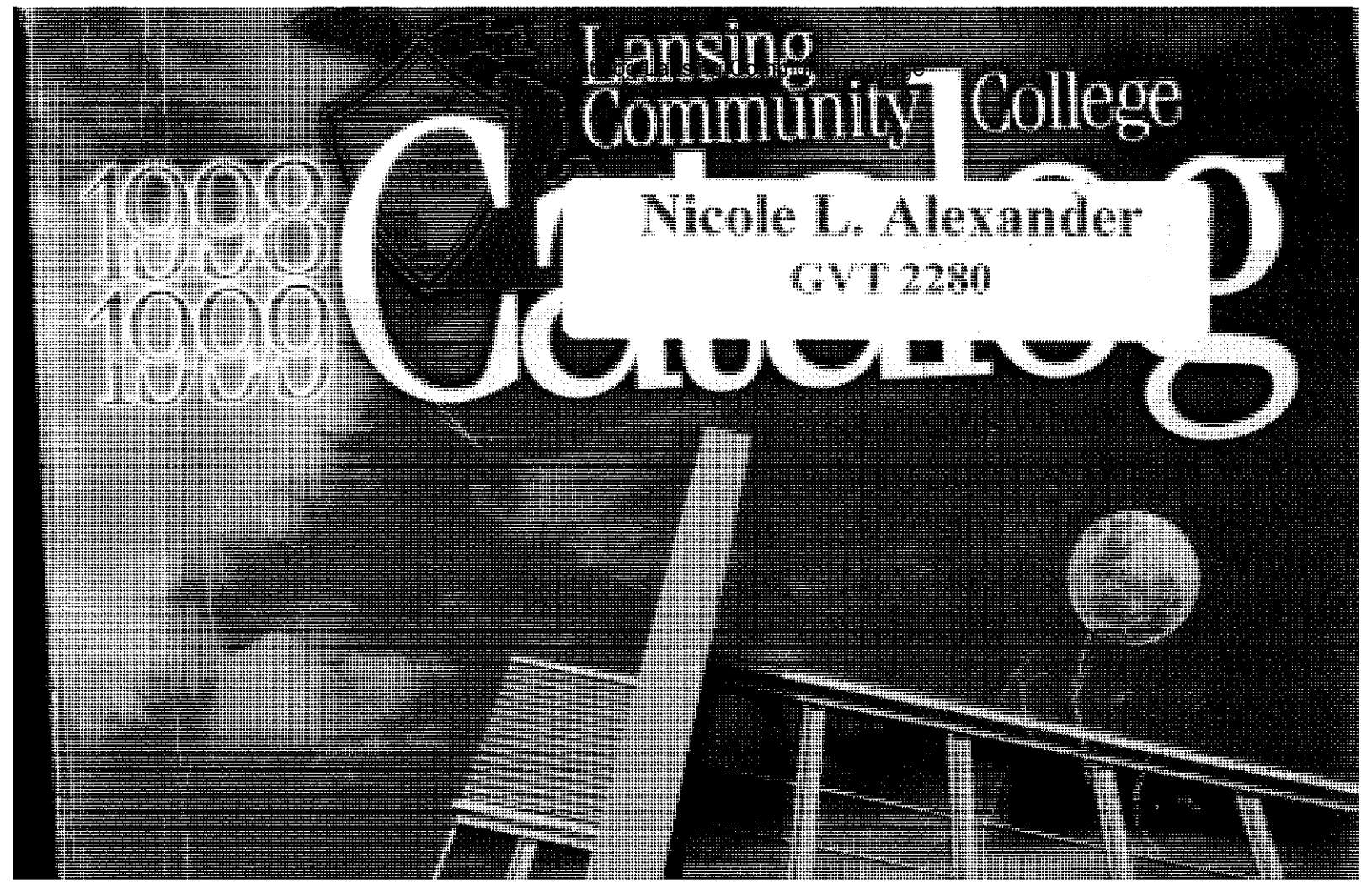


Lansing
Community College

Celebrating

Nicole L. Alexander
GVT 2280

1998
1999
2000



C A T A L O G

400-600 North Washington Square, P.O. Box 40010, Lansing, Michigan 48901-7210
Information Center (517) 483-1620 or 1-800-644-4LCC • 24-hour-a-day assistance (517) 483-1111
Office of Disability Services Telephone Device for the Deaf, TDD (517) 483-1218
World Wide Web: <http://www.lansing.cc.mi.us>

Accredited by North Central Association of Colleges and Schools

LCC: WHERE SUCCESS BEGINS

At Lansing Community College, we've committed to excellence in education for more than 40 years. Since our beginnings in 1957, we've grown from a small technical college to one of the largest, most comprehensive community colleges in the nation. We offer classes year-round on our 28-acre campus in the heart of Michigan's capital. You can choose from more than 150 degree and certificate programs and nearly 2,500 courses, or complete the first two years of a liberal arts education. And to ensure you'll have the comprehensive mix of education and training you'll need for the 21st century, we've just opened a new Technology and Learning Center. This premier addition to our downtown campus will house state-of-the-art computer labs and classrooms, a library and a media services center.

In addition to our main campus, we operate the Aviation Center at Capital City Airport in Lansing, and the Truck Driver Training Center near Battle Creek. Plus, we have Learning Centers in more than 20 communities within our 30-mile service district—which means our classes are accessible to more people in more areas. And for the ultimate in accessibility, we offer a series of Internet courses through our Virtual College, making the LCC experience available to people around the globe!

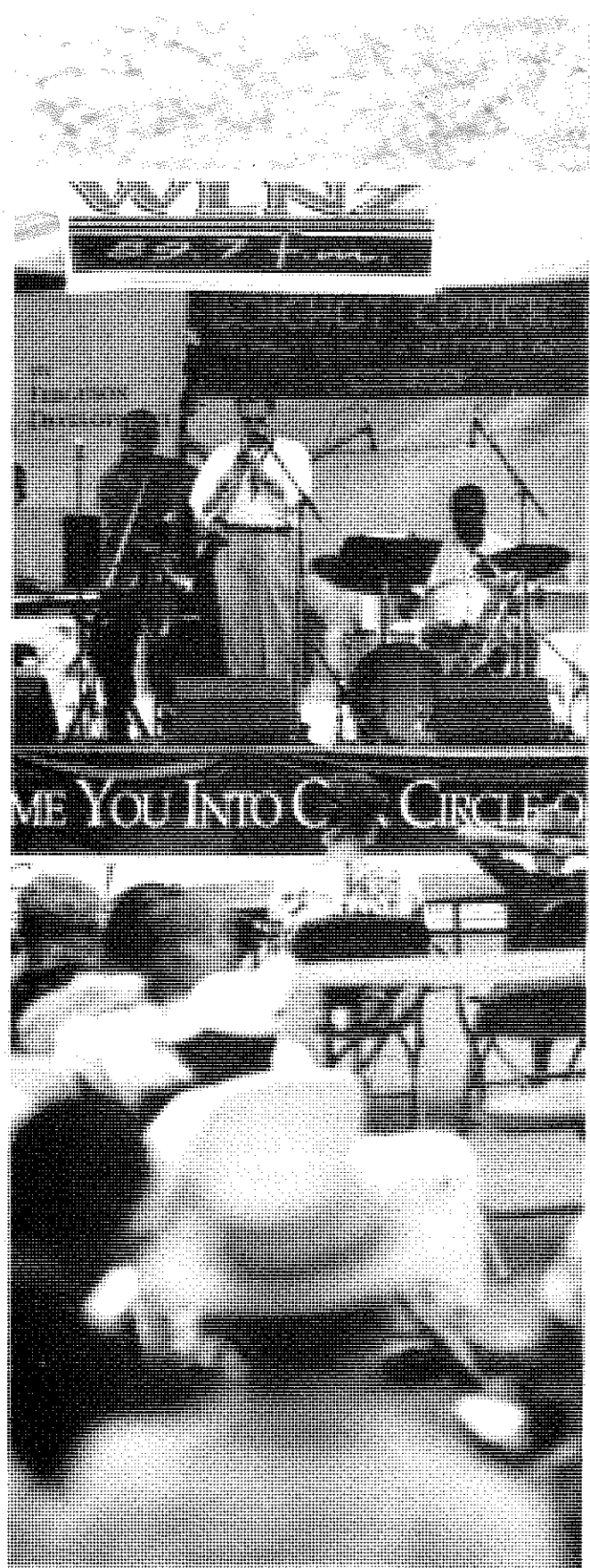
LCC is accredited by the North Central Association of Colleges and Schools, and serves nearly 40,000 people annually. Our 40th commencement is just one symbol of our commitment to providing lifelong education for all.

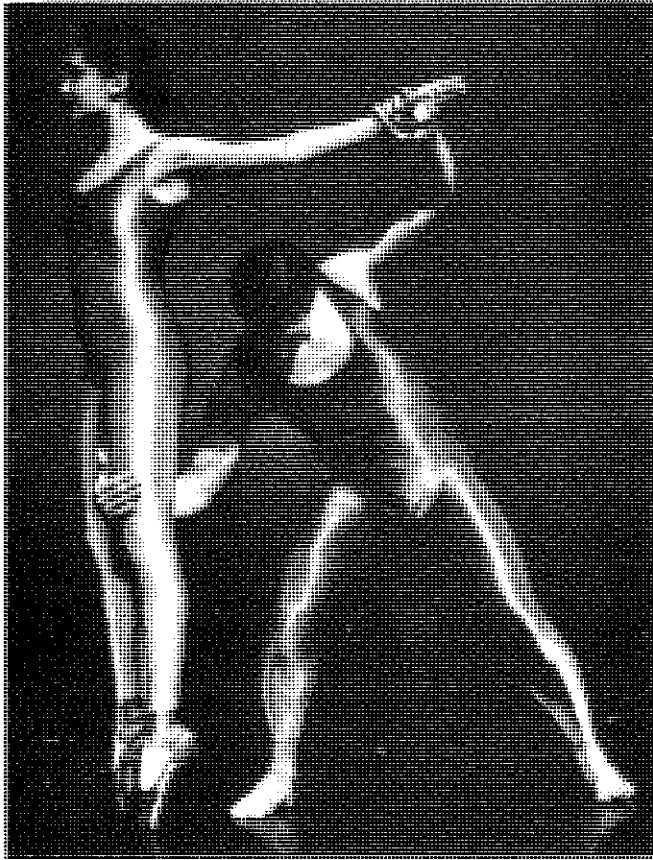
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Please keep this catalog as a reference to the learning opportunities available at Lansing Community College. Education is a lifelong process, and LCC continues to be a resource for its students throughout the nation and the world. Futures not only begin at LCC, they are enriched, over and over, throughout a lifetime.

This catalog was produced by Marketing, Community and Board Relations at Lansing Community College.





MISSION STATEMENT

Lansing Community College exists so that all people have educational and enrichment opportunities to improve their quality of life and standard of living.

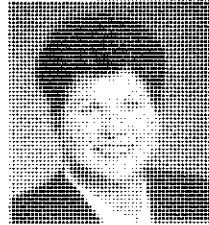


Lansing
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College

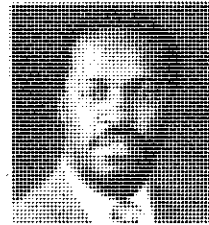
**BOARD
OF
TRUSTEES**



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Vice Chair



Ronald A. Nichols, M.D.
Secretary/Treasurer



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Trustee



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Trustee

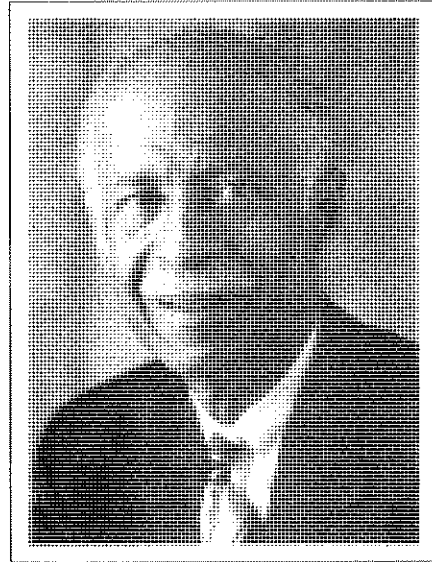


Dorothy D. Jones
Trustee



Kim G. Ross
Trustee

MESSAGE FROM THE PRESIDENT



Dear Students,

Welcome to Lansing Community College! Whether this is your first—or tenth—experience of LCC, we are excited that you have chosen us as your learning place.

We offer many opportunities. First and foremost are the many fine programs and courses which we have ensured are of the highest quality with the latest teaching and technology can offer. In addition, we offer a wide variety of career exploration, internship and transfer college programs to enrich and supplement the classroom experience.

Our staff—including the most highly skilled and dedicated instructors, counselors, support staff and administration available anywhere in the United States—stand ready to serve and to challenge you to reach for new skills and explore new vistas.

Be sure to also check out the many informal learning opportunities available to you, such as the Student Leadership Academy, Volunteer Services, our student newspaper The Lookout, different clubs, campus employment and much more.

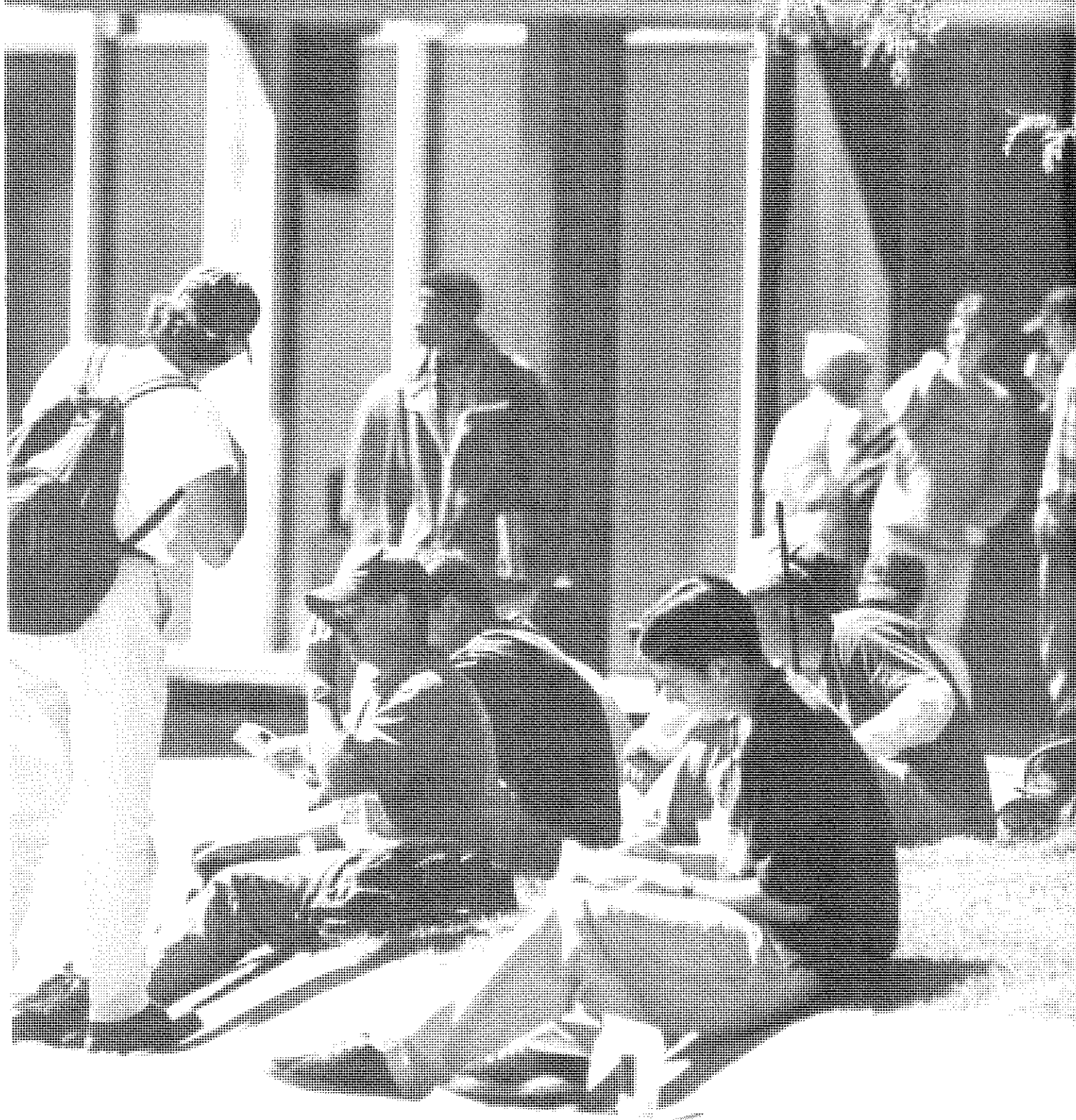
Good luck, and may your time at LCC help bring you closer to your goals and dreams. If I, personally, can provide any special assistance, please do not hesitate to call me at (517) 483-1851.

Cordially,

A handwritten signature in black ink that reads "Abel B. Sykes, Jr." The signature is written in a cursive style.

Abel B. Sykes, Jr.
President
Lansing Community College

ARTS





General
Information

DIRECTORY OF DEPARTMENTS

(Area Code 517)

Careers Division

Career Services (GVT 211) 483-1172
 Career and Employment Services 483-1172

Business Careers (OC 210) 483-1522

Accounting 483-1599
 American Institute of Banking 483-1532
 Business 483-1532
 Computer:
 Business Software 483-1587
 Information Systems for Business 483-1546
 Office Applications 483-1587
 Word Processing 483-1587
 Credit Union 483-1541
 Hotel/Motel and
 Food Service Operations 483-1542
 Insurance 483-1599
 Labor Relations 483-1532
 Legal Assistant 483-1503
 Management 483-1532
 Marketing 483-1532
 Office Administration 483-1587
 Property Valuation and
 Assessment Administration 483-1532

Real Estate 483-1532

Secretarial 483-1587
 Tourism: Airline and Travel Agency 483-1542

Human, Health and Public Service Careers

(GVT 175) 483-1410
 Allied Health 483-1410
 Child Development 483-1410
 Community Health Services 483-1410
 Corrections (OC 224) 483-1570
 Court and Conference Reporting
 (OC 224) 483-1616
 Criminal Justice (OC 224) 483-1570
 Dental (A&S 007)
 Assisting 483-1457
 Hygiene 483-1457
 Diagnostic Medical Sonography 483-1410
 Emergency Medical Technology 483-1410
 Fire Science 483-1346
 Gerontology/Aging 483-1410
 Human Services 483-1410
 Law Enforcement (OC 224) 483-1570
 Massage Therapy 483-1410
 Medical Assistant 483-1410
 Nursing 483-1410
 Paramedic 483-1410
 Radiologic Technology 483-1410
 Respiratory Therapy 483-1410
 Sign Language 483-1410
 Social Work 483-1410
 Surgical Technology 483-1410

Technology Careers (GVT 220) 483-1336

Apprentice Programs 483-1336
 Architecture 483-1327
 Art, Design and Multimedia (AOF 314) 483-1476
 Automotive/Auto Body 483-1336
 Aviation (Airport)
 Airframe Maintenance 483-1406
 Avionics 483-1406
 Flight Training 483-1406
 General Maintenance 483-1406
 Instrument Repair 483-1406
 Powerplant Maintenance 483-1406
 Simulator Training 483-1406
 Building Maintenance 483-1404
 Building Trades 483-1361
 Civil Technology 483-1336

Computer Service/Repair 483-1351
 Computerized Numerical Control
 Program 483-1390
 Drafting and Design 483-1335
 Electrical Technology 483-1360
 Electronics Technology 483-1352
 Geographical Resource and
 Environmental Technology 483-9675
 Heating, Ventilating, and Air Conditioning 483-1404
 Horticulture 483-9675
 Industrial Drafting 483-1335
 Interior Design 483-9679
 Landscape Architecture 483-9675
 Machine Tool Technology 483-1358
 Machine Maintenance 483-1358
 Media Technology (TLC 123) 483-1677
 Photo Imaging Technology (PC 117) 483-1673
 Quality Assurance 483-1318
 Residential Builder 483-1361
 Truck Driver Training (517) 483-1336
 (Fort Custer, Battle Creek) (616) 731-4125
 Welding Technology 483-9682

Business and Community Institute

Business and Industry Center
 (CB 111) 483-1578

Facilities Rentals/Conference Services
 (CB 206) 483-1881

Instructional Services (CB 200) 483-9851

Physical Fitness and Wellness
 (GVT 354) 483-1227

Professional Education (OC 207) 483-1179

Extension and Community Education
(Learning Centers) 483-1860

International Programs 483-1006

Japan Adventure/
Japan Horizon (OUF 228) 483-1006

Liberal Studies Division

Office of Instruction (A&S 110) 483-1015
Military Science/ROTC 483-1015
Teacher Education Project 483-1015

Communication (A&S 211) 483-1040
 Foreign Language 483-1040
 Linguistics 483-1040
 Speech 483-1040
 Writing 483-1040

Humanities and Performing Arts
 (A&S 255) 483-1018
 English/Literature 483-1018
 Humanities
 (History, Philosophy, Religion) 483-1018
 Performing Arts
 (Dance, Music, Theater) 483-1018

Math and Computer Science
 (A&S 408) 483-1087
 Applied Math 483-1087
 Computer Science 483-1087

Statistics 483-1087
 Transfer Math 483-1087

Science (A&S 408) 483-1092
 Anatomy 483-1092
 Biology/Molecular Biology 483-1092
 Chemistry 483-1092
 Environmental Science 483-1092
 Geological Science 483-1092
 Integrated Science 483-1092
 Physics 483-1092

Social Sciences (A&S 353) 483-1126
 Economics 483-1126
 Geography 483-1126
 Political Science/Government 483-1126
 Psychology/Education 483-1126
 Sociology/Anthropology 483-1126

Police and Public Safety

Public Safety (GVT 250) 483-1800
 TDD 483-9916

Student and Academic Support Division

Athletics (GVT 452) 483-1624

Enrollment Services

Counseling (A&S 103/SPS 208) 483-1191/1194
 Advising Center (A&S 103) 483-1904
 Disability Support Services
 (SPS 208) 483-1207
 TDD 483-1218/1207
 Student Development Courses
 (SPS 208) 483-1184
 Women's Resource Center
 (SPS 208) 483-1199
 Entry Services (SPS 104) 483-1266
 Admissions (GVT 232) 483-1200
 Limited English Proficiency
 (SPS 104A) 483-1207
 Minority Outreach and Recruitment
 (SPS 103) 483-9755
 Native American Leadership
 Program (SPS 102) 483-9803
 Office of the Registrar (SPS 104) 483-1266
 Financial Aid (SPS 112) 483-1296
 Veteran's Services (SPS 114) 483-1300

Honors (SPS 215) 483-1162

Instructional and Student Support

Library Information Services
 (TLC 201A) 483-1657
 Tutorial Services (SPS 201) 483-1296
Media Services (TLC 123) 483-1672
 Interactive Learning Center
 (OC 200) 483-1566
 Telecourse Hotline (TLC 123) 483-1695
 Telelearning (TLC 123) 483-1672
 Student Life (GVT 200E) 483-1285

Language Skills (A&S 309E) 483-1061
 Learning Center (A&S 309E) 483-1060
 Limited English Proficiency
 Courses (A&S 309E) 483-1061

Mathematical Skills (A&S 309JJ) 483-1073
 Math Lab (A&S 309) 483-1073



ACADEMIC CALENDAR

For an up-to-date academic calendar, including start and end dates for the 1998-1999 Fall Semester, Spring Semester, and Summer Session, point your Web Browser to:

www.lansing.cc.mi.us

or call our Information Center at:

1-800-644-4LCC or 1-517-483-1630

In addition, registration information and dates are published in the *Course Schedule* for each semester, or students may call the Office of the Registrar.

POLICIES, PROCEDURES, AND REGULATIONS

ADMISSIONS INFORMATION

GENERAL ADMISSION CRITERIA

Lansing Community College is an open-door community college designed to extend service to applicants possessing appropriate preparation to benefit from programs and courses offered at the College. Determination and judgment of an individual's preparation and readiness to benefit from a course or program at Lansing Community College is the responsibility of the College's professional personnel.

Persons who are 18 years of age or older or who have graduated from high school are eligible to attend Lansing Community College. Persons who are under 18 years of age, enrolled in high school, and working to fulfill high school graduation requirements, may be admitted to LCC under the *Dual Enrollment* or *Special Admission Programs* explained later in this section. Nonpublic home school applicants who are 14 years of age or older may be admitted under the *Nonpublic Home School Program* explained later in this section. Admission to the College does not guarantee admission to a particular program.

GENERAL ADMISSION PROCEDURES

Procedures for Completing the Admissions Application

1. Complete all items requested on the application for admission.
2. Attach the nonrefundable \$10 application fee (check or money order made payable to Lansing Community College) to the application.
3. International applicants must follow the procedures outlined under *International Applicants*.
4. Applicants in high school must follow the procedures outlined under *Dual Enrollment Program* or *Special Admission Program*.
5. Nonpublic home school applicants must follow the procedures outlined under the *Nonpublic Home School Program*.
6. Guest students must follow the procedures outlined under *Guest and International Guest Applicants*.

APPLICANTS MAY MAIL, FAX (517) 483-9668, OR BRING APPLICATIONS TO THE ADMISSIONS OFFICE LOCATED IN THE GANNON VOCATIONAL-TECHNICAL CENTER IN ROOM 232. ITEMS SHOULD BE MAILED TO: 1111-ADMISSIONS OFFICE, LANSING COMMUNITY COLLEGE, PO BOX 40010, LANSING, MI 48901-7210. FOR ADDITIONAL INFORMATION CALL (517) 483-1200.

Applicants who are admitted to LCC will receive notification and information regarding registration procedures. Applicants denied admission will receive a letter stating the reason for denial and explaining the appeal process (see *Appeal Process for Denial of Admission*).

BASIC SKILLS ASSESSMENT AND ADVISING FOR STUDENT SUCCESS

General Information

Lansing Community College cares about student success and believes that school or job success depends on basic skills: reading, writing, math, computing, communicating, critical thinking, and study skills.

Many courses at LCC have minimum basic skill level requirements in reading, writing, and/or math which must be met before a student can enroll in those courses. Students establish basic skill levels by taking a series of placement tests, or by successfully completing specific courses or degrees at LCC or other accredited institutions. Once basic skill levels are established, they become a part of a student's permanent academic record at LCC.

When a student attempts to enroll in a course with basic skill levels, his or her own levels will be checked to make certain that he or she is ready to enter the course and be successful. Students should be aware that these levels must be met before they will be allowed to register for the course. For this reason, students should check the BASIC SKILLS REQUIREMENTS line in the *Course Schedule* before trying to register for any course. If a student's current levels are not high enough to register for courses(s) in his or her program of study, LCC

faculty advisors will discuss other course options that are designed to improve reading, writing, and/or math skills.

Where to Find Information About Basic Skill Levels

Specific course basic skill level information is available in several places. Up-to-date levels are found in the current *Course Schedule*. Other sources, which are less frequently revised, are the *College Catalog* and individual course syllabi that are available from the department offering the course(s). As the College moves its printed materials into electronic form, they will be linked to the College's Home Page on the World Wide Web. The URL is <http://www.lansing.cc.mi.us/>

Where and When to Take the Tests

Basic skills assessment is available for new students during the S.T.A.R.T. (Student Testing and Advising Registration Times) Program, which takes place at the beginning and/or end of each semester. For more information about S.T.A.R.T., call (517) 483-5323.

Most returning students take the reading, writing, and/or math test prior to registering for courses with basic skill prerequisites. Testing is available at the Learning Center, Room 309, Arts and Sciences Building, Monday through Saturday, whenever the Center is open. Call (517) 483-1060 for hours.

What the Tests Are Like

Reading, writing, and some math tests are on computers and are not timed. They are adaptive, which means that the computer selects each question based on whether the student answered the previous question correctly, branching up or down, getting more difficult or easier. The computer draws from a large pool of questions, but students only have to answer 20. The tests used to assess college-level math skills are paper/pencil tests. Students should allow three hours to complete all basic skills assessment tests.

The Retest Policy

If a student wants to retest more than once in a semester, he or she must consult with a coordinator in the Learning Center (Room 309, Arts and Sciences Building).

Academic Advising Services

Faculty advisors will explain LCC placement test scores, determine waiver eligibility, help students plan class schedules, and discuss curriculum choices at LCC. Students may already have been granted reading, writing, and/or math level waivers based on past LCC classes, successful completion of specific classes, or degrees completed at LCC or other colleges that have been transferred into LCC. In addition, students may be eligible for a waiver if they achieved specific scores on national achievement tests, such as the ACT or SAT. Students should bring copies of test results or transcripts from other colleges to review with a faculty advisor in the Counseling and Advising Center (Room 103, Arts and Sciences Building), if they have not already requested a transfer credit evaluation through the LCC Registrar's Office.

Advisors can also provide students with other college information or make referrals to other college personnel when appropriate. Students are encouraged to visit the on-campus Counseling and Advising Center (Room 103, Arts and Sciences Building) where no appointments are necessary, or to attend one of the special off-campus Learning Center advising sessions. The phone number for the Counseling and Advising Center is (517) 483-1904.

SPECIAL PROGRAM/SPECIAL CIRCUMSTANCE ADMISSION

Selective Admission Programs

The programs listed in this section are selective admission programs. Admission to selective admission programs is on a competitive basis, and these programs have program admission requirements beyond those required for admission to the College. Admission to Lansing Community College does not

guarantee admission to a selective admission program. Students wishing to apply for admission to a selective admission program should contact the Admissions Office for further information by calling (517) 483-1254, or writing 1111-ADMISSIONS OFFICE, LANSING COMMUNITY COLLEGE, PO BOX 40010, LANSING, MI 48901-7210.

- Court and Conference Reporting, Associate in Business
- Dental Assistant, Certificate of Achievement
- Dental Hygienist Program, Associate in Applied Science
- Diagnostic Medical Sonography, Associate in Applied Science
- Fire Academy, Certificate of Completion
- Medical Assistant, Certificate of Achievement
- Mid-Michigan Police Academy, Certificate of Completion
- Music Commercial Performance, Associate in Applied Arts
- Music Management, Associate in Applied Arts
- Music Transfer, Associate in Applied Arts
- Nursing, LPN Option, Certificate of Achievement
- Nursing, RN Option, Associate in Applied Science
- Paramedic, Certificate of Achievement
- Radiologic Technology Program, Associate in Applied Science
- Respiratory Therapist, Associate in Applied Science
- Surgical Technology, Certificate of Achievement
- Truck Driver Training, Certificate of Completion

International Applicants

International student admission procedures have been developed to create a positive experience for the international student, the service community, and the College community. Admissions requirements for international students are affected by U.S. Immigration and Naturalization Service (USINS) regulations. In accordance with USINS regulations, any individual who is not a United States citizen and who has been admitted to the United States in a temporary, nonresident status will be classified as an international student at Lansing Community College. Individuals who have refugee, immigrant, or resident alien status are not international students.

The visa classification of each international applicant determines the admission requirements and the attendance regulations applied to the applicant. For details on the requirements for international admission, the applicant should refer to the International Student Admissions Application Packet. To request the application packet, contact 1111-ADMISSIONS OFFICE, LANSING COMMUNITY COLLEGE, PO BOX 40010, LANSING, MI 48901-7210.

Admission to the College for all visa categories requires applicants to: (1) be at least 18 years old and (2) provide additional documents as required by the applicant's USINS visa classification.

International students who would like copies of documents submitted to Lansing Community College for admission purposes must request these copies no later than one year after the last semester of attendance in international student status with the College. Lansing Community College does not keep such documents beyond legally required time limits.

Admission to LCC as an international student will be considered after receipt of the application, \$10 application fee, and all required documents. Applicants outside the United States are advised to apply as early as possible to allow for mail delays, to obtain visas and exit permits, and to make travel arrangements. All admission material from applicants outside the United States must be received by the College no later than eight weeks prior to the first day of walk-in registration for the semester of attendance.

The Admissions Office will provide to admitted applicants information regarding USINS regulations, academic advising, and College policies governing international students. Prior to registering for classes, international students will be asked to take tests administered to the general College population. If evaluation of these tests indicates a need for improvement of English language skills, the student will be required to enroll in appropriate language courses.

Admission procedures are established and reviewed by the International Student Services Committee. Any changes in the procedures will be brought to the attention of the Dean of Student and Academic Support, students, applicants, LCC staff, and the service community.

The International Student Services Committee has been established in the Division of Student and Academic Support with the following membership:

1. International Admissions Specialist (Chairperson)
2. Director or Assistant Director of Entry Services
3. Director of International Programs
4. Bilingual Coordinator

5. International Student Counselor
6. A member of the teaching faculty

Dual Enrollment Program

This program is designed to provide an opportunity for qualified high school juniors and seniors to earn college credit. High school credit may or may not be granted according to the discretion of the participating high school. Dual enrollment affords students educational enrichment in specific areas where unusual ability and interest are displayed, especially in courses and academic areas not available in the students' high school.

Qualifications for the Dual Enrollment Program

Applicants must:

1. Be working toward high school graduation requirements;
2. Have attained junior or senior high school standing prior to applying for the program.

Application Procedures for the Dual Enrollment Program

Applicants must:

1. Complete a College application;
2. Submit written approval from their authorized high school official each semester of attendance;
3. Mail or bring the application, the nonrefundable \$10 application fee, letter of authorization, and transcript to the LCC Admissions Office prior to enrolling in classes.

Special Admission Program

Qualifications for the Special Admission Program

Applicants must:

1. Be working toward high school graduation requirements;
2. Have attained freshman or sophomore high school standing prior to applying for the program.

Application Procedures for the Special Admission Program

Applicants must:

1. Complete a Special Admission Supplemental Application for each class in which the student intends to enroll;
2. Submit an official high school transcript each semester of attendance;
3. Mail or bring the Special Admission Supplemental Application(s), the nonrefundable \$10 application fee, and transcript to the LCC Admissions Office prior to enrolling in classes.

Nonpublic Home School Program

The Nonpublic Home School Program is designed for students who are at least 14 years old and attend a nonpublic home school. This program is provided to supplement the student's educational plan and to afford educational enrichment in courses and academic areas not available in the student's home school setting.

Qualifications for the Nonpublic Home School Program

Applicants must be at least 14 years of age prior to applying for the program.

Application Procedures for the Nonpublic Home School Program

1. Applicants 16 and 17 years of age must complete an LCC Nonpublic Home School Program Application each semester. Applicants 14 or 15 years of age must obtain department approval and complete an LCC Nonpublic Home School Program Application for each course in which the student wishes to enroll each semester.
2. Written consent from the student's parent/guardian and approval from the home school provider is required on the application.
3. Applicants must meet with a Counselor to discuss the student's educational plan each semester.
4. All students must comply with basic skills assessment and any additional approvals or prerequisites established by the department for the course(s) in which the student wishes to enroll.
5. Applicants must mail or bring the completed application and the nonrefundable \$10 application fee to the LCC Admissions Office prior to enrolling in classes.

Guest and International Guest Applicants

Guest and international guest applicants must:

1. Obtain a guest application from the Registrar's Office of the student's primary college;
2. Submit a completed guest application form to LCC each semester they wish to continue in the guest admission category;
3. Mail or bring the guest application and the nonrefundable \$10 application fee to the Admissions Office prior to enrolling in classes.

APPEAL PROCESS FOR DENIAL OF COLLEGE ADMISSION

Applicants denied admission to the College may appeal the denial. The decision to admit or uphold denial of admission will be based upon the individual merits of the appeal. Appeals submitted with insufficient time to complete the appeal process (eight working days) by the first day of class will be reviewed for the following semester. The appeal process shall consist of the following steps:

STEP 1: Admissions Counselor or Admissions Staff Member

If an Admissions Counselor or staff member denies admission to an applicant, the Admissions Counselor or staff member shall provide the applicant with a copy of the appeal process. If the applicant wishes to appeal the denial, the Counselor or staff member shall arrange an appeal meeting with the Director or Assistant Director of Entry Services within two working days of the denial.

STEP 2: Director or Assistant Director of Entry Services

(If admission was originally denied by the Director or the Assistant Director of Entry Services, the applicant may move directly to Step 3 of the appeal process.) The applicant must submit his or her appeal in writing to the Director or Assistant Director of Entry Services at least one working day prior to the appeal meeting. The Director or Assistant Director shall render a decision to the applicant within two working days of the appeal meeting and provide the applicant with a written copy of the decision. If the appeal is denied, the Director or Assistant Director shall discuss Step 3 of the appeal process with the applicant. If the applicant wishes to appeal the denial, the Director or Assistant Director shall assist the applicant in contacting the Appeals Coordinator.

STEP 3: The Board of Appeals

The Appeals Coordinator shall convene the Board of Appeals within three working days of the applicant's appeal to the Board and advise the applicant of the date, time, and location of the appeal meeting. The Board of Appeals Chairperson shall notify the applicant of the Board's decision within three working days from the date of the applicant's appeal meeting and shall provide the applicant with a written copy of the decision. The Board of Appeals shall consist of the following members:

- A. The Dean of Student and Academic Support (Chairperson) or his or her designee
- B. A member of the teaching faculty
- C. A counselor
- D. Appeals Coordinator or his or her designee (as recorder and nonvoting member)

The appeals process for international students shall have the following modification in membership:

- STEP 1: International Admissions Specialist or his or her designee
- STEP 2: Director or Assistant Director of Entry Services
- STEP 3: Board of Appeals

The International Student Board of Appeals shall consist of the following members:

- A. The Dean of Student and Academic Support (Chairperson) or his or her designee
- B. A member of the teaching faculty
- C. Bilingual Coordinator or Director of International Programs
- D. Appeals Coordinator or his or her designee (as recorder and nonvoting member)

The decision of the Admissions Board of Appeals is final and will be reached by simple majority vote. A copy of the Board of Appeals decision shall be maintained in the Admissions Office for two years.

HOUSING

Lansing Community College maintains no housing units for students, nor does it enter into third party contracts or supervise off-campus housing. However, the Student Life Office does offer a housing resource listing service. This service provides current available listings of Lansing area housing for sharing, sale, or lease. For more information, contact the Student Life Office at (517) 483-1285, or visit Room 200F in the Gannon Vocational-Technical Center. There is no fee for this service.

FINANCIAL AID INFORMATION

The Student Financial Aid/Veteran Services Department at Lansing Community College is committed to providing students with financial resources for higher education. An objective method of need determination approved by the federal government is used to award need based programs. However, some scholarships are available based on academic achievement or talent, and low interest loan programs are also available.

Students are eligible to apply for financial assistance if they have graduated from high school, have completed a GED, or have demonstrated, through testing, the ability to benefit from courses or programs at Lansing Community College. They must enroll in LCC programs of study leading to an approved educational credential, and must be a U.S. citizen or eligible noncitizen. A student enrolling in a program of study abroad that is approved for credit by Lansing Community College is eligible for federal student financial aid consideration.

SOURCES OF FINANCIAL ASSISTANCE

Financial aid programs are funded from federal, state, college, and private sources. Four major sources of financial aid are scholarships, grants, loans, and employment. Most students receive a combination of these forms known as a financial aid "package." Need-based programs require the submission of the Free Application for Federal Student Aid (FAFSA). Please see "How and When to Apply."

Scholarships and Awards

Money that does not have to be paid back, usually awarded for academic achievement or talent that may or may not be based on need.

- Board of Trustees Awards are awarded to outstanding district high school graduates.
- Divisional Awards are awarded to outstanding students who are residents of the district and who apply directly to the College division or department in which the student wishes to study. Students may contact the Student Financial Aid/Veteran Services Department for information.
- Athletic Scholarships are awarded through the Athletic Department. Talented athletes should contact coaches in their respective sport areas.
- Michigan Competitive Scholarships are based upon a qualifying examination given during the junior and senior years in high school. Students may receive an "honorary" award not based on need or a monetary award based upon need.
- Private Scholarships are available through the College or private organizations. A *Scholarship and Financial Aid Booklet* is available in the Office of Student Financial Aid/Veteran Services Department giving information about private scholarships, grants, loans, employment, and college transfer scholarships available to LCC students.
- Foundation Scholarships are provided through the Lansing Community College Foundation Office.

Grants

Money that does not have to be paid back, usually based upon need.

- Federal Pell Grants are based on need and range from \$400 to \$3,000.
- Federal Supplemental Educational Opportunity Grants are awarded to "high" need students who receive Federal Pell Grants.

- Michigan Educational Opportunity Grants are awarded to needy students who have been Michigan residents for at least 12 consecutive months.
- Michigan Adult Part-time Grants are awarded to self-supporting, part-time (3-11 credits), needy students who have been out of a high school program for at least two years and who have been Michigan residents for the past 12 months.
- Michigan Tuition Incentive Program (TIP) pays community college tuition and fees for students from low-income families who meet the basic criteria and low-income financial guidelines. Eligible students must be United States Citizens and residents of Michigan according to institutional criteria, must be under 20 years of age, and must apply for certification to the State of Michigan prior to graduation from high school or completing the General Education Development (GED) Certificate.
- Lansing Community College's Women's Resource Center Grants are available for tuition and child care for displaced homemakers and special populations. Students apply through the Women's Resource Center, Student Personnel Services Building, 2nd floor.
- Center for Aging Education Tuition Assistance is available to persons 60 years of age or older for up to four (4) credits per semester. Students must meet moderate income guidelines. Students apply through the Community Education and Services Department at (517) 483-1180.

Loans

Money that must be repaid beginning six months after graduation or enrollment of less than six (6) credits, with the exception of the PLUS loans which must begin repayment upon disbursement.

- William D. Ford Federal Direct Student Loan Program includes both Subsidized and Unsubsidized Student Loans and the Parent Loan for Undergraduate Students (PLUS). Specific guidelines pertaining to eligibility and the application process are available in the Student Financial Aid/Veteran Services Department.
 1. Subsidized and Unsubsidized William D. Ford Direct Student Loans are available for students who meet eligibility requirements. Students apply by completing and submitting a Free Application for Federal Student Aid (FAFSA), an LCC Admissions Application, an LCC Financial Aid Application, and an LCC application for William D. Ford Direct Subsidized and Unsubsidized Student Loans.
 2. Parent Loans for Undergraduate Students (PLUS) are available to parents of undergraduate dependent students to pay college costs not covered by other financial aid. Applications for William D. Ford Direct PLUS loans are available in the Student Financial Aid/Veteran Services Department.
- MI-LOAN is a Middle Income Loan provided by the State of Michigan. This is a credit-based loan.
- Short-Term Loans are available from Lansing Community College on a limited basis through the Student Financial Aid/Veteran Services Department.

Employment

Job opportunities may be available to assist students in earning money to meet part of their educational expenses. Employment at the College is based upon skills and abilities and not necessarily upon need. Students may be employed by the College, public nonprofit organizations, private businesses, and industry.

- Federal Work Study is awarded to needy students.
- Michigan Work Study is awarded to needy students who are Michigan residents.
- Career and Employment Services at LCC posts federal work study jobs, student employee jobs, and off-campus part- and full-time jobs. Students obtain information at the Career and Employment Services Office and must interview at the department's or employer's office.
- Community Service Learning off-campus employment opportunities are available to students who are awarded Federal Work Study. Inquiries regarding these employment opportunities should be made to the Career and Employment Services Department.

Special Situation Funds

The College's Student Financial Aid/Veteran Services Department has information regarding the availability of funds and application procedures for the following programs:

- Armed Services
- Veterans' Benefits

- Children of Disabled or Deceased Veterans
- Federal Bureau of Indian Affairs
- Michigan Indian Tuition Waiver
- Michigan Rehabilitation Services
- Clubs, Organizations, and Business Scholarships
- Private Donor Scholarships

HOW AND WHEN TO APPLY

Students wishing to receive financial aid at Lansing Community College should submit a Free Application for Federal Student Aid (FAFSA) no later than February 15 for priority State aid consideration and at least three months prior to enrollment for all other aid programs. Federal income tax information is necessary to complete the form. FAFSA forms are available at LCC or from high school counselors. There are three options available for submission:

1. The completed FAFSA form may be submitted electronically through the Financial Aid lab located in the Student Personnel Services Building, Student Financial Aid/Veteran Services Department. Processing time is four to 10 working days after the student enters the application. Call (517) 483-1296 to schedule an appointment. Staff is available to assist students with filing the application. The Student Aid Report (SAR) results are then mailed to the student.
2. The completed FAFSA form may be mailed in the enclosed envelope to the federal processor. In four to six weeks the processor will send a Student Aid Report (SAR) to the student. The Financial Aid Office at LCC must receive these results to award aid. LCC must be listed as a college choice on the FAFSA in order for LCC to receive the information electronically.
3. The completed FAFSA form may be submitted electronically via the Internet (FAFSA on the WEB). The URL is <http://www.fafsa.ed.gov/>. All necessary instructions are provided.

Students will receive an Award Letter no later than four weeks after their results are received and their financial aid file is completed. Application for Financial Aid must be completed each academic year that a student plans to attend college.

To apply for financial assistance at the College, new students must also complete the LCC Application for Admission and return it to: 1120-STUDENT FINANCIAL AID/VETERAN SERVICES, LANSING COMMUNITY COLLEGE, 430 N. CAPITOL, PO BOX 40010, LANSING, MI, 48901-7210. All students must complete the Free Application for Federal Student Aid (FAFSA) and submit the application to the federal processor prior to being awarded.

William D. Ford Federal Direct Student Loans (Subsidized, Unsubsidized, and PLUS) are available by completing the aforementioned forms and the loan application form. Loan applications are available in the Student Financial Aid/Veteran Services Office.

LCC Board of Trustees Scholarship forms are available through district high schools' counseling offices. Scholarship forms are also available at the LCC Admissions Office and the Student Financial Aid/Veteran Services Department.

Divisional Scholarships are available from the respective College division or department of the student's major area of study.

The LCC Foundation has scholarships available through the Student Financial Aid/Veteran Services Department, or students may call the LCC Foundation Office at (517) 483-1985.

Processing of the student's application for financial assistance will be completed and the student will be notified when the student has submitted the LCC Application for Admission to the Admissions Office and when the Student Financial Aid/Veteran Services Department receives the results of the federal application for student financial assistance. Students transferring from other colleges mid-year must submit a Financial Aid Transcript from their previous colleges when they apply for financial assistance, along with any additional documents requested by the Student Financial Aid/Veteran Services Department.

The amount of the student's award will be based on a standardized cost of attending LCC, less the expected student's and family's contribution. The College will attempt to meet a student's need based upon available funds. All financial assistance applications are confidential.

RIGHTS AND RESPONSIBILITIES OF STUDENTS RECEIVING FINANCIAL AID

As a recipient of financial aid, a student enters into an agreement with Lansing Community College which affects the receipt and continuation of assistance. Therefore, students should be sure to read this information carefully.

NEED AND FINANCIAL AID PACKAGE

Financial need is determined by subtracting the expected family contribution (as determined by the FAFSA) and other financial resources from the appropriate College budget. The College will attempt to meet the student's need within the limitations of available resources. Also, if any errors are made by the College in determining eligibility for assistance or awarding of aid, they will be corrected. Should any major changes occur in the student's financial circumstances or should other aid be provided to the student, the student will report these changes to the Student Financial Aid/Veteran Services Department.

EXPECTED FAMILY CONTRIBUTION

If a student is a dependent student (as determined by the FAFSA), the College assumes that parents have the first obligation to provide for the student's cost of education to the extent that they are able, based on a standardized method of determining parental contribution. The second obligation falls upon the student to contribute to his or her own education from personal assets and earnings, which may include the use of student loan funding.

If a student is a self-supporting or independent student (as determined by the FAFSA), the College assumes that since a student is the prime beneficiary of education, the student has a primary obligation to provide for the cost of education to the extent the student is able, based on a standardized method of determining student contribution. The student's expected contribution will come from personal earnings, spouse's earnings, if applicable, savings and assets, which may include the use of student loan funding.

SELECTION CRITERIA

Students are awarded need-based financial aid on a first-come first-served basis. Students with the highest need are selected first until available funds are exhausted. Students with bachelor's degrees may receive Federal Work Study if funds permit. These students may also apply for Federal Direct Student Loans.

FALSIFICATION OF INFORMATION

Falsification of information submitted by the student or parents for the purpose of receiving financial assistance may result in cancellation of assistance, billing back for assistance received, and referral to the appropriate federal authorities.

The Student Financial Aid/Veteran Services Department may be required to verify information provided on the Financial Assistance Form by requiring income tax statements or other documentation of financial status.

CREDIT HOUR LOAD

Fall and Spring Semester

Financial aid is offered to students based on enrollment as a full-time student, 12 credit hours or more per semester. However, if a student enrolls for fewer than 12 credits, his or her award may be prorated to meet enrollment costs. For example, if a student enrolls for 9-11 credits, he or she would receive 75 percent of his or her award. If a student enrolls for 6-8 credits, he or she would receive 50 percent of his or her award. If a student enrolls for fewer than six credit hours, he or she may be eligible for some federal programs. An independent student enrolled for 3-11 credits may be eligible for the Michigan Adult Part-time Grant.

Summer Session

Summer Session is shorter than Fall and Spring Semesters. Six credits is considered full-time for financial aid purposes, five credits is considered three-quarter time, and three credits is considered half-time. Enrollment for fewer than three credits will make a student ineligible for most financial aid. The length of the summer session also makes a difference in the calculation for the maximum financial aid allowable for that period. Generally, the amount of financial aid will be less for a student enrolled in the summer session compared to the regular fall and spring semesters.

SHORT COURSE ELIGIBILITY

Payment for courses that are less than a semester in length is permitted. Students who enroll in a short course, receive payment for the course, and then do

not attend will be required to repay any financial assistance attributed to that course. In addition, students who receive payment for a short course that is subsequently canceled will be required to repay any financial assistance attributed to that course. Students who enroll in short courses and have a Federal Direct Student Loan are required to be enrolled in six credits of semester-length courses in addition to any short courses.

STUDENT BUDGETING OF THE FINANCIAL AID PACKAGE

The student is responsible for properly budgeting all financial aid offered for each semester. The financial aid package will be distributed to the student in the following manner:

1. ALL student financial aid will be applied toward tuition and fees during registration. If sufficient funds are available after tuition and fees are paid in full, the student will receive a financial assistance advance check during the first full week of classes for part of the balance of grants, loans, or scholarships; and
2. The student will receive any remaining balance of grants, loans, or scholarships approximately 14 days after the first day of the semester.

The student must be prepared to meet his or her living expenses during the period prior to check distribution.

FINANCIAL AID ADVANCE CHECK

Check Distribution

Checks are issued two times each semester at the Cashier's Office if financial aid awards exceed the amount of tuition and fee charges. Students use this money for books, supplies, transportation, and room and board. Advance checks are printed during the first week of the semester. Final checks are printed by the 14th day of the semester. Students who receive an advance check normally receive a final check.

Advance Checks

Advance checks are automatically calculated for financial aid students if their awards are complete and if they are registered by the last day of on-campus registration. The financial assistance advance check will be calculated by subtracting the amount of tuition and fees owed for the semester from the adjusted amount based on credit enrollment and writing a check for a portion of the remainder.

COLLEGE WORK STUDY/STUDENT EMPLOYMENT

If a student has been offered Federal Work Study or plans to use campus employment to meet expenses, the student must first secure employment through the Career and Employment Services Office (Room 211, Gannon Vocational-Technical Center). Students will receive a paycheck every two weeks based upon hours worked.

TUITION REFUNDS/WITHDRAWALS

Tuition refunds for financial aid students are based on federal regulations. Refunds for first-time students who completely withdraw are made through the first 60 percent of the semester. Students who are not first-time students and completely withdraw will have refunds through the first 50 percent of the semester. Tuition will be refunded in the following order for any programs received that semester:

- a. To outstanding balances on Federal Direct Loans: Unsubsidized Federal Direct Loan, Subsidized Federal Direct Loan, Federal PLUS Loan
- b. To Federal Pell Grant Awards
- c. To Federal SEOG awards
- d. To state financial aid awards
- e. To institutional financial aid awards
- f. To private or public donor awards
- g. To the student

An administrative fee of the lesser of five percent of the refund or \$100 will be held by the College.

REPAYMENT OF GRANTS

If a student withdraws from Lansing Community College or is withdrawn by the College because of nonattendance, a portion of any grants paid to the student may have to be repaid, and grades received for these courses may affect continuation of aid.

SATISFACTORY ACADEMIC PROGRESS POLICY FOR FINANCIAL AID ELIGIBILITY

To receive or continue on financial assistance, students must maintain satisfactory academic progress (SAP) each semester. Satisfactory academic progress for students receiving financial assistance is defined as follows:

1. Students must maintain a grade point average (GPA) of a 2.0 or above on a semester and cumulative basis.
2. Students must earn 70 percent or more of all credits attempted on a semester and cumulative basis. Credit "earned" is defined as a grade of 1.0 or higher or P; Grades of W, I, Z, N and 0.0 are considered attempted and not earned for determining financial aid satisfactory academic progress. Credit attempted includes all repeated courses.
3. Students must complete all requirements for their educational program within 150 percent of the minimum number of credit hours required for their educational program. This limit is further explained below under the heading *Maximum Eligibility*.

Satisfactory Academic Progress for Federal or State Loan Programs

Students applying for a federal or state loan program—including the Federal William D. Ford Direct Student Loan and the Michigan MI-Loan—must have completed at least one semester of prerequisites or core courses with a 2.0 or higher GPA and at least 70 percent completion of attempted credits prior to applying for a loan. A student borrower must earn a minimum of six credits, maintain a 2.0 minimum GPA each semester of the loan period, and maintain at least 70 percent completion of cumulative credits attempted. Students who do not meet these minimum guidelines will have any remaining scheduled loan disbursements canceled.

Financial Aid Academic Probation

New students receiving financial aid at Lansing Community College for their first semester who do not make satisfactory academic progress will receive an academic warning letter instructing them to meet with an academic counselor. They will remain eligible to enroll and receive assistance for an additional semester.

Federal regulations state that an Academic Progress Policy must include a review of all periods of enrollment, whether or not aid was received. Students with more than one but less than five graded semesters at Lansing Community College who have failed to maintain satisfactory academic progress in accordance with GPA or completion percent, may be allowed to re-enroll on financial aid under a Success Contract (educational agreement). While on a Success Contract, a student will be considered to be making satisfactory academic progress for financial aid programs as long as the student abides by the terms of the educational agreement, or until the student has raised his or her cumulative grade point average to a 2.0 or greater and has completed at least 70 percent of all credit hours attempted, but not beyond the completion of the fifth semester.

Students who do not successfully complete the semester of their Success Contract will have their future semesters of financial aid canceled, subject to the appeals process described below.

After five semesters of enrollment, students with cumulative GPAs lower than 2.0, and/or students who have earned less than 70 percent of credit hours attempted, will have their financial aid eligibility canceled. Eligibility for financial aid may be automatically reinstated after a student completes sufficient credit hours to raise his or her cumulative GPA to a 2.0 or above and cumulative credit completion to 70 percent or higher financed with his or her own resources. This is subject to all maximum eligibility requirements.

Appeal of Unsatisfactory Academic Progress

A student failing to maintain satisfactory academic progress who is placed on probation or terminated from financial aid, may appeal this action. All appeals must be submitted in writing to the office of Student Financial Aid/Veteran Services, and should document circumstances beyond the student's control. Extenuating circumstances that may be considered include personal illness or accident, serious illness or death within immediate family, long-term absence from school, or

other circumstances beyond the reasonable control of the student. The condition or situation must be documented by: a letter from a physician, attorney, social services agency, licensed therapist or counselor, or clergy; or an obituary notice or divorce decree. The condition or situation must have existed or occurred during a period the student was enrolled at Lansing Community College, and must no longer exist.

Reinstatement of Financial Aid Eligibility

A designated financial aid advisor, in consultation with at least one other financial aid advisor or administrator, will review the appeal and supporting documentation and notify the student in writing of the decision. Results of an appeal may include denial of reinstatement, reinstatement with restrictions such as limiting credit load to part-time or requiring 100 percent completion of enrolled credits, up to full reinstatement without further probation if the student has regained satisfactory academic progress.

Maximum Eligibility

Students who have attempted 150 percent of the credit hours required for their program of study at Lansing Community College are not considered to be making satisfactory academic progress and are no longer eligible for financial assistance beyond this maximum time frame. Transfer students will not be awarded financial aid beyond 150 percent of the credit hours required for their program of study, including credits transferred into the College which meet program requirements.

Exceptions to Maximum Eligibility time frame: Since many programs of study require substantially more than the minimum number of credit hours for a general associate degree, financial aid applicants will be reviewed on an individual basis if and when they approach 150 percent of their program, including any transfer credits. Students who have had to complete prerequisite, developmental, or English as a second language (ESL) course work in preparation for regular academic program requirements may have these credits excluded in the measurement of the 150 percent maximum time frame.

Students requesting financial aid consideration for semester(s) beyond 150 percent of their program will be required to document in an academic completion plan (ACP), approved by a lead academic advisor, reason(s) why they need additional credits to complete their program of study.

APPEALS

It is the student's right to appeal in writing or in person any decisions made regarding the assistance application or package. The student may meet with a financial assistance advisor to discuss his or her package. The student may meet with a financial assistance advisor to discuss extenuating circumstances to above policies or any other policies affecting the student as an assistance recipient. Extenuating circumstances are those considered beyond the student's control and must be documented. A financial assistance review committee will meet periodically to consider written appeals.

RIGHTS TO INFORMATION

It is the student's right to obtain information pertaining to financial aid programs available through the College and to discuss with a financial aid advisor information pertinent to the student's assistance application, file folder (records), and assistance package. However, all student information is confidential and will not be released over the telephone or to anyone other than the student.

RENEWAL OF FINANCIAL ASSISTANCE

Financial assistance is not automatically renewed. Awards are granted for one academic year only. A student must reapply for assistance for the following year by completing all required application forms by stated deadlines on the application. For renewal, a student must be enrolled in a certificate or degree program.

To continue on financial assistance, the student must not be in default on any past educational loans at LCC or other colleges. Also, the student must not owe any repayments for educational grants due to withdrawing from college or being withdrawn from college because of nonattendance.

A student will not be awarded federal financial assistance at Lansing Community College beyond the maximum time frame of 150 percent of the credit hours required for his or her program of study. A transfer student will not be awarded federal financial assistance beyond the maximum time frame of 150

percent of the credit hours required for his or her program of study, including transfer credits accepted by LCC.

STUDENT FINANCIAL AID COMMITTEE

A college-wide committee on student financial assistance has been established at Lansing Community College. The membership of this committee is as follows:

1. The Director of Student Financial Aid/Veteran Services (Chairperson)
2. One faculty member from each of the instructional divisions to be appointed by the appropriate deans
3. Two students to be appointed by the Director of Student Life
4. The Director of Student Life
5. The Business Manager (or his or her designee)
6. The Dean of Student and Academic Support Division (or his or her designee)
7. Two counselors from Counseling Services

The functions for this committee are:

1. To assist in the development of programming and procedure with the Student Financial Aid/Veteran Services Department of the College;
2. To assist in the evaluation of existing procedures and programming within the Student Financial Aid/Veteran Services Department of the College;
3. To assist in the area of communications about the student financial assistance program and to provide input from the various sub-populations of the College.

VETERANS INFORMATION

Veteran Services helps veterans file applications for education, counseling, loans, tutorial assistance, and/or any other entitlements allowed through the Veterans Administration. Lansing Community College is approved as a school for veterans of military service under provisions of Chapters 30, 31, 32, 35, and 1606 of the U.S. Code.

Lansing Community College cautions veterans matriculating under this program to be prepared to pay their expenses for at least two months after the beginning of the academic year. **ALL TUITION AND FEES MUST BE PAID AT THE TIME OF REGISTRATION.** Once the veteran's application is approved and the award processed, monthly checks will be issued if the veteran is prompt in maintaining satisfactory academic progress and following a chosen curriculum.

New student veterans and veterans wishing advance payment should apply at the Student Financial Aid/Veteran Services Department at least five (5) weeks prior to the beginning of a semester. Monetary allowances provided for by the G.I. Bill vary according to the level at which the veteran is pursuing an academic program as indicated by the following schedule:

LEVEL OF ATTENDANCE	REQUIRED CREDIT HOURS
Full time	Minimum of 12
Three-quarter time	9, 10, or 11
Half time	6, 7, or 8

After enrollment, veterans should direct their inquiries concerning eligibility to the Student Financial Aid/Veteran Services Department in the Student and Academic Support Division.

Lansing Community College, in recognition of the special needs of active-duty service persons in having access to and completing programs, has been designated as a Servicemember's Opportunity College.

In addition, the College participates in the Army College Fund, Michigan National Guard Co-op, Air Force ROTC Program, Army ROTC Program, and USMC Open Admissions Program.

Satisfactory Progress for Veterans' Benefits Eligibility

In compliance with Veterans Administration statutory requirements of subparagraph 56, section 1775 of chapter 36, Title 38 U.S. Code, Lansing Community College student veterans' benefits recipients will not be certified as eligible for benefits when their academic progress (cumulative grade point average) places them in the academic warning range (probation) beyond two semesters of enrollment. Re-certification of eligibility for benefits will not be considered until after the semester in which the student regains academic good standing (see *Academic Standing Scale*).

Certification Policy for Veterans Administration Educational Benefit Recipients

Lansing Community College will notify the U.S. Department of Veterans Affairs if a student receiving veteran's educational benefits is awarded a grade of 0.0, "W" or "Z" for course work pursued. It is the recipient's responsibility to notify Student Financial Aid/Veteran Services of all enrollment changes (drops) including the non-attendance of any or all courses. In the event that a recipient fails to report these changes, the College will report the first day of the certified attendance period as the last date of attendance (in absence of other documentation). Recipients appealing this determination may provide documentation such as a statement signed by the instructor verifying course attendance. Veterans' educational benefit recipients neglecting to request an official evaluation for credits earned at colleges other than Lansing Community College and for active duty military service will not have their enrollment certified beyond their second semester of attendance.

REGISTRATION INFORMATION

REGISTRATION PROCEDURES

Each semester Lansing Community College publishes the *Course Schedule*, which identifies courses offered for that semester. This booklet includes general information on the dates, times, and location of registration. Students may register for classes according to instructions which are published in the booklet.

Some courses require basic skills proficiency levels which must be met prior to enrollment. Students are strongly encouraged to arrange for orientation, testing, and advising prior to registration.

ALTERNATIVE DELIVERY

Lansing Community College offers a highly diversified program of evening, Saturday, and Sunday courses on campus and at off-campus learning centers for those who choose to attend class outside of regular daytime class sessions. Lansing Community College also offers packaged courses, short-term courses, telecourses, Internet courses, interactive television courses, a weekend degree, and a complete associate degree on-line. See the current *Course Schedule* or visit the Virtual College web site at <http://vcollege.lansing.cc.mi.us/> for more information.

TUITION AND FEES

Residency

I. Eligibility for Paying Resident Tuition

A. A student must be an American citizen, refugee, immigrant, or permanent resident and meet one of the following qualifications before being eligible to pay resident tuition.

1. The following applies to students under 18 years of age:
 - a. The student's parents or legal guardians have resided within the LCC district for at least six months immediately prior to the first day of the semester.
 - b. The student is married and has resided within the LCC district for at least six months immediately prior to the first day of the semester.
 - c. The student is unmarried and is recognized as "emancipated" (receives no financial support from parent or legal guardian) and has resided within the LCC district for at least six months immediately prior to the first day of the semester.
 - d. The student is enrolled under the provisions of Act 245, Public Acts of 1935, as amended by Act 371, Public Acts of 1965 (students receiving benefits under the Michigan Veterans' Trust Fund).
 - e. The student is an employee of a business or industrial firm within the LCC district, and the employer agrees in writing to pay directly to the College all tuition and fees of the sponsored student for employer-approved classes.
2. The following applies to students 18 years of age or older:
 - a. The student has resided within the LCC district at least six months immediately prior to the first day of the semester.

- b. The student is an employee of a business or industrial firm within the LCC district, and the employer agrees to pay directly to the College all tuition and fees of the sponsored student for employer-approved classes.
- c. The student is enrolled under the provisions of Act 245, Public Acts of 1935, as amended by Act 371, Public Acts of 1965 (students receiving benefits under the Michigan Veterans' Trust Fund).

II. Proof of Residency

All students must provide proof of residency at the time of admission and registration (Michigan House Bill No. 4166, 1985). Lansing Community College reserves the right to make the final decision on residency eligibility. New students must verify residency at the time of admission. Current students whose mail is returned to the College are required to provide proof of residency in person prior to future enrollments.

Residency is based on where a student has resided for the six months immediately prior to the first day of the semester of enrollment. Any one of the following documents is acceptable as proof of residency, providing that the six months prior to the first day of the semester for which residency is being sought is covered.

- A. Current Michigan driver's license or State identification card issued not less than six months prior to the first day of the semester in which residency is being sought
- B. Paid property tax receipts
- C. Rental or lease agreement
- D. Utility bills with the student's name and address for each of the six months prior to the first day of the semester

III. Residency Classification

- A. Resident Students* — Students who provide proof of residency within the LCC district for the six months immediately prior to the first day of the semester of enrollment are charged resident tuition.
- B. Nonresident Students* — Students who provide proof of residency within the State of Michigan, but outside the LCC district for the six months immediately prior to the first day of the semester of enrollment are charged nonresident tuition.
- C. Out-of-State* — Students who provide proof of residency in a state other than Michigan for the six months immediately prior to the first day of the semester of enrollment are charged out-of-state tuition.
- D. International Students — Students who have been admitted to the United States in a temporary, nonresident status are charged international tuition. Individuals who have refugee, immigrant, or resident alien status are not international students.
- E. Foreign nationals who are enrolling in virtual college courses and reside outside the United States or are admitted to the United States in a temporary, nonresident status will be charged international tuition. U.S. Nationals who are enrolling in virtual college courses and are outside the United States will be charged domestic tuition.

*International Students are not eligible for the resident, nonresident, or out-of-state residency classifications.

IV. Residency Status for Military Personnel and Dependents

Residency is based on the location of the present domicile of the applicant with the six-month requirement waived if the applicant can provide any of the documents listed below. This waiver is extended to the dependents (spouse and children) of the person named on the Department of Defense 214 or 899 who reside at the same address.

- A. Department of Defense 214, Separation from Active Duty Form, showing separation date within 120 days from the first day of the semester.
- B. Department of Defense 899, Change of Station Form, showing the Lansing area as the duty station.
- C. Department of Defense 899, Change of Station Form, showing a change of duty station for the head-of-household to an overseas destination or as the result of an emergency mobilization.

V. Petitioning for a Change in Residency Status

- Upon registering, a student shall be notified of his or her residency status.
- A. If the student feels that his or her residency status is not correct, the student may furnish the required proof of residency and the residency status will be corrected.

- B. After acceptance into the College as a nonresident or out-of-state resident, a student who has resided in the College district for six (6) months and furnishes the required proof of residency can have his or her residency status changed.
- C. If a change of residency status is approved by the published deadline date and the student is eligible for a refund, the difference between the previous residency status and the new residency status shall be refunded.
- D. Adjustments in tuition due to a change in residency are not retroactive to previous semesters.

VI. Nonresident Owners of In-District Property

Nonresident students or their guardians owning property in the LCC district will receive credit once a year for property taxes paid in support of the College by himself or herself or his or her guardian. The taxes paid must be in support of the current academic year and the credit cannot exceed the differential between resident and nonresident tuition rates for the current academic year. To obtain this credit, the student must provide the Office of the Registrar with the paid property tax receipt.

Payment of Tuition and Fees*

All students attending Lansing Community College must pay tuition and fees at the time of registration or by the published payment deadline. Tuition and fees are as follows:

TUITION PER CREDIT HOUR*	
Resident Students	\$ 48.00
Nonresident Students	\$ 77.00
Out-of-State Students	\$106.00
International Students	\$106.00

Tuition for apprenticeship students varies according to the program of study.

FEES FOR ALL STUDENTS*	
Application Fee (new students and guest students, not refundable)	\$10.00
Registration Fee (all students, each semester, not refundable)	\$20.00
Activities Fee (each semester)	
.25-6 credit hours	\$ 1.50
7-11 credit hours	\$ 4.50
12 or more credit hours	\$ 7.50

A fee will be charged for dishonored check or credit card transactions. Course fees vary and are published in the *Course Schedule* booklet each semester. *TUITION AND FEES ARE SUBJECT TO CHANGE THROUGH THE ACTION OF THE BOARD OF TRUSTEES.

Refund Policy for Semester-Length Courses

Fall and Spring Semesters and Summer Session

- Withdrawal during first week of semester 100% of tuition and fees
- Withdrawal during second week of semester 50% of tuition only
- Withdrawal after second week of semester No refund

Students receiving financial aid will receive refunds only if repayment to financial aid sources is not required.

Refunds are not retroactive to previous semesters. Questions relating to refunds should be addressed to the Cash Operation Office.

VARIABLE DATE COURSES

It is the student's responsibility to process all drops by the established deadline dates. To withdraw from class, the student must fill out a Variable Date Drop Form in the Office of the Registrar or through the department offering the course. Refunds are automatically issued for courses canceled by the College. The application and registration fees are nonrefundable.

UP TO AND INCLUDING THREE-DAY COURSES

100% Refund*	Prior to start of course
Drop with no course shown	Prior to start of course
	Students with a valid reason for exception to this policy may fax, mail, or present their support documentation to the Office of the Registrar or the department offering the course.
Change credit/audit status	Prior to end of course meeting

FOUR-DAY — LESS THAN EIGHT-WEEK COURSES

100% Refund*	Prior to start of course
Drop with no course shown	Prior to start of course
	Students with a valid reason for exception to this policy may fax, mail, or present their support documentation to the Office of the Registrar or the department offering the course.
Change credit/audit status:	Through midpoint of course (using calendar date—beginning through ending dates of course)

EIGHT-WEEK — LESS THAN 16-WEEK COURSES

100% Refund	During the first week of the course
50% Refund (of tuition only):	During the second week of the course
Drop with no course shown:	During the second week of the course
Change credit/audit status:	Prior to the end of the fourth week of the course

*The 100 percent refund period for variable date courses offered through the Business and Community Institute is 48 hours notice prior to the start of the course. Questions should be directed to the department offering the course.

STUDENT CREDIT REQUIREMENTS

Student credit requirements are as follows:

FALL AND SPRING SEMESTERS

Full-time enrollment	12 credits
Three-quarters enrollment	9 credits
One-half enrollment	6 credits

SUMMER SESSION (8 WEEKS)

Full-time enrollment	6 credits
Three-quarters enrollment	5 credits
One-half enrollment	3 credits

CANCELED CLASSES

The College reserves the right to cancel classes which do not have sufficient enrollment. Students enrolled in classes that are canceled will have the opportunity to add another class or receive a refund.

SCHEDULE CHANGES

During the schedule change period specified in the *Course Schedule*, a student may make changes in his or her schedule. A student may withdraw from a course before the end of the sixth week of the semester without academic penalty. Drops will not be processed after the last day of the semester.

Schedule changes involve the following procedures which must be completely carried out by the student so that the student's records in the Office of the Registrar may be accurately maintained:

1. Pick up a Drop-Add Form during the registration process or at the Office of the Registrar.
2. Fill out the form completely with information requested.
3. Return the form to the registration assistant or to the Office of the Registrar for proper recording. Do not leave until processing of the form has been completed and a copy has been received.

Departmental signatures and grade at time of drop are required on all drop forms after the sixth week of the semester.

REPEAT COURSES

When repeating a course, the highest grade earned will be used in computing the LCC cumulative grade point average. Both the repeated and repeating courses will appear on the academic record and be appropriately identified. An updated copy of the student's academic record will be mailed to the student when the repeat grade has been processed. A student must indicate that he or she is repeating a course when registering.

AUDITING

A student who desires to attend a class regularly, but does not wish to take final examinations or receive an achievement grade and credit, may register as an auditor. All students have the option of changing from "credit" to "audit" or from "audit" to "credit" through the end of the sixth week of the semester. Students electing to change from audit to credit are responsible for having course work up to date at the time the change is made and must have instructor approval after the first week of the semester. In addition, students should be aware that exercising this option may have an impact on their financial assistance or on student employment at the College. Any student balance due created by a change in credit or audit status must be paid by the student. Changes in audit or credit status must be requested by the student through the Office of the Registrar.

WITHDRAWAL**I. Student-Initiated Withdrawal**

- A. If a student finds it necessary to withdraw from the College, he or she should contact the Office of the Registrar immediately and complete a drop-add form.
- B. If the withdrawal takes place within the established refund period for each semester, a student withdrawing will receive a refund.
- C. If a student withdraws from a semester-length class prior to the end of the sixth week of the semester, a final grade is not issued and the withdrawn class is not recorded on the academic record. A copy of the student-initiated drop-add form is maintained in the Office of the Registrar.
- D. If a student withdraws from a semester-length class after the end of the sixth week of the semester, a grade is issued by the instructor at the time of the withdrawal. A grade will be placed on the final grade report and recorded on the academic record.

II. Administrative Withdrawal

It may be in the best interest of the student and/or the College community that a student be withdrawn from a class or a group of classes. This process is known as "administrative withdrawal."

An administrative withdrawal may be initiated by a classroom instructor in accordance with written procedures established by each department and with the co-recommendation of the respective departmental chairperson. An administrative withdrawal may be based on the following: (1) student nonattendance; (2) lack of prerequisites for a particular course; and/or (3) student behavior that interferes with the instructional process.

- A. When a student fails to meet the attendance requirements of the class, the instructor may initiate an administrative withdrawal through the Office of the Registrar.
- B. When a student does not have the prerequisites for a particular course, the classroom instructor consults with the student regarding the potential of administrative withdrawal. At this time, the instructor may recommend that the student withdraw from the particular course. If the student chooses not to withdraw, the instructor may initiate an administrative withdrawal through the Office of the Registrar.
- C. When a student behaves in a manner that interferes with the instructional process, the classroom instructor consults with the student regarding the potential of administrative withdrawal and establishes guidelines for retaining enrollment in the class. If the guidelines are not satisfactorily met by the student, or if the student does not respond to an invitation to meet with the classroom instructor, the classroom instructor, with the co-recommendation of the appropriate departmental chairperson, may initiate an administrative withdrawal. The classroom instructor, with the co-recommendation of the appropriate departmental chairperson, may also recommend that a member of the counseling staff meet with the instructor and the stu-

dent to review the circumstances of the student's behavior and to work out a possible alternative.

In all cases of administrative withdrawal, a student who is withdrawn from a semester-length class prior to the end of the sixth week of the semester will not receive a grade, and a record of attempting the class will not appear on the academic record. A copy of the administrative withdrawal form is maintained in the Office of the Registrar. A student who is withdrawn from a semester-length class after the end of the sixth week of the semester will be given a grade at the time of withdrawal.

Any student who is administratively withdrawn may appeal the withdrawal. Lines of appeal for administrative withdrawal are presented in the catalog in the section entitled *Due Process* under the heading entitled *Student Appeals*.

III. Procedure for Resolving Health-Related Student Problems

In a situation in which a serious (physical or emotional) health-related problem becomes evident in a student, the College's responsibilities are to assist the student and take necessary action to maintain order consistent with a positive learning environment for other students. If a student's health-related behavior becomes disruptive or clearly inappropriate, the following procedures shall be followed:

- A. Call the Department of Public Safety and the Office of the Dean of the Student and Academic Support Division if:
 1. Emergency health services are required, or
 2. It appears that there has been or is likely to be a violation of the law.
- B. Call only the Office of the Dean of Student and Academic Support if it appears that there has been a violation of a College regulation that is not also a violation of the law.
- C. If there is no apparent violation of the law or College regulation and no emergency exists, the student should be encouraged to seek help from an appropriate health or counseling office or agency, on or off campus. Assistance from the Office of the Dean of Student and Academic Support and/or College counselors should be sought if needed.
- D. If there appears to be a violation of the law or a College regulation, the Office of the Dean of Student and Academic Support (or designee) shall contact the counseling staff, and a member of the counseling staff will meet with the student and recommend:
 1. Continued counseling if the problem is within the ability of the Counseling Department to handle.
 2. Referral back to the Office of the Dean of Student and Academic Support when no health-related problem is evident or when it is determined that the Counseling Department can be of no further service.
 3. Referral to other appropriate professional assistance if the problem is beyond the ability of the Counseling Department to handle. If the problem significantly compromises the rights or safety of other persons at the College, or if a professional recommendation to withdraw the student is made, the Office of the Dean of Student and Academic Support may institute procedures for administrative withdrawal of the student from the College until he or she provides evidence from a licensed and appropriate health care professional stating that the student is able to function effectively with the stresses and demands of a College setting. The student may appeal the withdrawal decision to the Board of Appeals.
 4. Whenever possible, the counseling staff, working with the student's physician and/or relatives, shall make a recommendation to the student as to his or her future course of action.

ACADEMIC INFORMATION

ACADEMIC DEFINITIONS

The following are definitions of academic terms commonly used at Lansing Community College.

Associate Degree: The associate degree consists of a minimum of 60 semester credits in designated courses. It is earned with a minimum of a 2.0 cumulative GPA, successful completion of the LCC General Education Core, and is recorded on the official academic record. At least 20 semester credits must be earned in attendance at Lansing Community College.

Certificate of Achievement: The certificate of achievement consists of a minimum of 30 specifically designated semester credits in occupational areas. It is

earned with a minimum of a 2.0 cumulative GPA and is recorded on the official academic record. At least 10 semester credits must be earned in attendance at Lansing Community College.

Certificate of Completion: The certificate of completion consists of fewer than 30 specifically designated semester credits in occupational areas. It is earned with a minimum of a 2.0 cumulative GPA and is not recorded on the official academic record.

Credit Hour: A credit hour is an instructional unit carried out for the expressed purpose of eliciting some measure of educational change in a learner or group of learners. A credit can be awarded on a student's academic transcript when he or she successfully completes a unit of instruction of not fewer than 800 instructional minutes.

Course: A course is a sequence of planned learning experiences leading to a set of expected learning outcomes. Course activities are normally scheduled over an academic semester. A student's successful completion of a course earns academic credit based on contact hours in class or in laboratories. The student also earns an academic grade which evaluates the student's success in achieving the expected outcomes. A course routinely includes tests, quizzes, a final examination, and regular out-of-class assignments. At Lansing Community College, a standard college-wide course syllabus has been created for each course. A course is publicized in the *College Catalog* and the *Course Schedule*. A seminar, workshop, or fee-for-service learning/training unit is not a course.

Curriculum: A curriculum is a structured program of study. Each curriculum is assigned a number.

Major: A major is the predominant subject area within a curriculum.

Prerequisite: A prerequisite is a course or other requirement that must be successfully fulfilled prior to participation in a subsequent course or activity. It may also be a skill or behavior that is judged essential to learning a subsequent, more complex skill or behavior.

Program: A program is the organizational structure of the College which provides or delivers instruction and/or services.

GRADING SYSTEM

The following numerical system is used at Lansing Community College to evaluate academic work:

COLLEGE STANDARD	NARRATIVE EQUIVALENT	RECOMMENDED GUIDELINE FOR PERFORMANCE ACHIEVEMENT OF OBJECTIVES*
4.0	Excellent	91% to 100%
3.5		86% to 90%
3.0	Good	81% to 85%
2.5		76% to 80%
2.0	Satisfactory	71% to 75%
1.5		66% to 70%
1.0	Poor	60% to 65%
0.0	Failure	0% to 59%

* THIS GUIDELINE IS RECOMMENDED ONLY. STUDENTS SHOULD SEE THEIR INSTRUCTOR REGARDING THE GRADING SYSTEM USED FOR A SPECIFIC COURSE.

Instead of a numerical grade, students may receive an alphabetical letter for their course work if they have audited a course (X), withdrawn from a course (W), or did not complete course work (I). Specific regulations regarding these alphabetical letters are as follows:

1. In order to extend the College's commitment to student academic success, instructors may utilize "incompletes" ("I" grades) as temporary placeholders for grades. "Incompletes" will not be counted toward the establishment of an earned grade point average (GPA) or toward graduation from Lansing Community College. An instructor may assign an "I" when a student is unable to complete a course for some good and serious reason such as incapacitating illness, legal involvement that cannot be rescheduled, or changing work obligation, and the student has demonstrated successful progress in class.

An instructor may approve a student-initiated request for an incomplete if 80 percent of the course work is completed and the reason appears sound. It is recognized that the 80 percent figure is a benchmark, since weighting of exams and other work varies among programs and courses. The intent is that only a small portion of the work remains. When an instructor issues an "I" grade, the instructor will also indicate what grade should be assigned if no further work is completed. All incompletes must

be made up by the end of the next regular semester (Summer session is excluded) or earlier if an earlier date is established by the instructor or department. An extension may be granted if requested in writing by the student and approved by the instructor and department by the last day of the deadline; otherwise the "I" will be converted to the grade specified if no further work is completed.

- An "X" (audit) grade is given when a student chooses to audit a course. No credit is granted, but enrollment is reflected on the student's academic record.
- A "W" (withdrawal) indicates a withdrawal from a course with achievement in the course above the failure level at the time of withdrawal. If a request for withdrawal from a semester-length class is received by the Office of the Registrar prior to the end of the sixth week of the semester, no grade will be recorded on the student's academic record. For withdrawals after the sixth week of the semester, a final grade which is consistent with the course requirements will be assigned by the instructor.

COMPUTING GRADE POINT AVERAGE

A student's grade point average is determined on the following basis:

NUMERICAL GRADE	HONOR POINTS
4.0	4.0
3.5	3.5
3.0	3.0
2.5	2.5
2.0	2.0
1.5	1.5
1.0	1.0
0.0	0.0

"W", "X", and "I" grades are not included in calculating grade point averages. Thus, a student who receives five credit hours of 4.0, five credit hours of 3.0 and five credit hours of 2.0 would have a total of 45 honor points. To compute the grade point average (GPA), the number of honor points earned is divided by the number of credit hours taken during the semester.

CREDIT/NO-CREDIT GRADING (P-Z)

The credit (P)/no credit (Z) grading system has been established as a departmental option. This system is reserved for special course offerings where a credit/no-credit grading system is most appropriate for the goals and objectives of the course.

- Course prerequisites and other criteria for enrolling in courses offered on the P-Z grading system shall be determined by the department offering the course.
- Courses using the P-Z grading system will be published as being graded on the P-Z grading system only, and the course syllabus shall be explicit regarding this fact.
- Courses graded on the P-Z system may be counted toward an associate degree or certificate based on approval of the appropriate dean. A maximum of 10 percent of the total credits required for a degree or certificate may be acquired on the P-Z system.

Grading procedure of the credit/no-credit system is as follows:

- Grades on the P-Z system are not included in computing the semester or cumulative grade average.
- The grades granted on the P-Z system are determined with definition of P and Z as follows:
 - P (credit) represents a level of performance equivalent to a regular number grade of 2.0 or above on a 4.0 system; credit is granted.
 - Z (no credit) represents a level of performance less than a 2.0 on a 4.0 system; no credit is granted.

All courses attempted on the P-Z grading system will appear on the student's academic record.

GRADE REPORTS

An official academic grade report will be mailed to the student approximately 7 to 10 business days after the close of each semester. The grade report will be withheld if the student has an overdue indebtedness to the College.

GRADE CHANGES

Students may petition an instructor for a grade change of a final grade in a course. The line of formal appeal for grade change petitions can be found in the College's Due Process statement. A student's final grade in a course may be changed by the course instructor. Grade changes by instructors are initiated by submitting signed grade change forms to the departmental office for review and approval by the departmental chair or lead faculty member. The completed grade change form is then forwarded to the Office of the Registrar for posting on the student's permanent academic record. Completed grade change forms are not to be carried by the petitioning student to the Office of the Registrar and will not be processed if they are so received. Students will be officially notified in writing by the Office of the Registrar after a grade change has been completed.

ACADEMIC STANDING POLICIES

Table for Determining Academic Standing

Following is the table for determining your academic standing at Lansing Community College. To use this table do the following:

- On your grade report or academic transcript, locate your cumulative grade point average (GPA) and the total number of credits completed.
- Find your position in the left-hand column of the table according to your total number of credits.
- Read across the page to your right until you locate the column which includes your current cumulative grade point average (GPA). This column heading indicates whether you are in the Good Standing Range, the Warning Range, or the Withdrawal Range.

Definitions of the various academic ranges at Lansing Community College are listed immediately after the table. Please refer to these definitions for an explanation of your academic status.

NOTE: Students in certain selective admission programs may be placed on program probation or receive academic warning for deficiencies in their clinical performance even though the student's cumulative GPA may be within the overall College's Good Standing Range.

ACADEMIC STATUS

SEMESTER CREDITS COMPLETED	GOOD STANDING CUMULATIVE GPA	WARNING RANGE CUMULATIVE GPA	WITHDRAWAL RANGE CUMULATIVE GPA
1-7	1.88 and above	1.00 - 1.87	0.99 or less
8	1.89 "	1.01 - 1.88	1.00 "
9	1.89 "	1.04 - 1.88	1.03 "
10	1.90 "	1.06 - 1.89	1.05 "
11	1.90 "	1.09 - 1.89	1.08 "
12	1.91 "	1.11 - 1.90	1.10 "
13	1.91 "	1.14 - 1.90	1.13 "
14	1.92 "	1.16 - 1.91	1.15 "
15	1.92 "	1.18 - 1.91	1.17 "
16	1.93 "	1.21 - 1.92	1.20 "
17	1.93 "	1.23 - 1.92	1.22 "
18	1.94 "	1.26 - 1.93	1.25 "
19	1.94 "	1.28 - 1.93	1.27 "
20	1.95 "	1.30 - 1.94	1.29 "
21	1.95 "	1.33 - 1.94	1.32 "
22	1.96 "	1.35 - 1.95	1.34 "
23	1.96 "	1.38 - 1.95	1.37 "
24	1.97 "	1.40 - 1.96	1.39 "
25	1.97 "	1.42 - 1.96	1.41 "
26	1.98 "	1.45 - 1.97	1.44 "
27	1.98 "	1.47 - 1.97	1.46 "
28	1.99 "	1.50 - 1.98	1.49 "
29	1.99 "	1.52 - 1.98	1.51 "
30	2.00 "	1.54 - 1.99	1.53 "
31	2.00 "	1.57 - 1.99	1.56 "
32	2.00 "	1.59 - 1.99	1.58 "
33	2.00 "	1.62 - 1.99	1.61 "
34	2.00 "	1.64 - 1.99	1.63 "
35	2.00 "	1.66 - 1.99	1.65 "
36	2.00 "	1.69 - 1.99	1.68 "

37	2.00	"	1.71 - 1.99	1.70	"
38	2.00	"	1.74 - 1.99	1.73	"
39	2.00	"	1.76 - 1.99	1.75	"
40	2.00	"	1.78 - 1.99	1.77	"
41	2.00	"	1.81 - 1.99	1.80	"
42	2.00	"	1.83 - 1.99	1.82	"
43	2.00	"	1.86 - 1.99	1.85	"
44	2.00	"	1.88 - 1.99	1.87	"
45	2.00	"	1.90 - 1.99	1.89	"
46	2.00	"	1.93 - 1.99	1.92	"
47	2.00	"	1.95 - 1.99	1.94	"
48	2.00	"	1.97 - 1.99	1.96	"
49	2.00	"	1.97 - 1.99	1.96	"
50	2.00	"	1.97 - 1.99	1.96	"
51	2.00	"	1.97 - 1.99	1.96	"
52	2.00	"	1.97 - 1.99	1.96	"
53	2.00	"	1.97 - 1.99	1.96	"
54	2.00	"	1.97 - 1.99	1.96	"
55	2.00	"	1.97 - 1.99	1.96	"
56	2.00	"	1.97 - 1.99	1.96	"
57	2.00	"	1.97 - 1.99	1.96	"
58	2.00	"	1.97 - 1.99	1.96	"
59	2.00	"	1.97 - 1.99	1.96	"
60+	2.00	"	1.97 - 1.99	1.96	"

Satisfactory Progress

Good Standing Range: A student whose cumulative grade point average is in the Good Standing Range is making satisfactory academic progress.

Warning Range: A student whose cumulative grade point average is in the Warning Range is making minimum satisfactory academic progress. This student is strongly advised to consult with the course instructor or department chair or lead faculty member, see a counselor, or request a tutor. Information about services to support student learning is available in *The Student's Handbook*.

NOTE: Veterans' benefits recipients and students receiving financial aid should refer to the *Financial Aid Information* section of this catalog for additional information regarding academic progress.

Unsatisfactory Progress

Withdrawal Range: The academic progress of students is monitored each semester by the College using the Table for Determining Academic Standing. Students who fail to meet the academic standards of the College, that is, when their cumulative grade point average falls into the withdrawal range, may be academically dismissed for at least one semester before being considered for readmission. For further information, contact the Counseling Services Department at (517) 483-1184.

STUDENT RECORDS

STUDENT TRANSCRIPTS

The Office of the Registrar maintains the permanent official transcript of every student who attends the College. The transcript is a copy of the student's academic record and contains the College seal and signature of the Registrar. The transcript includes courses waived, courses attempted and completed, courses and credits transferred, credits awarded for experiential learning, credit hours, honor points, Lansing Community College grade point average, associate degrees, and certificates of achievement awarded at the College.

Students may request that a copy of their official transcript be given or mailed to any party by submitting a request in writing to the Office of the Registrar. Transcript requests require two working days to process, and a \$2.00 fee is charged for each transcript. A hold may be applied to the release of the transcript of any student or former student who has an indebtedness to the College.

RECORDS POLICY

Lansing Community College shall not distribute student lists to non-college agencies except as required by law.

In compliance with the Family Educational Rights and Privacy Act of 1974, Lansing Community College provides the following information.

1. Students and/or a parent of a student, if the student is a dependent, have the right to access, inspect, and review all educational records directly related to the student. Upon presentation of pictured identification and a written request from the student to the Office of the Registrar in Room 104 of the Student Personnel Services Building, access to all educational records shall be provided within a reasonable period of time (not to exceed 45 days from the date the request is submitted).
2. Educational records include all information maintained by the College which is directly related to the student with the exception of:
 - a. Financial records of the student's parents.
 - b. Confidential letters of recommendation prior to January 1, 1975.
 - c. Confidential letters and recommendations associated with admissions, application for employment, or receipt of an honor or honorary recognition to which students have waived rights of inspection and review.
 - d. Educational records containing information about more than one student. However, the College must permit access to that part of the record which pertains only to the inquiring student.
 - e. Reports made by physicians, psychiatrists, or psychologists in connection with their treatment.
 - f. Records of instructional, supervisory, administrative, and certain educational personnel which are in the sole possession of the originator.
 - g. Records of the law enforcement unit of the College if compiled for law enforcement purposes.
 - h. Records which relate exclusively to individuals in their capacity as College employees.
3. Directory information may be released at the discretion of College officials for any student who has not submitted a completed Request to Prevent Disclosure of Directory Information form to the Office of the Registrar by the end of the first week of the semester. The disclosure prevention form remains in effect until the student provides a written release to the Office of the Registrar. Directory information includes, but is not limited to:
 - a. Name of student
 - b. Date of birth
 - c. Dates of attendance
 - d. Enrollment status
 - e. Awards, degrees, or certificates received
 - f. Participation in officially recognized activities
 - g. Sport, weight, and height of members of athletic teams
 - h. Previous educational agency or institution attended
 Copies of the Request to Prevent Disclosure of Directory Information form and the Family Educational Rights and Privacy Act are available upon request in the Office of the Registrar and the Office of the Dean of Student and Academic Support.
4. Lansing Community College prohibits the release of personally identifiable information other than directory information from educational records without the student's written consent. Exceptions to this statement are listed below:
 - a. Academic and administrative officials, staff, and persons who have entered into a partnership or contract with Lansing Community College and whom the College has determined to have legitimate educational interest.
 - b. Other educational institutions in which the student is enrolled or intends to enroll.
 - c. Individuals and organizations who provide financial aid or scholarships to the student.
 - d. Authorized representatives of the Comptroller General of the United States, the Secretary of the Department of Health and Human Services, the Department of Veterans Administration, the Department of Education, and administrative heads of state and federal educational agencies authorized by law.
 - e. Accrediting organizations to carry out their accrediting functions.
 - f. Appropriate authorities in compliance with judicial orders and pursuant to lawfully issued subpoenas. The student shall be notified of any such orders or subpoenas unless the subpoena or order prohibits notification by the College. The College shall comply with the subpoena ten (10) days after an attempt to notify the student of the request.
 - g. Appropriate parties in an emergency if knowledge of the information is necessary to protect the health or safety of the student or other individuals.
 - h. Parents who have established the student's status as a dependent according to Internal Revenue Code of 1954, Section 152.
 - i. An alleged victim of any crime of violence or the results of any disciplinary proceeding conducted by the College against the alleged perpetrator of the crime.

- j. Military recruiters for the purpose of federal military recruiting as stated in Public Law 104-206, Section 509(2).

Lansing Community College will maintain a record of each disclosure of identifiable information from the external individuals or agencies listed above. The record will be maintained in the Office of the Registrar and will include the date, the name and address of the requesting party, the information requested, and the reason for requesting the information. The College reserves the right to correct any error made on an academic record or evaluation and will notify the student in writing of any record or evaluation correction. Staff of the College are subject to the requirements of the Family Educational Rights and Privacy Act of 1974, as amended.

Students have the right to request correction or amendment of information on educational records that are inaccurate, misleading or which violate privacy rights. Due process procedures for requesting correction or amendment to educational records are stated in the *College Catalog under Student Appeals*.

Students who feel their rights under the Family Educational Rights and Privacy Act have been abridged may file complaints with the Family Policy and Regulations Office, U.S. Department of Education, Washington, D.C. 20202.

TRANSFER OF CREDITS

A student expecting to transfer to a four-year institution is advised to examine the current catalog of the college he or she expects to enter and to follow as closely as possible its recommendations for particular programs of study. More specific information about transferring credits may be obtained from a counselor.

ACCEPTANCE AND EVALUATION OF TRANSFER CREDITS FROM OTHER INSTITUTIONS OF HIGHER EDUCATION

Only official transcripts will be evaluated for transfer credit. The credit value of each of the courses will be determined by Lansing Community College. The College will accept as official transcripts only incoming transcripts that have appropriate signatures and official college seals and that are mailed directly to the Lansing Community College Admissions Office from an issuing institution. Transcripts or copies of transcripts carried by individuals may be used for academic advising or counseling, but transfer credits will NOT be posted to the Lansing Community College academic record from transcripts that are not received directly from the issuing institution. It is the function of the Admissions Office of the College to verify the official status of all incoming transcripts prior to the evaluation and posting of transfer credit. All transcripts submitted to LCC for evaluation become the property of LCC.

The following evaluation information applies to transcripts received from both accredited and non-accredited institutions of higher education. Additional evaluation information which applies to transcripts from non-accredited institutions may be found under the section entitled *Non-Accredited Institutions*.

Accredited and Non-Accredited Institutions

1. Freshman and sophomore level courses are accepted in transfer. Higher level credits are accepted if they correspond to a specific course at Lansing Community College. In most cases, an accepted course will be considered an equivalent of a corresponding Lansing Community College course or an elective credit. In cases where Lansing Community College does not have a department or area similar to the courses on incoming transcripts, no credit will be given.
2. Credits only, not grades, are transferred. When the overall grade point average of a transferring student is at or above a 2.0 on a 4.0 scale, the 1.0-1.5 or "D" grades will be accepted. Credits transferred in to specifically fulfill LCC General Education Core requirements and MACRAO requirements, however, must be graded 2.0 ("C") or higher. When the transferring overall grade point average is below 2.0 on a 4.0 scale, only courses graded 2.0 ("C") or higher will be accepted. With the exception of credits transferred in to fulfill LCC General Education Core requirements, the student may petition the departmental chairperson of his or her academic department to waive a degree or certificate course requirement(s) in which he or she has previously earned the 1.0-1.5 or "D." Waiver of a course requirement does not provide credit for a course. The departmental chairperson of the department concerned will notify the Office of the Registrar of waivers.
3. No evaluation is made when a student has received a two- or four-year degree from another institution. This may be done upon request, but it is

assumed that the student is pursuing an entirely different curriculum and will not need previous course work.

4. A student may request a change in the evaluation if he or she feels that a course description differs from the way in which it was evaluated. A determination on the evaluation will be made by the departmental chairperson in conjunction with the evaluation specialist in the Office of the Registrar. Verification of the change can be made through the Office of the Registrar.

Non-Accredited institutions

The following evaluation information applies to transcripts from non-accredited institutions:

1. The Office of the Registrar will forward a transcript from a non-accredited institution to the departmental chairperson of the department in which the student has enrolled.
2. The departmental chairperson has the following four prerogatives in evaluating transcripts issued by non-accredited institutions:
 - a. Credit may be granted with demonstration by the student of skills commensurate with the performance required for satisfactory completion of existing courses.
 - b. Credit may be granted upon review of the content, goals, and objectives of a particular course with determination of whether the course is on a par with existing courses of the College. It is the responsibility of the student to provide requested materials to enable proper evaluation.
 - c. Credit may be granted upon demonstration of proficiency in a particular existing course by a comprehensive examination.
 - d. Credit may not be granted.
3. The departmental chairperson will return the transcript to the Office of the Registrar and indicate in writing the credits granted and the course equivalency at Lansing Community College. The final transcript evaluation will have the signature of the appropriate divisional dean.
4. When two or more instructional departments are involved, the departmental chairperson of the department in which the student is enrolled will be responsible for consulting with the additional departmental chairpersons. When two or more departments are involved, the written reply to the Office of the Registrar will include the signatures of each respective departmental chairperson and the respective dean.
5. Credits from non-accredited institutions are evaluated by the departmental chairperson of the area in which the student enrolled. If the student changes his or her curriculum, he or she should notify the Office of the Registrar, because there may be a difference in the evaluation.

CREDIT FOR PREVIOUSLY ACQUIRED KNOWLEDGE AND LEARNING EXPERIENCE

Lansing Community College recognizes that learning outside of the classroom is valid. Therefore, the College assesses extra-institutional learning as part of its credentialing function. Any student who is currently enrolled at Lansing Community College may apply for experiential learning credit by obtaining an Experiential Learning Processing Form from the Office of the Registrar, Student and Academic Support Building, (517) 483-1266.

NOTE: Lansing Community College's decision to award credit for experiential learning does not obligate any other institution to accept such credits in transfer. Receiving institutions reserve the right to assess transcripts of incoming students and award credit as they see fit. Credits received by students that are based on experiential learning may not be used for financial aid or veteran's benefits eligibility. Some Lansing Community College courses are excluded from experiential learning consideration.

Lansing Community College does not accept the transfer of credit for experiential learning awarded at other institutions.

Application Procedures

Relevant aspects of personal and professional experience gained through actual job-related activities and special training experiences may be applied to an academic program at Lansing Community College. Learning experiences must directly relate to a specific course or courses required within a Lansing Community College program (curriculum) or the LCC General Associate Degree. These experiences must have been obtained from a nonacademic source or not otherwise be available for academic credit through the transfer process outlined earlier. The student will be asked to declare his or her program of study on the Experiential Learning Application.

Prior to payment of the processing fee and submitting a portfolio of supporting documents, the student is advised to review with the academic department in which credit is being sought the probability of credit being granted. Students must then submit the completed Experiential Learning Processing Form to the Office of the Registrar, including as much supporting documentation as possible. The student must also attest by his or her signature that the information submitted is true to the best of his or her knowledge. The processing fee must accompany submission of the form and portfolio. The processing fee is not refundable.

Upon completion of the portfolio assessment, a fee of the resident tuition rate per credit hour will be charged for those credits which are determined awardable and which apply to the student's program (curriculum). Fees are subject to change by the Board of Trustees without prior notice.

Documentation

All experiential learning must be documented by the student. The purpose of the documentation is to substantiate that a student's knowledge and/or experience equates to specific Lansing Community College courses. The documentation must therefore be arranged within the application portfolio on a course-by-course basis and should demonstrate knowledge and/or skill equivalent to at least 80 percent of the course objectives. Documentation may be defined as, but not limited to, complete job descriptions, copies of course materials and outlines, certificates, training reports, signed supervisory verifications and evaluations on letterhead, and any other descriptive information that may provide a clear understanding of a student's background and competencies. Lansing Community College requires certification that the work or training experience is the student's own. The portfolio containing the Experiential Learning Processing Form and all supporting documents will be retained by the College.

Assessment of Portfolio

The completed Experiential Learning Processing Form and portfolio of supporting documents will be forwarded by the Office of the Registrar to the appropriate divisional instructional leader. The instructional leader will assign the portfolio to an appropriate and impartial assessor for review and credit assessment. Assessors have the responsibility for evaluation and assignment of academic credit for experiential learning.

In the evaluation process, the assessor will verify the relevance of the information stated on the Experiential Learning Processing Form and the accompanying documentation as it equates to the courses requested. The authorization of credit must be stated in terms of equivalent courses that are offered by Lansing Community College.

Applicability of Credit

In determining whether it is appropriate to accept a student's experiential learning for credit, the major considerations should be the student's educational objective and extra-institutional learning achievement. The assessor will determine from documentation submitted the courses for which the student can be granted experiential learning credit. The student is responsible for determining how these courses may fit within their academic program (curriculum). Credit for experiential learning will be recorded on a student's official transcript on the basis of course-by-course equivalency and shall be prominently identified as credit for experiential learning. A maximum of 40 semester hours of experiential learning credit may be applied towards an LCC associate degree. (Twenty credits must be earned in attendance at Lansing Community College.)

Student Appeal Procedures

Students who believe the evaluation of their experiential learning is incorrect may file a written appeal to the dean of the division in which the experiential learning credit is being sought. Appeals must be received within six months from the date the credit application was assessed. In such instances, the dean will conduct a procedural review to ensure that the student has been treated in a fair and nondiscriminatory manner. The decision of the dean shall be final.

CREDIT BY EXAMINATION

Comprehensive Exams

A student may obtain credit for certain courses at the discretion of an instructor and department head by passing comprehensive examinations only during the

semester in which the student is enrolled. The procedure a student uses to obtain comprehensive examination credit is as follows:

1. The student picks up an application for credit by examination at the Office of the Registrar.
2. The student completes the required information on the application and takes the application to the department for instructor and departmental chairperson signatures of approval.
3. After obtaining the required signatures, the student returns the signed application to the Cashier's Office for payment of tuition.
4. The student will complete an examination for each course in which he or she hopes to receive credit.
5. An examination will not be given by the instructor until the student presents the appropriate payment receipt. No more than one examination will be given for a single payment.
6. The examination, after being evaluated by the instructor, will be maintained on file in the departmental office.
7. The Office of the Registrar will contact the department and request the grade which was earned upon completion of the examination. A grade will be recorded for each comprehensive examination given.
8. The student will receive an official notice of the grade earned at the end of the semester in which the examination was taken or when processing has been completed.

Other Examinations

Lansing Community College accepts credit based on results from the following examinations: College Level Examination Program (CLEP), Advanced Placement Examination (APE), and the Defense Activity for Non-Traditional Education Support (DANTES). Students in need of information about these examinations should contact the Registrar's Office.

GRADUATION REQUIREMENTS, CERTIFICATES, AND DEGREES

INSTITUTIONAL REQUIREMENTS FOR CERTIFICATES OF ACHIEVEMENT

Certificates of achievement are groups of designated courses in occupational areas. To receive a certificate of achievement from Lansing Community College, a student must meet the following institutional graduation requirements:

1. Complete a course of study approved by the College and consisting of a minimum of 30 semester credits, with no more than 10 percent of these credits acquired on the credit/no credit (P-Z) grading system. (See the *Degree and Certificate Programs* section of this catalog.)
2. Maintain a minimum grade point average of 2.0.
3. Earn toward graduation at least 10 semester credits in attendance at Lansing Community College.
4. File an application for graduation with the Office of the Registrar at least one semester preceding the semester of graduation.
5. Satisfy all general and specific requirements of Lansing Community College.

NOTE: Students seeking a certificate of achievement may not follow curricular guides which predate their first semester of enrollment.

INSTITUTIONAL REQUIREMENTS FOR ASSOCIATE DEGREES

To receive an associate degree from Lansing Community College, a student must meet the following institutional graduation requirements:

1. Complete a course of study approved by the College and consisting of a minimum of 60 semester credits, with no more than 10 percent of these credits acquired on the credit/no credit (P-Z) grading system. (See the *Degree and Certificate Programs* section of this catalog.)
2. Maintain a minimum grade point average of 2.0.
3. Earn toward graduation at least 20 semester credits in attendance at Lansing Community College.
4. Satisfy the College's General Education Core Area Requirements, including demonstrated competency in mathematics.

5. Satisfy all general and specific requirements of Lansing Community College.
6. File an application for graduation with the Office of the Registrar at least one semester preceding the semester of graduation.

NOTE: Students seeking an associate degree may not follow curricular guides which predate their first semester of enrollment. Students who were enrolled at Lansing Community College prior to fall 1996, and who are following an LCC curriculum guide with an expiration date of summer 2000 or before, are not required to satisfy the College's General Education Core Requirements. They must, however, complete a course in political science. POLS 120, American Political System, or POLS 121, State and Local Government, will satisfy this requirement for all degree programs with an expiration date of summer 2000 or before. (LABR 208, Labor Relations, will satisfy this requirement for certain programs only as indicated on specific curriculum guides.)

Those students who maintain a 3.75 or higher grade point average will be graduated *summa cum laude*; those who maintain a 3.50–3.74 grade point average will be graduated *magna cum laude*; those with a 3.25–3.49 will be graduated *cum laude*. Students must complete 40 semester credit hours of work at Lansing Community College to qualify for honors.

General requirements for associate degrees offered by Lansing Community College are presented below. (For specific degree requirements, see the *Degree and Certificate Programs* section of this catalog.)

Associate in Arts: This is primarily a transfer degree. It is designed for students who intend to transfer to a four-year institution to pursue a baccalaureate degree in such fields as liberal arts, education, humanities, or the social sciences. Requirements: 60–63 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, additional general education requirements, subject matter concentrations (humanities, for example), and institutional associate degree requirements.

Associate in Science: This is primarily a transfer degree. It is designed for students who intend to transfer to a four-year institution to pursue a baccalaureate degree in such fields as mathematics, engineering, or the sciences. Requirements: 60–63 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, additional general education requirements, subject matter concentrations (mathematics, for example), and institutional associate degree requirements.

Associate in Applied Arts: This degree is designed for students who seek education and the acquisition of skills needed to enter the job market or to advance their current careers. This degree includes a concentration of courses in fields such as the visual arts or the performing arts. Requirements: 60–72 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, specific career program requirements, and institutional associate degree requirements.

Associate in Applied Science: This degree is designed for students who seek education and the acquisition of skills needed to enter the job market or to advance in their current careers. This degree includes a concentration of courses in fields such as health care, manufacturing, and construction. Requirements: 60–72 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, specific career program requirements, and institutional associate degree requirements.

Associate in Business: This degree is designed for students who seek business education and the acquisition of business-related skills needed to enter the job market or to advance in their current careers. This degree includes a concentration of courses in areas such as marketing, management, and office administration. Requirements: 60–72 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, specific career program requirements in business-related areas (marketing, for example), and institutional associate degree requirements.

General Associate Degree: This degree is a customized program of study which should be approved by an advisor. It includes one or more areas of concentration of the student's own choosing. Requirements: 60 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, and institutional associate degree requirements.

LCC GENERAL EDUCATION REQUIREMENTS

In order to meet the needs of life-long learners in a constantly changing world, Lansing Community College believes that a common core of skills, knowledge, understanding, and reasoning is indispensable for all students granted an associate degree. This background is essential to every person as a productive worker

and citizen and is a foundation upon which an individual can build a life-long pursuit of knowledge and education. In keeping with these beliefs, the College has established General Education Core requirements in the areas of mathematics, global perspectives and diversity, science and technology, speech communication, and writing for students seeking an LCC associate degree. The student outcomes expected for each of the Core areas are presented below.

1. Mathematics

- Use the strategies of arithmetic, geometry, and algebra to solve problems which include the concepts of length, area, volume, angle, percent, ratio, and proportion.
- Use and interpret expressions involving symbols in one and two variables which include parentheses, exponents, and radicals.
- Use, interpret, and produce graphs in one or two variables.

2. Global Perspectives and Diversity

- Describe and analyze the ways in which different world societies/civilizations establish social, political, and economic order and the effect of these on individuals and societies/civilizations.
- Describe and analyze the ways in which different world societies/civilizations view themselves.
- Describe and analyze how different world societies/civilizations have searched for truth, justice, and an understanding of what it means to be human.
- Describe and analyze how the major concepts within world societies/civilizations have resulted in peaceful and/or violent solutions to conflicts.
- Describe and analyze how major ideas, issues, values, institutions, in world societies/civilizations have shaped cultures and the effect these have on individuals.
- Describe and analyze how the United States includes and/or excludes diverse perspectives of different gender and ethnic groups.
- Describe and analyze how the arts reflect the major social, political, and individual concerns of world societies/civilizations.

3. Science and Technology

- Exhibit basic knowledge of the nature, scope, purposes, and limitations of science and technology, as well as the connections between them.
- Demonstrate ability to gather, analyze, interpret, and draw conclusions from scientific and/or technical information.
- Understand and apply methods of science and technology by demonstrating appropriate experimental, problem-solving, and decision-making skills in a scientific and/or technological context.
- Understand the historical role, contemporary importance, and social and ethical implications of science and technology.
- Evaluate the impact of scientific and/or technological change on, for example, occupations; world, national and regional economies; business, industry, and social institutions.

4. Speech Communication

- Define and explain the nature and components of the communication process.
- Use language and nonverbal behavior to express ideas and feelings clearly and responsibly in interpersonal encounters.
- Participate constructively in group discussions as a leader or member.
- Research, prepare, and deliver public speeches effectively.
- Listen, with both literal and critical comprehension, to spoken messages in a variety of communication situations.

5. Writing

- Understand, analyze, and synthesize abstract concepts and concrete principles and information.
- Properly locate, incorporate, and attribute sources of information.
- Conform to conventions of grammar, punctuation, spelling, and diction, as appropriate to the purpose of the writing.
- Produce effective writings, including summaries, reports, and analyses.

HOW STUDENTS CAN SATISFY LCC GENERAL EDUCATION CORE REQUIREMENTS

As of fall 1996, all new students, and any previously enrolled students following an LCC curriculum guide with an expiration date of summer 2001 or beyond, must fulfill LCC General Education Core requirements in order to be awarded an associate degree. The ways in which students can satisfy these requirements are presented below. Because these may be revised each academic year, students should consult an academic advisor or the most recent edition of the *College Catalog* to stay informed of current options for satisfying Core requirements. Students should also be aware that not all courses that satisfy the LCC Core transfer to all institutions. Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

How to Satisfy the General Education Core Requirements for Mathematics

To satisfy the General Education Core requirements for mathematics, a student must demonstrate mathematics competency. This can be done in any of the following ways:

1. Passing the MATH 112 Proficiency Examination with the equivalent of a 2.0 grade or higher. (This exam is administered free of charge in the Learning Center, Room 309, Arts and Sciences Building. It may be taken up to two times for purposes of satisfying the Mathematics Core.)
2. Achieving a grade of 2.0 or better in one of the following approved Mathematics Core courses:

MATH 112	Intermediate Algebra	(4)
MATH 115	Technical Math II	(4)
MATH 117	Math for Business	(4)

(Descriptions of these courses can be found in the *Course Descriptions* section of this catalog.)
3. Achieving a grade of 2.0 or better in any of the following non-Core mathematics courses:

MATH 121	College Algebra I	(4)
MATH 126	College Algebra and Trigonometry	(5)
MATH 141	Calculus with Applications	(3)
MATH 151	Calculus I	(4)
MATH 152	Calculus II	(4)
MATH 201	Math for Liberal Arts	(3)
MATH 253	Calculus III	(4)
MATH 254	Introduction to Differential Equations	(3)
MATH 260	Linear Algebra	(3)

(NOTE: Achieving a grade of 2.0 or higher in one of these courses implicitly demonstrates competency. Descriptions of these courses can be found in the *Course Descriptions* section of this catalog.)

4. Establishing credit for an approved Mathematics Core course listed in #2 above or a non-Core mathematics course listed in #3 above through the Experiential Learning Process. (See section entitled *Credit for Previously Acquired Knowledge and Learning Experience* in this catalog.)
5. Transferring comparable course credit—general credit does not apply—for an approved Mathematics Core course listed in #2 above or a non-Core mathematics course listed in #3 above from an accredited institution. (See section entitled *Acceptance and Evaluation of Transfer Credits from Other Institutions of Higher Education* in this catalog.)
6. Establishing course credit for an approved Mathematics Core course listed in #2 above or a non-Core mathematics course listed in #3 above through the Advanced Placement Examination (APE), the College Level Examination Program (CLEP), the Defense Activity for Non-Traditional Education Support (DANTES), or others as recognized by Lansing Community College.
7. Presenting evidence of an earned baccalaureate degree from an accredited college or university. This would fulfill all General Education Core requirements.

How to Satisfy the General Education Core Requirements for Global Perspectives and Diversity, Science and Technology, Speech Communication, and Writing

Students can satisfy the General Education Core requirements for the areas of global perspectives and diversity, science and technology, speech communication, and writing in any of the following ways (a minimum of three credits is required for each of the areas):

1. Achieving a grade of 2.0 or higher in an approved Core course (credits in parentheses):

a. Global Perspectives and Diversity

ENGL 211	World Literature I	(4)
ENGL 212	World Literature II	(4)
HUMS 211	History of Art I	(4)
HUMS 212	History of Art II	(4)
HUMS 213	World Civilizations I	(4)
HUMS 214	World Civilizations II	(4)
MGMT 234	Diversity in the Workplace— A Domestic and Global Perspective	(3)
OADM 275	Cultural Differences in Business	(3)
PHIL 211	World Philosophies I	(4)
PHIL 212	World Philosophies II	(4)
POLS 260	Comparative Political Systems	(3)
SOCL 120	Introduction to Sociology	(4)

b. Science and Technology

ASTR 201	Introductory Astronomy	(4)
BIOL 210	Natural Resource Conservation	(4)
CHEM 135	Chemistry In Society	(4)
CHEM 151/161	General Chemistry Lecture I and Laboratory I	(4/1)
CISB 200	Information Systems Technology and Problem Solving	(3)
ISCI 121	Integrated Science for Education I	(4)
ISCI 131	Integrated Science-Physical: The Science of the Water Planet	(4)
METR 220	Introduction to Meteorology	(4)
PHGY 202	Human Physiology	(4)
PHYS 215/225	Physics I: Mechanics and Laboratory	(5/1)

c. Speech Communication

SPCH 110	Oral Communication in the Workplace	(3)
SPCH 120	Dynamics of Communication	(3)

d. Writing

ENGL 122	Writing about Literature and Ideas	(4)
ENGL 132	Honors Writing about Literature and Ideas	(4)
WRIT 121	Composition I	(4)
WRIT 122	Composition II	(4)
WRIT 124	Technical Writing	(3)
WRIT 127	Business Communications	(3)
WRIT 131	Honors Composition I	(4)
WRIT 132	Honors Composition II	(4)

Descriptions for each of the above courses can be found in the *Course Descriptions* section of this catalog.

2. Passing a Comprehensive Examination for an approved Core area course listed in #1 above in cases where such exams are available. Upon successfully completing the exam, a student would receive LCC credit for the course. The student is also required to pay tuition for the course prior to taking the exam. (See the section entitled *Credit by Examination* in this catalog.)
3. Establishing credit for an approved Core course listed in #1 above through the Experiential Learning Process. (See section entitled *Credit for Previously Acquired Knowledge and Learning Experience* in this catalog.)
4. Transferring comparable course credit—general credit does not apply—for an approved Core course listed in #1 above from an accredited institution. (See section entitled *Acceptance and Evaluation of Transfer Credits from Other Institutions of Higher Education* in this catalog.)
5. Establishing Core course credit for courses listed in #1 above through the Advanced Placement Examination (APE), the College Level Examination Program (CLEP), the Defense Activity for Non-Traditional Education Support (DANTES), or others as recognized by Lansing Community College.
6. For global perspectives and diversity, writing, and science and technology, presenting evidence of satisfying MACRAO requirements at an accredited college or university other than LCC, provided the student has earned a 2.0 or higher for each course. (Note: This does not satisfy the speech communication requirement.)

7. Presenting evidence of an earned baccalaureate degree from an accredited college or university. This would fulfill all General Education Core requirements.

If a student has successfully completed an approved General Education Core course in any LCC curriculum, the student will have met that Core area requirement even if he or she changes to another curriculum. However, in the newly chosen curriculum, the student may need to take a *required* course that satisfies a Core area requirement that he or she has already fulfilled.

The following do NOT satisfy or waive LCC General Education requirements: evidence of an earned associate degree or certificate, placement test scores, a waiver of a specific Core course, completion of higher-level courses that are not approved Core courses (with the exception of mathematics), combinations and/or portions of courses.

HOW TO APPLY FOR THE ASSOCIATE DEGREE OR CERTIFICATE OF ACHIEVEMENT

The student submits his or her Application for Diploma/Certificate to the Office of the Registrar. It is important that the student attach copies of any authorized course substitutions or waivers and a copy of the curricular guide he or she has been following to the application. Transition students must also attach a copy of the Curriculum Completion Plan form to the application.

1. If any requirements remain after initial review by the Office of the Registrar, the student will be sent a Degree Audit Report along with an unofficial copy of his or her transcript. Any exceptions to the courses listed on the audit report must be noted on the form by the student's departmental chairperson or authorized representative, stamped by the departmental office, and returned to the Office of the Registrar. A copy will be attached to the Application for Diploma/Certificate. The student will be responsible for completing the remaining courses unless a revised form is submitted to the Office of the Registrar.
2. If no requirements remain after the initial review, the student is sent a notification of status letter.

The application is held on file until the close of the current semester. Applications for students who do not successfully complete the requirements are held on file for up to one year. It is important that a student make application for his or her degree at least one semester in advance of graduation. The procedure outlined above may take a full semester to complete. Soon after the end of the semester, an official copy of the student's LCC transcript, noting the degree and date of completion, will be sent to the student. This transcript is official notification that all course requirements have been met. Diplomas are mailed within two months after the last day of the semester.

SEMESTER TRANSITION PROGRAM COMPLETION INFORMATION

In the fall of 1993, Lansing Community College changed from a quarter to a semester system. Students who first enrolled at the College for Fall Semester 1993 and thereafter are considered semester students.

Students who started degree or certificate programs at LCC prior to Fall Semester 1993 and are continuing their studies on the semester system are considered transition students. In order to complete college requirements or curriculum requirements for their declared major, transition students should meet with an academic advisor to complete a Curriculum Completion Plan.

PLEASE NOTE: All Curriculum Completion Plans must be approved by departmental chairpersons. All students must follow a semester curricular guide.

Lansing Community College curricular guides are valid for a period of five years. The inclusive dates are printed on each guide. All quarter-based curricular guides expired at the end of Summer Session 1997.

TRANSFER

Students planning to transfer to another institution should be aware that universities and colleges differ widely in the courses they accept for transfer. A student intending to transfer should follow the transfer curriculum guide of the institution to which he or she intends to enroll. Transfer guides are not LCC degree guides. In order to achieve maximum transferability of courses, students should consult with an academic advisor. (See the *Degree and Certificate Programs* section of this catalog for more information about transfer programs.)

REGULATION FOR THE GRANTING OF ADDITIONAL ASSOCIATE DEGREES

Any student who has received an associate degree from Lansing Community College or any other accredited community college may be awarded a second associate degree subject to the following stipulations:

1. For each additional associate degree, a minimum of 10 semester credit hours must be completed at LCC in the division in which the degree is sought, non-repetitive of previously earned credits. (NOTE: The institutional associate degree requirement of 20 credits earned at LCC must be met by those students not receiving their first degree at LCC.)
2. All requirements for an associate degree in either arts, applied arts, business, science, or applied science must be met.
3. The College's General Education Core requirements, including demonstrated competency in mathematics, must be satisfied.*
4. No additional degree will be granted in the same program or curriculum in which the first degree was earned.
5. An additional degree must be within a specific program or curriculum.
6. Exceptions to the above should be appealed to the office of the respective dean.

*Students who were enrolled at Lansing Community College prior to fall 1996, and who are following an LCC curriculum guide with an expiration date of summer 2000 or before, are not required to satisfy the College's General Education Core Requirements. They must, however, complete a course in political science. POLS 120, American Political System, or POLS 121, State and Local Government, will satisfy this requirement for all degree programs with an expiration date of summer 2000 or before. (LABR 208, Labor Relations, will satisfy this requirement for certain programs only as indicated on specific curriculum guides.)

REGULATION FOR GRANTING AN ASSOCIATE DEGREE WHEN THE STUDENT HAS AN EARNED BACHELOR'S DEGREE

A student who has earned a bachelor's degree from an accredited American college or university which has a general education requirement may be awarded an associate degree at Lansing Community College subject to the following requirements:

1. For each associate degree, a minimum of 10 semester credit hours must be completed at Lansing Community College in the division in which the associate degree is sought. The Lansing Community College cumulative grade point average must be at or above a 2.0 level.
2. All requirements for an associate degree in either arts, applied arts, business, science, or applied science must be met.
3. The College's General Education Core requirements are waived.*
4. The associate degree must be within a specific program or curriculum.
5. Exceptions to the above should be appealed to the office of the dean of the division in which the associate degree is sought.

*For students who were enrolled at LCC prior to fall 1996, and who are following an LCC curriculum guide with an expiration date of summer 2000 or before, the College's requirement of completing a political science course is waived.

ASSURANCE OF QUALITY

Lansing Community College offers assurance—a guarantee—to its students; prospective employers; and receiving transfer colleges, universities, and technical training institutions, that individuals who have earned LCC degrees or certificates are competent to perform in their areas of major study.

Transferring students who have earned an official Lansing Community College certificate or degree should be able to perform competently in the area in which they majored or specialized at Lansing Community College.

Non-transferring students who have earned an official Lansing Community College certificate or degree should be able to perform competently in the area in which they majored or specialized at Lansing Community College.

A Lansing Community College graduate may be permitted to retake a specified course or courses, when next offered, with no tuition or fee charge by submitting his or her request to the Office of the Registrar along with supporting documentation from the institution to which he or she has transferred or from his or her employer, whichever is appropriate.

Because unused skills and knowledge can decay rapidly, the assurances offered herein will be in effect for one year from the date the course or courses in question were taken at Lansing Community College.

STUDENT RIGHTS, RESPONSIBILITIES, AND CONDUCT

The College adheres to the principle that the campus climate provide for students maximum freedom and necessary order. In order to ensure this principle, the College has established procedures for the redress of grievances by the individuals accused in such proceedings. In addition, general rules and regulations have been established by the College to ensure the protection of student rights and the efficient operation of College programs. In cases of noncompliance with these regulations, the College will impose discipline which is consistent with the impact of the offense on the College community. The College also reserves the right to pursue criminal and/or civil action where warranted.

GENERAL RULES AND REGULATIONS

Assaults

Assault and/or battery, and threatening, attempting, or using physical force or intimidation against (a) any person on the College premises or at a College-sponsored function (athletic events, activities, etc.), or (b) any College student or employee in connection with the performance of his or her College duties, are prohibited. For the purpose of this regulation, assault is defined as an attempt or offer, with force and violence, to do corporal hurt to another, with apparent present means of carrying out the attempt. Battery is an injury which results from an assault. Battery is an injury, regardless of intent, actually done to a person by another in an angry, revengeful, rude, or insolent manner.

Assembly

No person or persons shall assemble in a manner which obstructs the free movement of persons about the campus or the free and normal use of College buildings and facilities, or prevents or obstructs the normal operations of the College.

Attendance

Students are expected to attend all sessions of each course in which they are enrolled. Failure to do so will result in academic penalty or withdrawal from the class. Absence for any reason, including illness or late registration, in no way relieves the student of the responsibility for completing all work in the course to the satisfaction of the instructor in charge. When a student receives a faculty-initiated notice of nonattendance, it is the student's responsibility to contact the instructor.

When a student cannot attend class due to illness or other extenuating reasons, the class instructor should be notified. This can be done by telephoning the departmental office in which the instructor is a member and leaving a message for that instructor.

Cheating

Each student is expected to be honest in his or her work. Cheating is dishonest. The term "cheating" includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or examinations; (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; or (3) the acquisition, without permission, of tests or other academic material belonging to a member of the College faculty or staff. Any interaction between students in a testing situation may be interpreted as cheating. Academic honesty is twofold on the part of the student: first, not to cheat, and second, not to enable others to cheat.

Computer Resources – Acceptable Use

The *LCC Acceptable Use Policy* describes the policies and guidelines for the use of the College's computer resources. Use of College-owned computer resources is a privilege extended by the College to students, employees, and other authorized users as a tool to promote the mission of the College. All users agree to be bound by the terms and conditions of the *LCC Acceptable Use Policy* at the time they complete an account application form. Copies of the *LCC Acceptable Use Policy* are available at the Library Circulation Desk and may also be accessed on the World Wide Web. The URL is <http://www.lansing.cc.mi.us/lccinfo/aup.html>

able Use Policy are available at the Library Circulation Desk and may also be accessed on the World Wide Web. The URL is <http://www.lansing.cc.mi.us/lccinfo/aup.html>

Conduct – Interim Due-Process Suspension

If a student's misconduct gives cause for belief that the physical or emotional safety of any member of the College community is threatened, or that any personal or public property is jeopardized, the student's right to be on campus can be immediately suspended. A suspension of this type, called an Interim Due Process Suspension, will take effect immediately upon direction of the dean of the division where the misconduct occurred and will last for no more than 10 days. A procedural due process hearing with proper notifications will be established during this 10-day period. (See section entitled *Due Process*.)

Disclosure of Health Concerns

Lansing Community College takes appropriate and reasonable precautions to protect the health and safety of students in the classroom. However, some courses may require students to work with chemicals and/or equipment which may be hazardous to some students, such as those with certain medical conditions. Students should inform instructors of any special health-related conditions which may be negatively affected by instructional materials or equipment used in the classroom. Students with special health concerns are strongly encouraged to raise any questions about such matters prior to their enrolling in a class.

Dress

Students are expected to dress in an appropriate fashion, having in mind the activity in which they are engaged, while on College property and when attending College-sponsored events. Specific attire, not limited to but including appropriate footwear, safety glasses, safety hats, shields and aprons, may be required when the health and safety of the individual student or other members of the College community are to be protected.

Drug and Alcohol Regulations

In recognition of (1) the serious health risks associated with the illegal use of controlled substances and (2) the abuse of alcohol, and in conformance with the Board of Trustees policies 4416 and 7820, as well as the Drug-Free Schools and Communities Act Amendments of 1989 (20 U.S.C. 3171, et seq.), the following regulations are effective immediately:

1. Students, employees, and guests may not manufacture, distribute, dispense, possess, or use alcoholic beverages on College premises.
2. Students, employees, and guests may not unlawfully possess, use, or distribute controlled substances and alcohol on College premises or when engaged in College activities such as conferences or field trips.
3. No College student activity funds will be used for the purpose of purchasing alcoholic beverages or controlled substances.
4. Being under the influence of alcohol or any controlled substance while on College premises or engaged in College activities is prohibited.
5. Students, employees, and guests are personally accountable for knowledge of federal, state, and local laws relating to alcoholic beverages and controlled substances, the minimum drinking age, transporting open containers of alcoholic beverages, and false representation of age by a minor.
6. As a condition of his or her employment, each employee of the College shall agree to abide by the terms contained within this policy. Violation of any of these terms by College employees may result in disciplinary action, up to and including termination. The College may require satisfactory participation in a substance or alcohol abuse assistance or rehabilitation program for an employee who violates any of the prohibitions listed above.
7. As a further condition of his or her employment, each employee of the College shall agree to notify the College of any criminal drug statute conviction for a violation occurring on College premises or while engaged in College activities, no later than five (5) days after such a conviction. Upon receiving notice of such conviction, the College shall take appropriate disciplinary action within thirty (30) days thereafter.
8. Violation of this regulation by students may result in disciplinary action up to and including expulsion from the College and referral for prosecution. A lack of legal conviction or relevant laws is not a defense in a charged violation of this regulation.
9. Guests on College premises are expected to follow the above requirements.

Failure to do so may result in a request to leave College property or College activities.

10. In the spirit of providing a safe, healthy and drug-free environment, the College will:
 - a. Continue to offer educational programs that support a drug-free campus and workplace as a normative social value;
 - b. Continue to offer opportunities for substance abuse counseling accessible by students and College employees;
 - c. Continue to make referrals to appropriate counseling professionals and/or agencies within the community to help students and employees who may benefit from such counseling;
 - d. Incorporate in classes throughout the curriculum, where appropriate, references and class-related assignments related to the medical, legal, social, and wellness issues inherent in a drug-free campus and workplace;
 - e. Distribute copies of this regulation to all new students and employees.
11. Substance abuse is a serious but treatable condition or disease that can lead to short-term or long-term physical and psychological consequences, including but not limited to dependence, damage to the nervous system, heart and respiratory conditions, and death.
12. A "controlled substance" is defined as one: 1) which is not legally obtainable; 2) which is being used in a manner different from that prescribed; or 3) which is legally obtainable but has not legally been obtained. (21 U.S.C.821.MCLA, 333.7101, et. seq.)
13. A "conviction" under this policy is defined as a defendant pleading guilty or no contest and/or a guilty finding by a court of law.

Examinations

Students are required to take examinations at the appointed time and place in order to receive credit for a course. Generally, examinations are given during the regularly scheduled class period during the last week of the semester.

Field Trips

Students participating in all college sponsored activities, including field trips and athletic events, must abide by all College rules. Student organization field trips must be planned, organized, and approved according to the Student Life Policies and Procedures for Student Organizations, and, where applicable, the parking and transportation services unit of the Public Safety Department. Organizations which function outside of these policies and procedures may be put on probation and suspended if appropriate.

Fighting

Fighting on College property is prohibited except for contests or exhibitions held or sponsored by the College or a recognized College organization.

Financial Responsibility

Students owing money to the College in respect to such matters as fees, loans, library fines, driving or parking penalties, etc., will be subject to disciplinary action if such accounts are not paid when due. In particular, it should be noted that if any accounts are outstanding at the end of an academic semester, the publication of the student's grade report and/or official transcripts will be delayed, and the student will not be permitted to register for a succeeding semester until such accounts are paid.

Games and Recreational Activities

Games of any kind may only be played in the recreational or athletic facilities which have been designated for such games. Applications for permission to play any game other than in an area designated for that purpose must be obtained from the Director of Student Life.

Guest Speakers

College regulations with respect to the participation of guest speakers are outlined in the Policy for Guest Speakers. The College requires orderly conduct, noninterference with College functions or activities, and identification of the sponsoring groups or individuals. Under no circumstances are members of the College community to be forced to be involuntary audiences.

Identification Cards

All Lansing Community College students are issued an identification card. Students are expected to show their I.D. card whenever they check out books at the College libraries, vote in student elections, etc., or when they are requested by a member of the faculty or staff of the College. Misuse of College identification to obtain privileges to which the student or to which others are not entitled under existing regulations is a College offense that may result in suspension or dismissal.

Laws

Students shall obey the laws enacted by federal, state, and local governments. It is appropriate that the students be aware of Act 26 of the Public Acts of 1970:

Sec. 1. A person is guilty of a misdemeanor, punishable by a fine of not more than \$500.00, or by incarceration in the county jail for not more than 30 days, or both:

1. When the chief administrative officer of a publicly owned and operated institution of higher education, or his or her designee, notifies the person that he or she is such an officer or designee and that the person is in violation of the properly promulgated rules of the institution; and
2. When the person is in fact in violation of such rules; and
3. When, thereafter, such officer or designee directs the person to vacate the premises, building, or other structure of the institution; and
4. When the person thereafter wilfully remains in or on such premises, building, or other structure; and
5. When, in so remaining therein or thereon, the person constitutes:
 - a. A clear and substantial risk of physical harm or injury to other persons or of damage to or destruction of the property of the institution, or
 - b. An unreasonable prevention or disruption of the customary and lawful functions of the institution, by occupying space necessary therefore or by use of force or by threat of force.

Sec. 2. A person is guilty of a misdemeanor, punishable by a fine of not less than \$200.00 and not more than \$1,000.00, or by incarceration in the county jail for not more than 90 days, or both, who enters on the premises, building, or other structure of a publicly owned and operated institution of higher education, with the intention to, and therein or thereon does in fact, constitute (a) a clear and substantial risk of physical harm or injury to other persons or of damage to or destruction of the property of the institution, or (b) an unreasonable prevention or disruption of the customary and lawful function of the institution, by occupying space necessary therefore or by use of force or by threat of force.

Sec. 3. This act shall take effect August 1, 1970.

Obstructing and Jostling

Obstructing or threatening to obstruct College property without authorization/permission from a College official is prohibited. (To obstruct is to impede free and uninterrupted passage, or free and uninterrupted use of College property). Jostling, or roughly crowding other persons on College property, is also prohibited.

Organizations

No student or student organization may use campus facilities, solicit funds, business, or support on the College campus unless such a student or student organization has been authorized by the Director of Student Life. Approval of College clubs and organizations must be in accordance with guidelines documented in the Student Life Office.

Pets

In order to protect the health and safety of the members of the College community and preserve order on the campus, no pets, including but not limited to, dogs, cats, birds, and rodents, shall be permitted within the buildings of Lansing Community College. This is not intended to exclude seeing eye dogs used by the visually impaired or animals designated for laboratory experimentation purposes.

Plagiarism

Each student is expected to be honest in his or her work. Plagiarism is dishonest. Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers and/or other academic materials.

Records

It is the responsibility of the student to give honest and complete replies to all questions included in application forms and other documents required by the College. Alteration, duplication, or falsification of a College document, form, or authorized signature is considered by the College to be an extremely serious offense and is subject to disciplinary action.

Smoking

In continuing compliance with the Michigan Clean Indoor Act, P.A. 198 of 1986, and in the interest of providing a safe and healthy environment for the College's students, employees, and visitors, smoking will not be permitted in Lansing Community College facilities.

Student Evaluation of Instructional Quality

Because students expect quality in their learning experiences, Lansing Community College provides opportunities for students to participate in the evaluation and improvement of instruction. These opportunities include the following:

1. Completing Student Evaluation Forms at the conclusion of each course. The forms are distributed by a person other than the instructor, and the instructor is not present at the time the students complete the forms.
2. Presenting suggestions regarding instructional quality to their instructors, their instructor's departmental chairperson or the instructor's divisional dean. These written or verbal suggestions are also reviewed by the College to improve instruction and assess instructional effectiveness.
3. Serving on various councils, boards, and committees of the College in order to provide input and student perspective in the development and evaluation of both instructional and support-service programs. These councils, boards, and committees are located in the various divisions of the College. Those students who have interest in serving on or contacting members of these bodies may contact the Student Life Office or the office of the dean in the appropriate divisions.

Specific questions regarding student participation in the evaluation of instruction may be directed to the Office of the Dean of Student and Academic Support for clarification or appropriate referral.

Vandalism/Theft

Property of the College, as well as that of individuals, should be respected. Vandalism or theft of any kind, the destruction or mutilation of computer or media resources, materials, equipment, buildings, or grounds of the College, is inconsistent with the objectives of the College and good citizenship and will result in disciplinary action.

Video Cassette

The federal copyright law, Title 17 of the United States Code, provides copyright protection of "original works of authorship," including "motion pictures and other audiovisual works." Thus, the use of video cassettes and films is restricted to private showings, and public showings are prohibited without the copyright owner's consent. Under the "fair use" limitation, copyrighted cassettes, motion pictures, and other audiovisual works may be used for purposes such as "teaching (including multiple copies for classroom use), scholarship, or research" without violation, and audiovisual materials purchased or rented by the College have the written consent of the copyright owners and, therefore, are legally appropriate for classroom use.

Weapons and Explosives

Illegal or unauthorized possession of firearms, explosives, other weapons, or dangerous chemicals is not permitted on College property. The foregoing shall not prohibit fencing foils and other athletic equipment intended for such use, nor shall it apply to persons holding concealed weapons permits and duly constituted police officers who are authorized by law to carry weapons.

CRIMINAL AND/OR CIVIL ACTIONS

When the actions or conduct of a student warrant the involvement of the Public Safety Department, a complaint report is initiated. Should a student ini-

tiate the complaint and the Public Safety Department is involved, a complaint report is taken.

A crime committed on the College campus is investigated and referred to the Ingham County Prosecutor's Office. The decision to prosecute is made by the Prosecutor's Office. This action is separate from the Due Process procedure of the College.

DUE PROCESS

Lansing Community College holds firm to the philosophy that matriculation in college does not deny any rights of citizenship to a student. At the same time, matriculation in college does not relieve a student of the essential responsibilities of citizenship. Thus, the College is constantly aware of the joint responsibilities, shared by the student body and the College, to uphold the principles of "due process" in all disciplinary action.

It is the College's intention to foster and promote an environment of cooperation among faculty, staff, and students. However, conflicts that require third party intervention sometimes exist. While there are formal processes for resolving conflicts, it is the goal of the College to achieve resolution as rapidly and as close to the origin of conflict as possible through mediation. To this end, the director of Student Relations and the Director of Equal Opportunity are empowered to mediate situations at their lowest level or to direct the parties involved to the person(s) or department(s) that can best mediate the occurrence. This mediation is predicated on the voluntary agreement of both parties. Matters that are considered too extreme may require immediate referral to the formal process.

Due Process is the guarantee of student civil rights under the Constitution of the United States and the laws and regulations of Michigan and Lansing Community College. Due Process is that process which prevents rights from being taken away from an individual without a fair hearing.

Student Appeals and Complaints

LCC students may initiate Due Process through established appeal and complaint procedures. In the appeal process, students may appeal disciplinary action or academic decisions. In the complaint process, students may lodge complaints regarding persons, policies, or procedures at the College. The Judicial Board will hear cases referred to it by administrative officers of the College or by individual students through the established appeal and complaint processes. The student has the right to request a public or private hearing, but the decision rests with the College, after considering the wishes of the parties involved.

Student Appeals

A "line of appeal" is defined as the appropriate sequence of communication to be followed when appealing a decision or action. An "appeal" is defined as a request to review a previous decision and/or the process used in reaching the decision. Before initiating the formal appeal process at the divisional level, students are encouraged to first meet with the initial decision-maker involved (the instructor, for example) to attempt to resolve issues in an informal manner. The following describes a recommended sequence of communication for resolving issues in an informal manner:

1. The student may speak with the person who initiated the decision or action in question and request a reconsideration.
2. If the student is not satisfied with the resolution proposed by the person who initiated the decision or action, he or she may speak with the head of the department in which the decision or action in question was initiated and request assistance in resolving this issue.
3. If the student is not satisfied with the resolution proposed by the head of the department, he or she may speak with the dean (or his or her designee) of the division in which the decision or action in question was initiated and request assistance in resolving the issue.
4. If the student is not satisfied with the resolution proposed by the dean or the dean's designee, he or she may speak with the Dean of Student and Academic Support (or his or her designee) and request assistance in resolving the issue.

If the student believes he or she is being treated unfairly at any point in the informal process, the student may begin the formal appeal process of the College. The line of formal appeal to be followed will depend upon the type of case involved. In all cases, students are required to state their appeal in writing at the time they begin the formal appeal process. The following describes the different types of cases and the appropriate lines of appeal to be used in each case.

1. Student Appeal of Disciplinary Action for Violation of General Rules and Regulations

When a student is accused of violating general rules and regulations of the College, except those involving academic rules and regulations, the procedures described below will be followed:

The student will receive written notification that an alleged violation has occurred. In the letter, the student will be directed to make an appointment with the appropriate College official to review the facts concerning the alleged violation in order to determine if formal charges should be prepared. In the event that the student fails to contact the appropriate College official within 10 (ten) class days of receiving written notification (excluding Saturday and Sunday), a "hold" will be placed on the student's record which will result in the student's enrollment being delayed.

If a decision is made to prepare formal charges, the student shall be notified by an appropriate College official that he or she is being accused of violating a regulation and that he or she may elect to do one of the following:

- The student may admit the alleged violation and request, in writing, that the administrative officer take whatever action seems necessary;
- The student may admit the alleged violation and request a hearing before the Judicial Board regarding the discipline imposed;
- The student may deny the alleged violation, in which case the administrative officer shall refer him or her to the Judicial Board.

When formally appealing a disciplinary action based on a violation of general rules and regulations of the College (explosives, alcoholic beverages, or mistreatment of college property, for example), the student shall use the following line of appeal:

- The Dean of the Student and Academic Support Division (or his or her designee);
- The Judicial Board of the College;
- The President (or his or her designee).

Examples of disciplinary action include the following:

- Reprimand
- Probation
- Restrictions on activities or privileges
- Requirements of restitution
- Denial or revocation of a College honor or degree
- Suspension
- Dismissal
- Permanent dismissal

NOTE: At each level of the appeal process, a student will have up to 10 (ten) calendar days (excluding Saturday and Sunday) to appeal a decision after notification of that decision at a prior level.

2. Student Academic Appeals (of Grades, of a Violation of Academic Rules and Regulations, or of Academic Disciplinary Action)

When formally appealing an academic decision or action—such as a grade, an academic charge based on a violation of the academic rules and regulations (cheating or plagiarism, for example), or an academic disciplinary action (loss of credit, for example)—the student shall use the following line of appeal:

- The dean of the division involved (or his or her designee)
- The Judicial Board of the College
- The President (or his or her designee)

NOTE: At each level of the appeal process, a student will have up to 10 (ten) calendar days (excluding Saturday and Sunday) to appeal a decision after notification of that decision at a prior level. When a student wishes to appeal a grade, he or she must do so by the end of the sixth week of the following semester or summer session.

3. Student Appeal of Administrative Withdrawal from Classes (for Nonattendance, Lack of Course Prerequisites, or Inappropriate Classroom Behavior)

Whenever the Office of the Registrar receives a recommendation for an administrative withdrawal, the Office of the Registrar will notify the student in writing that he or she is being administratively withdrawn. The lines of appeal for administrative withdrawal decisions are as follows:

- The dean of the division involved (or his or her designee)
- Judicial Board of the College
- President (or his or her designee)

NOTE: In cases of administrative withdrawal, a student will have up to 5 (five) calendar days (excluding Saturday and Sunday) to appeal a decision after notification of that decision at a prior level.

4. Student Appeal of Educational Records

Students have the right to request correction or amendment of information on educational records that are inaccurate, misleading, or which violate privacy rights or other rights as stated in the Family Education Rights and Privacy Act of 1974, as amended. The student shall use the following line of appeal:

- The director or leader of the department responsible for the record (or his or her designee)
- The dean of the division involved (or his or her designee)
- The Judicial Board of the College
- The President (or his or her designee)

If the request for correction or amendment of information is denied after the appeal process has been completed, the student may place a brief statement in the record commenting on the decision of the College.

NOTE: A student will have up to five (5) calendar days (excluding Saturday and Sunday) to appeal a decision after notification of that decision at a prior level.

Student Complaints

Before initiating the formal appeal process at the divisional level, students are encouraged to first meet with the initial decision-maker involved (the instructor, for example) to attempt to resolve issues in an informal manner. When a student wishes to lodge a formal complaint regarding a person—except in cases of sexual harassment/discrimination (which is found in this catalog under *Student and Staff Sexual Harassment and Discrimination*)—the student is encouraged to use the following line of appeal:

- The dean of the division involved (or his or her designee)
- The Judicial Board of the College
- The President (or his or her designee)

NOTE: At each level of the complaint process, a student will have up to 10 (ten) calendar days (excluding Saturday and Sunday) to appeal a decision after notification of that decision at a prior level.

Judicial Board

Due Process is the guarantee of student civil rights under the Constitution of the United States and the laws and regulations of Michigan and Lansing Community College. Due Process is that process which prevents rights from being taken away from an individual without a fair hearing. The student has the right to request a public or private hearing, but the decision rests with the College, after considering the wishes of the parties involved.

The Judicial Board shall hear the case and render a decision.

- Prior to a Judicial Board hearing, the student shall be entitled to the following:
 - Written notification of the time and place of the hearing;
 - A written statement of a decision rendered and/or charges so that the student may prepare his or her defense;
 - Written notification of the names of the witnesses directly responsible for having reported the alleged violation OR written notification of how the alleged violation came to the College's attention.
- In hearings involving more than one student, the Chairperson of the Judicial Board, in his or her discretion, may permit the hearings concerning each student to be conducted separately.
- The student shall be entitled to appear in person and present his or her defense to the Judicial Board and may call witnesses on his or her behalf. The student may waive the right to appear before the Judicial Board. Should he or she elect not to appear, the student shall be considered to have waived the right to appeal, and the decision at the prior level stands.
- The student shall be entitled to be accompanied by a person of his or her choice. If this person is in the form of legal counsel, the student must notify the Office of the Dean of the Student and Academic Support Division at least 10 (ten) days prior to the scheduled hearing date.
- The student has the right to be assisted by any advisor he or she chooses, at his or her own expense. The advisor may be an attorney. The student is responsible for presenting his or her own case and, therefore, advisors are not permitted to speak or to participate directly in any hearing before a Judicial Board.
- All procedural questions are subject to the final decision of the chairperson of the Judicial Board.
- Admission of any person to the hearing shall be at the discretion of the Chair of the Judicial Board.
- The student shall be entitled to an expeditious hearing of his or her case.

9. The student shall be entitled to receive the decision of the Judicial Board in writing.
10. The College shall make a record of the hearing. The record shall be the property of the College.
11. A student who wishes to contest the decision of the Judicial Board may request that the President of the College (or his or her designee) review the decision of the Judicial Board. The student must request this review within 10 (ten) scheduled class days (excluding Saturday and Sunday) of notification of the Judicial Board's decision. Decisions rendered by the President (or his or her designee) will be final.

The Judicial Board's determination shall be made on the basis of whether it is more likely than not that the earlier determination is appropriate. Decisions rendered by the Judicial Board will be made by a simple majority vote of the total membership of the Judicial Board. Decisions rendered by the Judicial Board will be final unless appealed to the President. In addition, the Judicial Board is empowered to make recommendations based on decisions rendered.

Membership of the Judicial Board

The Judicial Board will consist of the following members:

1. The Dean of the Student and Academic Support Division or his or her designee; (NOTE: This member will serve as chairperson. However, when the Judicial Board is hearing an appeal based on a disciplinary decision of the Office of the Dean of the Student and Academic Support Division, the Dean of the Student and Academic Support Division will relinquish the chair, and a temporary chairperson will be elected by the remaining members of the Judicial Board from the remaining members of the Judicial Board.)
2. One College administrator appointed by the Dean of the Student and Academic Support Division;
3. Two students from the student body, selected by the members of the Leadership Academy, with consent of the Director of Student Life. One alternate will be appointed in the same way to serve in the absence of any student member;
4. Two faculty members appointed by the dean of the division in which the decision or action in question was initiated, with one alternate faculty member appointed in the same way, to serve in absence of any faculty member.
5. In the event two or more divisions are involved, one faculty representative from each division and an equal number of student representatives will be in attendance.

Regulation Revisions and Additions

Lansing Community College reserves the right to change or add to the rules and regulations at any time.

STUDENT AND STAFF SEXUAL HARASSMENT, NONDISCRIMINATION, AND EQUAL OPPORTUNITY POLICY AND PROCEDURES

Lansing Community College is an equal educational opportunity institution and does not discriminate on the basis of race, color, sex, age, religion, national origin, disability, marital status, height, weight, or sexual orientation in any education opportunity. The investigation of all sexual harassment and/or discrimination complaints will be handled through the Office of Equal Opportunity and Diversity Programs.

Sexual harassment/discrimination is unlawful and is not acceptable behavior on the College campus or at College-sponsored events off campus.

Sexual harassment is defined in the Michigan Elliot-Larson Civil Rights Act (MIL.37.2101, et seq., as amended) as follows:

... Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct or communications of a sexual nature when:

1. Submission to such conduct or communication is made a term or condition, either explicitly or implicitly to obtain employment, public accommodations or public services, education or housing.
2. Submission to or rejection of such conduct or communication by an individual is used as a factor in decisions affecting such individual's employment, public accommodations or public services, education or housing.
3. Such conduct or communication has the purpose or effect of substantially interfering with an individual's employment, public accommodations or public services, education or housing environment."

What Constitutes Sexual Harassment?

Some examples that may constitute sexual harassment are:

- Subtle pressure for sexual activity
- Unnecessary physical brushes or touches
- Offensive sexual graffiti
- Repeated requests or pressure for dates
- Unwanted offensive contacts outside the workplace
- Disparaging sexual remarks about one's gender or sexual orientation
- Physical aggression such as pinching or patting
- Verbal sexual abuse disguised as fun
- Obscene gestures
- Offensive sexual jokes

These examples do not include all types of conduct that can constitute sexual harassment. Each situation must be considered in light of the specific facts and circumstances to determine if sexual harassment has occurred.

For the purpose of the above regulation, the College interprets "unwelcome" to mean:

1. Conduct or communication which a reasonable person in a similar circumstance would consider unwelcome;
2. Conduct or communication which continues after notice is given that the conduct or communication is unwelcome.

Other notable laws and public acts that prohibit discrimination include:

1. Title VII of the Civil Rights Act of 1964, as amended and the 1992 Civil Rights Act which prohibits discrimination on the basis of race, color, sex, religion, or national origin.
2. Title IX of the Education Amendment of 1972, which prohibits discrimination on the basis of sex.
3. Americans with Disability Act (ADA) which prohibits discrimination on the basis of disability.
4. Age Discrimination in Employment Act (ADEA) which prohibits discrimination on the basis of age, 40 and over.

FILING EO/DISCRIMINATION COMPLAINTS

The guidelines/procedures below apply to LCC students and staff who bring forth informal complaints or desire to file a formal complaint regarding sexual harassment/discrimination. The investigation of these complaints will be handled through the Office of Equal Opportunity and Diversity Programs, 103 North House, telephone number (517) 483-1858.

I. Responsibility to Report

Sexual harassment/discrimination must be reported to the Director of Equal Opportunity. Prompt reporting of all complaints is very critical, since it is often difficult to trace the facts of an incident or incidents long after they have occurred. It is recommended that complaints be filed within 60 (sixty) calendar days of the alleged incident. All complaints will be investigated.

II. Retaliation/Reprisal

It is unlawful for any individual (student or staff) to be subjected to retaliation and/or discrimination because he or she has opposed any practice, made a charge, testified, assisted or participated in an investigation/fact finding in any manner.

III. Receiving a Complaint

Students and staff who feel they are being sexually harassed or discriminated against should contact the Director of Equal Opportunity (517/483-1858). Complaint forms are available in the offices of College Human Resources, Divisional Deans, Vice Presidents and Equal Opportunity. Students and staff should not in-

investigate or discuss the complaint with others. Confidentiality should be maintained by all involved in the complaint to protect the creditability and integrity of the fact finding process.

After receiving a complaint, the Director of Equal Opportunity may investigate the complaint or designate a person or persons who have been trained to investigate the alleged complaint.

A. Functions of the Investigation Team

1. To help educate the Lansing Community College faculty, staff, and students about sexual harassment/discrimination.
2. To assist in the investigation of complaints of sexual harassment/discrimination brought by LCC students or employees.
3. To make recommendations for resolution and/or corrective action.

B. Timetable

An investigation will begin no later than 20 (twenty) working days following the receipt of the sexual harassment/discrimination complaint form or immediately following a request from the EO Officer.

C. Complainants

The EO Officer will contact the complainant and inform him or her when the investigation will occur. The complainant may be asked to submit additional information, if necessary, for the investigation to continue. An exit interview will be conducted with the complainant to review the results of the fact finding.

D. Notification

The EO Officer will inform the alleged harasser/discriminator of the complaint as soon as is practicable or if appropriate, within the timeliness specified within the designated Master Agreement. The divisional leader and immediate supervisor will also receive notification that an investigation is in progress. The results of the investigation will be reviewed with the alleged harasser/discriminator in the exit interview upon the completion of the fact finding.

E. Confidentiality

Students and/or staff who bring forth formal or informal complaints of discrimination/sexual harassment should maintain confidentiality throughout the entire complaint process. Sharing information pertaining to a complaint should be on a "need to know" basis only. *It should be noted, however, the College cannot guarantee confidentiality beyond the limits of the investigation.*

At each step of this procedure, the College will take appropriate action to protect the privacy of individuals involved in the complaint. Both in fact finding and in the final disposition of the complaint, efforts will be made to maintain confidentiality.

During the investigation stage, the College may have to contact witnesses or other individuals. This will not be considered a breach of confidentiality. All witnesses will be requested to maintain confidentiality in the fact finding process. Witnesses should understand that they may be called upon to testify in a civil hearing or an arbitration case at some future date.

IV. RESOLUTION

Based on the results of the investigation, appropriate action will be taken by the College. Complaints may be dismissed or resolution could include disciplinary action up to and including dismissal or expulsion.

If through an investigation of sexual harassment/discrimination other wrongdoings are found, these issues will be dealt with separately from the sexual harassment/discrimination complaint.

STUDENT LIFE PROCEDURES

POSTER REGULATIONS FOR STUDENTS AND STUDENT ORGANIZATIONS

Lansing Community College is continually sensitive to the fact that there is a need for students, staff, and offices to communicate regarding various activities, events, and services. The College is also sensitive to the right of freedom of expression, particularly as provided for in the First Amendment of the Constitution of the United States. At the same time, the College is responsible for providing reasonable procedures and regulations to protect public and private property, and

provide for the general safety and welfare of all members of the College community, and which preclude disruption of the normal functions of the College.

The following statements are designed to regulate the use of posters within the College facilities while providing students, College personnel, and College properties reasonable protection from commercial exploitation and court suits. While the courts have said that College property is considered a "public trust," these same courts have ruled that College property is not "public property" subject to unregulated use by any and all individuals. This regulation is designed to facilitate communication through the use of posters while complying with the legislated instructional mission of the College.

DEFINITION: A poster is any written communication designed to apply to a wall or other surface for the purpose of relating information about an event, service, idea, or activity. A poster may be in the format of, but not limited to, a sign, an announcement, or banner.

General Poster Regulations

1. Within any and all buildings, placement of all signs and posters is restricted to approved bulletin boards.
2. Each poster must identify the sponsoring organization, department, or individual (no abbreviations). Each poster must display a telephone number or an office location where more complete information can be obtained.
3. Each poster is required to have in the lower left-hand corner, its posting date (month, day, and year) and in the lower right-hand corner, its date (month, day, and year) to be removed. Each poster should be up for a reasonable length of time depending upon the activity.
4. Designated bulletin boards are available in each building for the posting of student and staff personal notices. All student and staff personal notices will be confined to these designated bulletin boards.
5. A poster shall not exceed 18 inches by 24 inches.
6. No poster shall be placed in such a way that it covers all or part of a previously posted approved poster whose take-down date has not expired.
7. The removal of posters at or prior to the take-down date shall be the responsibility of the sponsoring organization or individual. No posters shall be removed prior to the take-down date by unauthorized individuals.
8. Lansing Community College respects the constitutional rights of freedom of expression. There are, however, responsibilities which are attendant to the exercising of these constitutional rights. The following statement is made to provide an operational balance between the rights and responsibilities of the freedom of expression regarding the contents of posters: The content of posters shall avoid the liabilities of libel, obscenity; invasion of privacy; and incitement of disorder, violence, and disruption of the normal operation of the College.
9. Students and student organizations wanting to post posters must gain approval in the Office of Student Life for compliance with general regulations.
10. College staff and faculty must gain approval in their departmental office or from the office of their administrative supervisor.
11. Student and College staff personal notices placed in designated bulletin boards within the College buildings do not need approval. Examples of personal notices are selling used books, sharing a ride, sharing an apartment, and selling personal articles. Profit-making commercial notices are not considered personal and will be removed.

Student or Student Organization Appeal of Poster Denial or Removal

If a student or student organization feels that a denial of posting or removal of a poster infringes upon their First Amendment rights or is in violation of this regulation, an informal appeal may be made by the poster sponsor to the Director of Student Life. A meeting will be held between the appealing poster sponsor or sponsors with the Director of Student Life to discuss the appeal. If the appeal is not resolved, a formal appeal may be presented to the Director of Student Relations. This appeal must be in writing, must indicate the reason(s) for the appeal, and must be dated and signed by the appealing party. The Director of Student Relations will gather information and respond to the appealing party within five (5) days of receipt of the appeal. If the student or student organization is not satisfied with the response of the Director of Student Relations, a second written appeal may be made to the Dean of Student and Academic Support Division. This written appeal must contain the reason(s) for the appeal, and a copy of the poster must be made available to the Dean of Student and Academic Support Division for review. The appeal to the Dean of Student and Academic Support Division must be dated and signed by the appealing party. The Dean of Student and Academic

Support Division will gather information and respond to the appealing party within five (5) days of receipt of the appeal, giving the decision rendered and reason(s) therefore. The decision of the Dean of Student and Academic Support Division shall be final.

Failure to comply with the above regulations will lead to the denial of approval, the removal of posters, and/or disciplinary action. In order to protect the student body, individual members of the College community and the resources of the College, the College reserves the right and accepts the responsibility to deny approval or remove any poster or posters which it believes to cause significant disruption of the normal function and operation of the College.

Poster Regulations for Off-Campus Organizations and Individuals

Lansing Community College is sensitive to the fact that there is a need for some off-campus organizations and individuals involved in non-commercial enterprises to communicate with Lansing Community College students and staff members concerning various activities, events, and services. The College is also sensitive to the right of expression, particularly as provided for in the First Amendment of the Constitution of the United States. At the same time, the College is responsible for providing reasonable procedures and regulations to protect public and private property and providing for the general safety, welfare, and positive learning environment for all members of the College community.

Therefore, the College has provided a kiosk, centrally located on the downtown campus, for the use of noncommercial groups and individuals who are not affiliated with the College. Such groups and individuals may place their posters on this kiosk without seeking prior approval from any College office, and the College disclaims any and all responsibility for items posted.

REGULATIONS FOR USE OF STUDENT LITERATURE TABLE

Lansing Community College is continually aware of and supportive of the concepts of freedom of expression, particularly those provided by the First Amendment of the Constitution of the United States. The College also perceives that one of its functions is to provide a wide range of learning experiences and learning opportunities for the students of the College. At the same time, the College is mandated to provide orderly processes which avoid material disruption, protect public and private property, and provide for the general safety and welfare of students, faculty, and College staff.

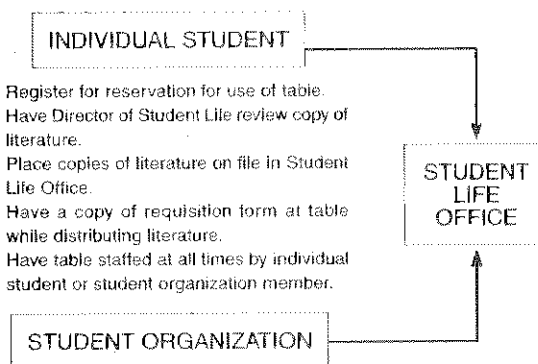
The following statements are designed to facilitate student distribution of literature within the College facilities, while providing students and College personnel and property reasonable protection from commercial exploitation and legal actions. Court rulings have determined that College buildings, while considered a public trust, are not considered public property subject to unregulated use by any and all individuals. The procedural regulations below are designed to facilitate the legislated instructional mission of the College to serve the citizens of the College community. The following procedural regulations shall be followed:

- The distribution of literature within College buildings by students shall be limited to student literature tables made available for such distribution. Student literature tables will be made available in the following areas within the College buildings:
 - In the entry lobby outside the second floor cafeteria of the Arts and Sciences Building.
 - In the the second floor lobby of the Gannon Vocational-Technical Center.
 - In the second floor lobby area of the Old Central Building.
 At least two single tables will be available in each of these areas. The maximum number of tables made available in any area will be determined in a reasonable manner based on the use of the area and regulations regarding fire safety and student welfare.
- Only registered students and College-recognized student clubs and organizations shall have access to the student literature tables. Non-students who wish to use college facilities must gain permission by following procedures established for this purpose through the Student Life Office.
- The student literature tables will be available Mondays through Thursdays from 8 A.M. to 10 P.M. and Fridays 8 A.M. to 5 P.M. during the days of regularly scheduled semesters.
- Registered students and College-recognized clubs and organizations are required to register for the use of the student literature tables with the Student Life Office at least 72 hours prior to the time of desired use. Registrations will be accepted on a first request-first serve basis. Individual students

and recognized student clubs or organizations may register for the use of a table for three consecutive days. If there are no pending requests, a registration may be renewed at the end of a previous registration. If there are no pending requests, a recognized student club or organization may request the use of more than one table or more than one location. If during the use of multiple tables or locations, additional students or recognized student groups request the use of a table or location and additional tables or locations are not available, the multiple user or users will be required to give up the multiple use of tables and locations to provide for the new request.

- A copy of the completed registration form obtained from the Student Life Office must be available at the student literature table while distribution is taking place.
- In order to determine accountability, a sample of the material to be distributed must be placed on file with the Student Life Office at the time of the registration for use. In addition, a recognized student club or organization must have a copy of the material to be distributed on file with the club's or organization's advisor.
- The student literature table will be staffed at all times by the individual student or members of the recognized student club or organization registered for the use of the tables while the distribution of materials is taking place. The registered student or recognized club or organization will have the responsibility to ensure that the distribution process is orderly at all times and that the general area surrounding the student literature tables is not littered.
- Individuals shall have the option to pick literature from the tables or receive a copy from the individuals sitting at the tables. No literature shall be forced upon any individual nor shall there be any obstructions created in the path of the general flow of traffic.
- Individual students or recognized student clubs and organizations may collect funds for worthy causes, such as muscular dystrophy, blood drives, or College-sponsored activities. There shall be no commercial solicitations of funds or business, nor shall individual students solicit funds for personal gain.
- The College has the right and responsibility to halt the distribution of literature which it believes to be libelous, obscene, an invasion of privacy, or literature designed and reasonably believed that it will have the effect to cause immediate disruption of classes, violence, or substantial disorder of the normal operations of the College.
- Failure to comply with the above procedural regulations may lead to the denial of the use of the student literature tables and/or may lead to disciplinary action.

Literature Table Use Request Flow Chart



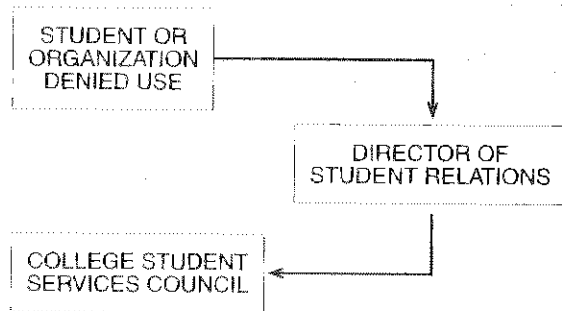
Appeal of Denial of Use of Literature Table

Any individual, registered student, or recognized student club or organization which has been denied access to the student literature tables or has been required to halt distribution based on procedure 10 may appeal the denial or requirement to halt distribution. The appeal shall be in writing and shall be directed to the Director of Student Relations within 10 calendar days of the denial or requirement to halt distribution. The Director of Student Relations shall make a prompt investigation of the appeal, contacting the parties involved, and shall, within 10 calendar days from the date of appeal, make a decision to reinstate the distribution rights denied or halted or to uphold the original decisions. If the decision of the Direc-

tor of Student Relations is not satisfactory, the individual student or recognized student club or organization may appeal the decision to the College Student Services Council. This second appeal must be in writing and presented to the Chairperson of the College Student Services Council within 10 calendar days of the decision of the Director of Student Relations. The College Student Services Council shall make a prompt investigation of the appeal, contacting parties involved, and shall within 10 calendar days from the date of the appeal, make a decision to reinstate the distribution rights or upholding the denial or required halt of distribution. The decision of the College Student Services Council shall be final.

Where it is contemplated that a violation of the student literature distribution procedural regulation warrants the imposition of disciplinary action upon an individual student, disciplinary action shall be taken in accordance with Due Process as outlined in this *Lansing Community College Catalog*.

Appeal of Denial Flow Chart



COLLEGE RESPONSIBILITIES*

Lansing Community College is committed to providing an environment and resources which promote student learning. All College employees contribute to this goal. Our commitment to learning is reflected by these responsibilities.

1. The College will maintain appropriate prerequisites so that students will enter courses with a reasonable chance of success.
2. The College will provide facilities that are safe, secure, clean, and conducive to learning.
3. The College will provide a clear and fair process for handling student complaints and concerns.
4. Faculty will be articulate and enthusiastic about their field and will establish a positive, stimulating learning atmosphere.
5. Faculty will prepare for each class; organize course concepts and present them clearly; exhibit comprehensive knowledge of the subject; teach the application of skills appropriate to course content; and make appropriate and timely use of student and instructional support services.
6. Faculty will respect students as individuals, recognizing learning styles and managing student learning accordingly.
7. Faculty will encourage classroom discussion when appropriate and represent various sides of an issue.
8. Faculty will give students a standard course syllabus at the beginning of the semester; provide appropriate instructional materials and assistance; and meet classes at the scheduled times.
9. Faculty will evaluate students fairly and objectively, maintain records of student achievement, and keep students informed of their progress.
10. Faculty will encourage students to think intelligently and independently.
11. Faculty will be available to assist students outside the classroom, including during regularly scheduled and posted office hours.
12. Faculty will know curriculum/program requirements and general career opportunities in their field. They will be able to advise students in their program area and refer students for academic and/or career counseling.

*SOURCES: Recommendations of the College-Wide Faculty Evaluation Committee; Current Agreement between the Board of Trustees and the Lansing Community College Chapter of the Michigan Association for Higher Education.

STUDENT RESPONSIBILITIES

In order to be successful learners, students must assume an active role in the learning process. The student responsibilities listed below emphasize behaviors that contribute directly to student academic success, and they apply to all students enrolled at the College.

1. Students will take responsibility for their own learning and for succeeding in their courses by:
 - a. Following course requirements as presented in course syllabi;
 - b. Attending all of their classes;
 - c. Preparing for classes and completing assignments on time;
 - d. Contacting their instructor regarding work missed in the case of an absence;
 - e. Cooperating with their instructor and other students to create a positive learning atmosphere;
 - f. Contributing effectively to class activities.
2. Students will be academically and intellectually honest in all classes, examinations, and learning activities. (The College, by regulation, will discipline students who cheat and/or copy the work of others; dishonesty is a serious offense and will be dealt with appropriately.)
3. Students will contribute to a positive learning environment by conducting themselves appropriately. (The College prohibits acts which interfere with the rights of others to seriously pursue an education. For more details on the regulations of the College, see section entitled *Student Rights, Responsibilities, and Conduct*.)

SPECIAL PROGRAMS AND SERVICES

Lansing Community College provides many special programs and services for students, including those which are briefly described below. For a comprehensive listing, descriptions, and locations of all special programs and services available at the College, students should consult *The Student's Handbook*. Copies of *The Student's Handbook* may be obtained from the Student Life Office, Room 200F, Gannon Vocational-Technical Center.

Career and Employment Services offers career testing, planning, and counseling services for members of the community, local businesses, industry, and students. Services also include assistance with job search, full- and part-time employment (including college Work Study), help with writing resumes and cover letters, and information about interviewing and other techniques for use in seeking employment. All services provided are related to career planning and employment readiness.

Counseling and Academic Advising Services include personal counseling to identify and assist in resolving students' personal and interpersonal issues and concerns; career counseling and educational planning to facilitate career decisions, choice of major, and course selection; evaluation of the need for additional academic preparation to strengthen such basic skill areas as reading, writing, and mathematics; transfer planning for successful transition to bachelor level programs; referral to community human services agencies for further professional assistance; and academic advising to assist students with information and course selection.

Extension and Community Education provides information about and coordination for LCC off-campus classes conducted in school district locations within a 30-mile radius of the College's main Lansing campus and for the Weekend Degree Program.

International Programs coordinates overseas study through such programs as the Japan Adventure and a network of sister college exchange relationships and offers ESL courses for international students at the English Language and Culture Center.

The Lansing Community College Foundation supports students, faculty, programs, and facilities through philanthropic initiatives in the College and community. Scholarship awards to students and allocations to LCC programs are coordinated by the Foundation Board of Directors in support of the mission and goals of the College.

Library Information Services provides information and research assistance, library resources, a computerized catalog, interlibrary loan service, book renewals by phone, library orientations, library use guides, and Web access to the library catalog, electronic databases and other libraries.

The Limited English Proficiency Program provides counseling, academic advising, registration assistance, financial aid assistance, and intensive English training for students with limited English skills.

Minority Outreach and Recruitment provides a Special Assistant to interact with all offices providing student support services in order to facilitate minority student access to these services. The Special Assistant recruits potential minority students; develops and maintains community contact with various minority organizations, clubs, and associations; identifies problems and barriers of the minority student population and proposes appropriate responses; coordinates and plans special cultural/ethnic observations and celebrations; and serves as an advocate on behalf of minority students.

The Student Life Office enhances student leadership, development, and success through involvement in and exposure to diverse experiences and opportunities. These include Student Senate, a comprehensive student leadership development experience consisting of the Student Advisory Committee to the President, Student Organization Council, and the Student Leadership Academy; student clubs and organizations; student activities, such as low-cost travel opportunities; campus programming of guest artists and student workshops, lectures and forums; and opportunities to work on the staff of *The Lookout*, Lansing Community College's student newspaper. The Student Life Office also includes the Office of Volunteer Services, which provides volunteer mentoring and service learning opportunities for students to nurture, promote, and instill the spirit of volunteerism. The Student Life Office also provides a housing resource listing service.

Tutorial Services, offered through Library Information Services, provides free tutoring to students enrolled in LCC courses. Professional tutor technicians and peer tutors help students develop course competencies and study skills. Individual appointments, study groups, supplemental instruction, and drop-in tutoring sessions are available on a first-come-first-served basis.

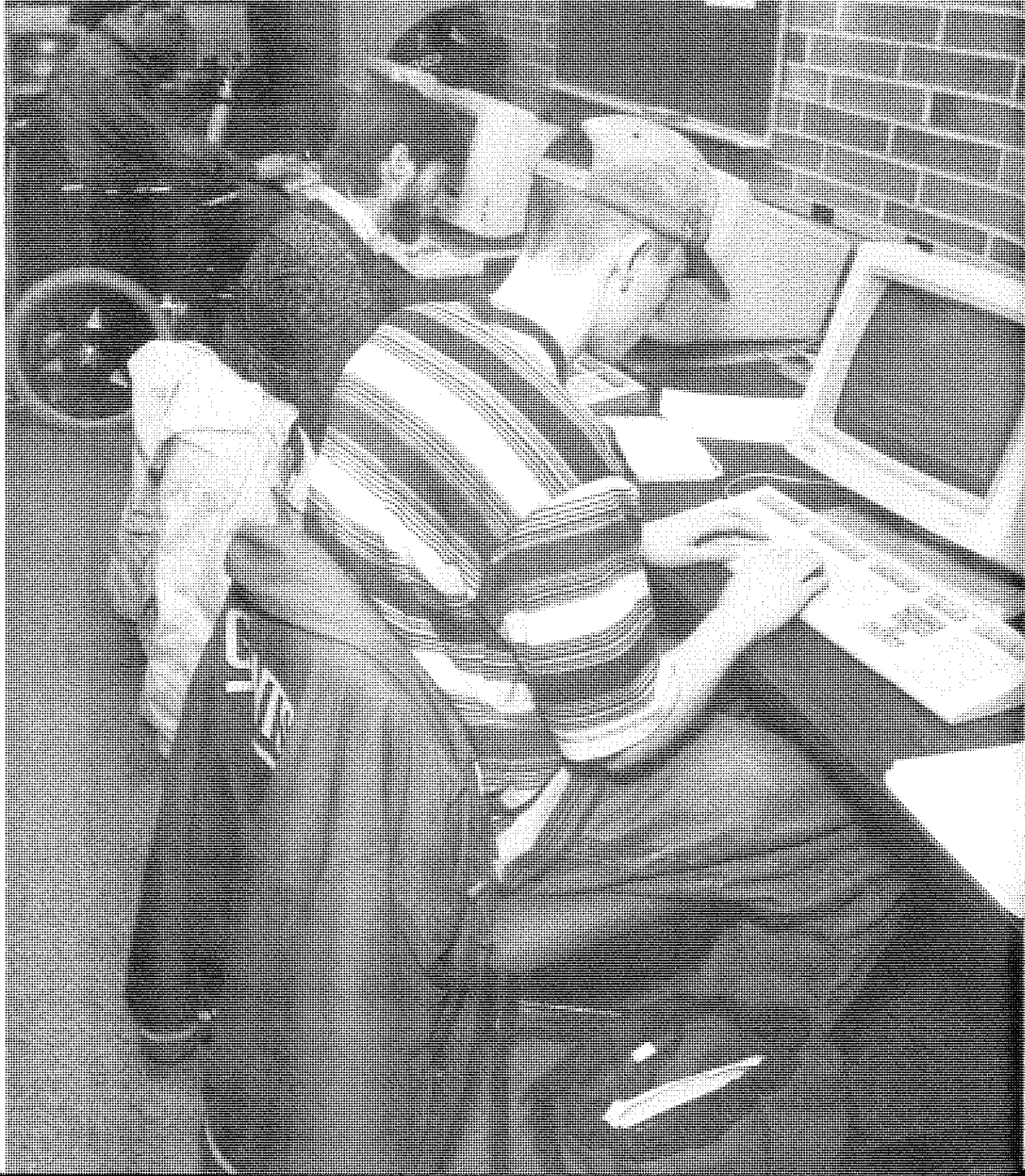
The Women's Resource Center offers services and programs in support of women and men at Lansing Community College, including financial assistance, displaced homemaker services, childcare assistance, and referral services.

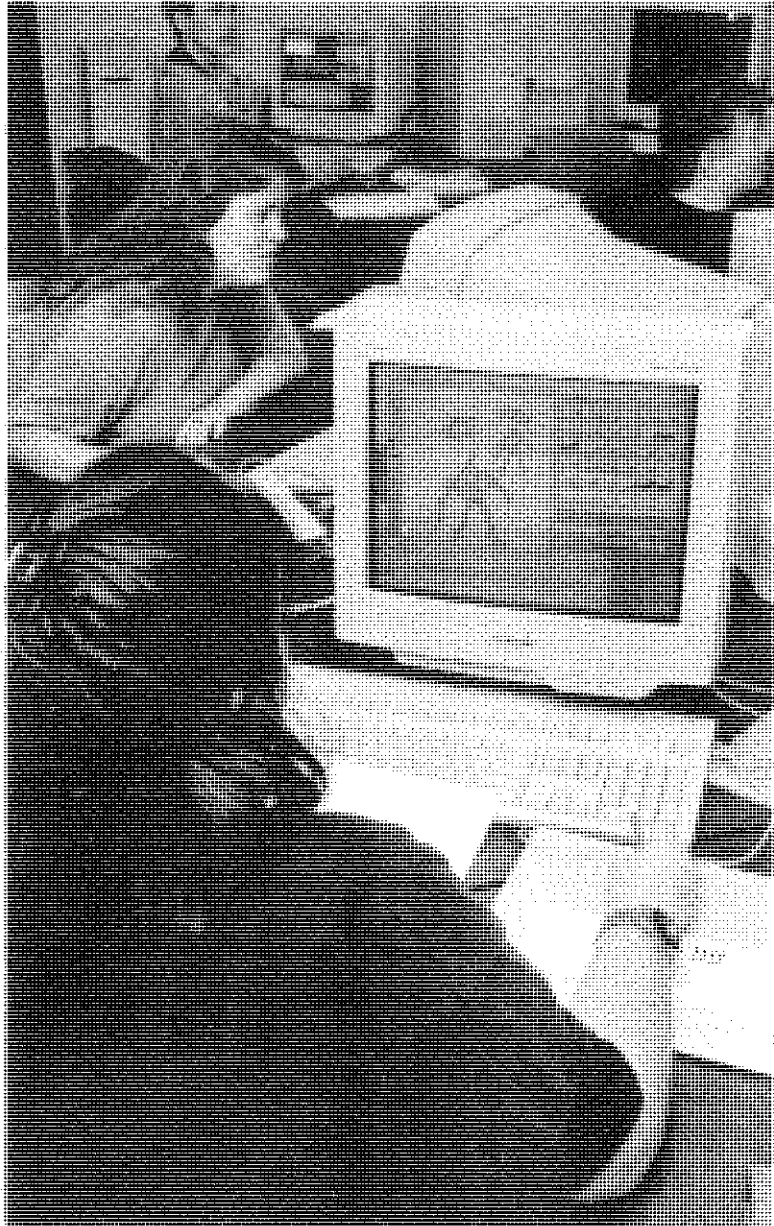
INFORMATION FOR PERSONS WITH DISABILITIES

Lansing Community College is committed to making accommodations and providing services for persons with disabilities. The College has administrative and faculty specialists who respond to visual, hearing, mobility, and alternative learning accommodation needs. They can be reached in the Office of Disability Support Services (517) 483-1184 (Voice), or (517) 483-1207 (Voice/TTY). The College adheres to the standards and guidelines set forth in the "Americans With Disabilities Act."

To be eligible for services and accommodations through ODSS, students are required to provide written verification of their disability. If documentation is not available, services may be provided for the first semester only. Documentation must be signed and dated by a qualified professional who has diagnosed the disability. If necessary, the ODSS staff can help students find the appropriate professionals to diagnose their disability.

Handicapper parking is available and clearly identified at Lansing Community College. For more information, call the office of Parking Services at (517) 483-1798.





*Degree and
Certificate*
Programs

Degree and Certificate Programs

ASSOCIATE IN ARTS DEGREE

EFFECTIVE FALL 1998—SUMMER 2003

This is primarily a transfer degree. It is designed for students who intend to transfer to a four-year college or university to pursue a baccalaureate degree in such disciplines or subject areas as the following:

Pre-Accounting	Fine Arts	Philosophy
African American History	Foreign Language	Political Science
American Studies	Geography	Psychology
Art History	History	Religion
Pre-Business	Humanities	Secondary Education
Criminal Justice	International Studies	Social Science
Pre-Economics	Liberal Arts	Sociology
Elementary Education	Literature	Speech Communication

The specific requirements for this degree are presented below. A minimum of 60 credits is required. This degree guide consists of General Education Requirements and a Subject Area Concentration which may include Limited Choice Electives. The curriculum is structured to enable students to satisfy the LCC General Education Core Requirements, as well as the MACRAO Transfer Agreement between two-year and four-year institutions in Michigan.

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

NOTE: Students should be aware that general education and subject area requirements vary from one college or university to another. Prior to beginning this curriculum, students should see an academic advisor or counselor in the Counseling and Advising Center (Room 103 of the Arts and Sciences Building, telephone number (517) 483-1904), obtain an appropriate transfer guide (also in the Counseling and Advising Center), and/or contact the school to which they will transfer for specific transfer institution requirements. (See *Transfer Information* in this section of the catalog for a list of institutions for which transfer guides are available.)

In addition, students may request specific course substitutions by submitting a Course Substitution and Waiver Authorization for Degree Screening Form to the Liberal Studies Office of Instruction, Room 110, Arts and Sciences Building.

I. GENERAL EDUCATION REQUIREMENTS Minimum 35 credits

By following the directions in this section, students will automatically be able to satisfy the following general education requirements:

- Lansing Community College General Education Core Requirements in the areas of mathematics, global perspectives and diversity, writing, science and technology, and speech communication. (Complete information about LCC Core requirements can be found on page 23 of this catalog.)
- The MACRAO Transfer Agreement. (See *Transfer Information* in this section of the catalog for a complete list of MACRAO requirements.)
- Additional General Education Requirements established specifically for this Associate in Arts Degree.

Students who complete Core courses other than those indicated below, and who wish to apply those credits toward the Associate in Arts Degree, should contact a faculty advisor or counselor in Room 103 of the Arts and Sciences Building, telephone number (517) 483-1904.

Before selecting general education courses, students should consult II (SUBJECT AREA CONCENTRATIONS AND LIMITED CHOICE ELECTIVES) below for possible recommendations and requirements. Credits for each course have been indicated in parenthesis.

(NOTE: In this section, courses that satisfy the LCC General Education Core Requirements are underlined.)

1. English Composition 8 credits

Completing any one of the courses listed in this section satisfies the LCC General Education Core Requirement in writing.

- Complete one course from the following:
WRIT 121 (4) or WRIT 131 (4)
AND
- Complete one course from the following:
WRIT 122 (4) ENGL 122 (4) WRIT 132 (4) ENGL 132 (4)
OR

- If WRIT 121 is waived, select ENGL 122 or WRIT 122, AND a second WRIT or ENGL course with a number of 200 or higher.

2. Science and Mathematics Minimum of 8 credits

Completing at least one underlined course from A or B will satisfy the LCC General Education Core Requirement in Science and Technology. If C is not chosen in this category, then the LCC Core requirement for Mathematics must be met by one of the options described on page 23 of this catalog.

A minimum of 8 credits must be chosen from two of the three categories below (A, B, C).

- A. Physical Science
- | | | |
|-------------------------------|---------------------|-------------------------------|
| <u>ASTR 201</u> (4) | GEOL 222 (4) | <u>METR 220</u> (4) |
| <u>CHEM 135</u> (4) | GEOL 230 (4) | OCNL 225 (4) |
| <u>CHEM 151 & 161</u> (5) | <u>ISCI 121</u> (4) | PHYS 201 & 225 (5) |
| GEOL 200 (3) | <u>ISCI 131</u> (4) | <u>PHYS 215 & 225</u> (5) |
| GEOL 221 (4) | | |
- B. Biological Science
- | | | |
|--------------|---------------------|---------------------|
| ANAT 145 (4) | BIOL 128 (4) | ISCI 132 (4) |
| ANAT 151 (3) | <u>BIOL 210</u> (4) | MICR 203 & 204 (4) |
| ANAT 201 (4) | BIOL 260 (4) | <u>PHGY 202</u> (4) |
| BIOL 121 (4) | BIOL 265 (4) | |
| BIOL 127 (4) | ISCI 122 (4) | |
- C. Mathematics
- | | | |
|---------------------|---------------------|--------------|
| <u>MATH 121</u> (4) | <u>MATH 141</u> (3) | STAT 170 (3) |
| <u>MATH 122</u> (3) | <u>MATH 151</u> (4) | STAT 215 (4) |
| <u>MATH 126</u> (5) | <u>MATH 152</u> (4) | |
| MATH 130 (3) | <u>MATH 201</u> (3) | |

3. Social Science Minimum of 6 credits

Completing at least one underlined course from Category 3 OR Category 4 will satisfy the LCC General Education Core Requirement in Global Perspectives and Diversity.

- Complete one course in Political Science from the following:
POLS 120 (4) or POLS 121 (4)
- Complete one course or course pair from the following:
ECON 120 (4) GEOG 200 (4) SOCL 120 (4)
ECON 201 & ECON 202 (6) PSYC 200 (4)

4. Humanities 8 credits

Completing at least one underlined course from Category 3 OR Category 4 will satisfy the LCC General Education Core Requirement in Global Perspectives and Diversity.

- Complete one course from group A and one from group B. It is recommended that the Group A course be completed before the Group B course.

GROUP A

<u>ENGL 211</u> (4)	<u>HUMS 211</u> (4)	<u>PHIL 211</u> (4)
HIST 211 (4)	<u>HUMS 213</u> (4)	RELG 211 (4)

GROUP B

<u>ENGL 212</u> (4)	<u>HUMS 212</u> (4)	RELG 212 (4)
HIST 212 (4)	<u>HUMS 214</u> (4)	<u>PHIL 212</u> (4)
HIST 214 (4)		

5. Speech 3 credits

Complete the following course: SPCH 120 (3)

II. SUBJECT AREA CONCENTRATIONS AND LIMITED CHOICE ELECTIVES Minimum of 25 credits

The following Subject Area Concentrations list the remaining required and recommended courses that will apply toward an Associate in Arts Degree. Some concentrations also contain Limited Choice Electives which are presented at the end of this section. Courses should be selected in consultation with an academic advisor or counselor to determine their transferability to a specific four-year school. Credits for each course have been indicated in parenthesis.

PRE-ACCOUNTING

Curriculum Code: 10254

1. Complete ECON 201 and ECON 202 to satisfy part of the Social Science General Education Requirements.
2. Complete MATH 121 to satisfy part of the Science and Mathematics General Education Requirements.
3. Complete the following required courses (15 credits):
ACCG 210 Principles of Accounting I (4)
ACCG 211 Principles of Accounting II (4)
MATH 141 Calculus with Applications (3)
STAT 215 Introduction to Probability and Statistics for Business (4)
4. Complete one of the following (3-4 credits):
CISB 100 Introduction to Computer Information Systems (3)
CISB 120 Introduction to Programming and Logic (4)
CPSC 120 Introduction to Computers (3)
5. Complete one of the following (3 credits):
MATH 122 College Algebra II and Trigonometry (3)
MATH 130 Finite Mathematics (3)
6. Complete a minimum of 2-3 credits from the list of Limited Choice Electives at the end of this section.

AFRICAN AMERICAN HISTORY

Curriculum Code: 10137

1. Complete courses other than HIST 211, HIST 212, and HIST 214 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (20 credits):
HIST 150 African American History (4)
HIST 211 U.S. History to 1877 (4)
HIST 212 U.S. History: 1877 to the Present (4)
HIST 214 African History (4)
HIST 260 Conflict and Revolution in Southern Africa (4)
3. Complete a minimum of 7 credits from the following:
ENGL 260 African American Literature (4)
SOCL 255 Contemporary Social Problems (3)
Any foreign language with course numbers 121, 122, 201, or 202 (4)

AMERICAN STUDIES

Curriculum Code: 10142

1. Complete courses other than HIST 211, HIST 212, and HIST 214 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (20 credits):
ENGL 255 American Literature I (4)
ENGL 256 American Literature II (4)
HIST 211 U.S. History to 1877 (4)
HIST 212 U.S. History: 1877 to the Present (4)
HUMS 215 American Civilization (4)
3. Complete a minimum of 8 credits from the following:
ENGL 260 African American Literature (4)
HIST 150 African American History (4)
HIST 220 Michigan History (4)
POLS 120 American Political System (4)

ART HISTORY

Curriculum Code: 10746

1. Complete HIST 211 or HUMS 213 and complete HIST 212, HIST 214 or HUMS 214 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (20 credits):
HUMS 160 Mythology (4)
HUMS 211 History of Art I (4)
HUMS 212 History of Art II (4)
RELG 211 World Religions I (4)
RELG 212 World Religions II (4)
3. Complete a minimum of 8 credits from the following:
ENGL 211 World Literature I (4)
ENGL 212 World Literature II (4)
HUMS 120 Western Art and Music History (4)
Any foreign language with course numbers 121, 122, 201, or 202 (4)

PRE-BUSINESS

Curriculum Code: 10232

1. Complete ECON 201 and ECON 202 in addition to POLS 120 or POLS 121 to satisfy the Social Science General Education Requirement.
2. Complete MATH 121 to satisfy part of the Science and Mathematics General Education Requirement.
3. Complete the following required courses (11 credits):
ACCG 210 Principles of Accounting I (4)
ACCG 211 Principles of Accounting II (4)
BUSN 118 Introduction to Business (3)
4. Complete one of the following (3 credits):
CISB 100 Introduction to Computer Information Systems (3)
CPSC 120 Introduction to Computers (3)
5. Complete one of the following (3-4 credits):
ECON 213 Economic/Business History of the U.S. (3)
MATH 141 Calculus with Applications (3)
MATH 151 Calculus I (4)
PSYC 200 Introduction to Psychology (4)
SOCL 120 Introduction to Sociology (4)
STAT 215 Introduction to Probability and Statistics for Business (4)
6. Complete a minimum of 5-6 credits from the list of Limited Choice Electives at the end of this section.

CRIMINAL JUSTICE

Curriculum Code: 10146

1. Complete the following required courses (15 credits):
CJUS 101 Introduction to Criminal Justice (3)
CJUS 102 Crime Causes and Conditions (3)
CJUS 103 Criminal Law (3)
CJUS 106 Introduction to Juvenile Justice (3)
CJUS 131 Introduction to Corrections (3)
2. Complete a minimum of 10 credits from the following:
CJUS 255 Human Relations in Criminal Justice (3)
PSYC 200 Introduction to Psychology (4)
PSYC 202 Psychology of Personality (3)
PSYC 203 Social Psychology (3)
PSYC 205 Human Growth and Development (3)
PSYC 250 Abnormal Psychology (3)
SOCL 120 Introduction to Sociology (4)
SOCL 255 Contemporary Social Problems (3)
SOCL 260 Minority Groups (3)

PRE-ECONOMICS*Curriculum Code: 10230*

1. Complete ECON 201 and ECON 202 to satisfy part of the Social Science General Education Requirements.
2. Complete MATH 121 to satisfy part of the Science and Mathematics General Education Requirements.
3. Complete the following required courses (6 credits):
CPSC 120 Introduction to Computers (3)
MATH 122 College Algebra II and Trigonometry (3)
4. Complete a minimum of 17 credits from the following:
ACCG 210 Principles of Accounting I (4)
ACCG 211 Principles of Accounting II (4)
ECON 213 Economic/Business History of the U.S. (3)
MATH 141 Calculus with Applications (3)
MATH 151 Calculus I (4)
MATH 152 Calculus II (4)
MATH 253 Calculus III (4)
MATH 254 Introduction to Differential Equations (3)
MATH 260 Linear Algebra (3)
PSYC 200 Introduction to Psychology (4)
SOCL 120 Introduction to Sociology (4)
STAT 215 Introduction to Probability and Statistics for Business (4)
Any foreign language with course numbers 121, 122, 201, or 202 (4)

ELEMENTARY EDUCATION*Curriculum Code: 10747*

1. Complete PSYC 200 to satisfy part of the Social Science General Education Requirement.
2. Complete the following required courses (20 credits):
ARTS 240 Basic Art for Elementary Teachers (3)
CPSC 120 Introduction to Computers (3)
EDUC 201 Education Practicum I (2)
EDUC 220 Introduction to Education (3)
MATH 201 Math for Liberal Arts I (3)
MUSC 200 Music Fundamentals for Elementary Classroom Teachers (3)
PSYC 204 Educational Psychology (3)
3. Complete two of the following three choices (A, B, C) (6-8 credits):
A. GEOG 121 Physical Geography (3)
or
GEOG 200 World Regional Geography (4)
B. PSYC 205 Human Growth and Development (3)
or
PSYC 221 Child Psychology (3)
C. ANTH 270 Cultural Anthropology (3)
or
SOCL 120 Introduction to Sociology (4)
or
SOCL 260 Minority Groups (3)

FINE ARTS*Curriculum Code: 10748*

1. Complete HUMS 211 and HUMS 212 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (12 credits):
ARTS 102 2-Dimensional Design (3)
ARTS 103 3-Dimensional Design (3)
ARTS 131 Drawing I (3)
ARTS 132 Life Drawing (3)

3. Complete 6 credits from the following:
ARTS 140 Printmaking I (3)
ARTS 141 Printmaking II (3)
ARTS 145 Screen Printing I (3)
ARTS 146 Screen Printing II (3)
ARTS 200 Painting I (3)
ARTS 201 Painting II (3)
ARTS 204 Watercolor I (3)
ARTS 205 Watercolor II (3)

4. Complete a minimum of 7 credits from the list of Limited Choice Electives at the end of this section.

FOREIGN LANGUAGE*Curriculum Code: 10132*

1. Complete the following required course (3 credits):
SPCH 280 Intercultural Communication (3)
2. Complete one of the following four choices (A, B, C, D) (16 credits):
A. FREN 121 Elementary French I (4)
FREN 122 Elementary French II (4)
FREN 201 Intermediate French I (4)
FREN 202 Intermediate French II (4)
B. GRMN 121 Elementary German I (4)
GRMN 122 Elementary German II (4)
GRMN 201 Intermediate German I (4)
GRMN 202 Intermediate German II (4)
C. JAPN 121 Elementary Japanese I (4)
JAPN 122 Elementary Japanese II (4)
JAPN 201 Intermediate Japanese I (4)
JAPN 202 Intermediate Japanese II (4)
D. SPAN 121 Elementary Spanish I (4)
SPAN 122 Elementary Spanish II (4)
SPAN 201 Intermediate Spanish I (4)
SPAN 202 Intermediate Spanish II (4)
3. Complete a minimum of 8 credits of any foreign language with course numbers 121, 122, 201, or 202 other than those chosen as the major language of concentration from the choices in Number 2 above.

GEOGRAPHY*Curriculum Code: 10749*

1. Complete GEOG 200 to satisfy part of the Social Science General Education Requirement.
2. Complete the following required courses (9 credits):
GEOG 120 Introduction to Geography (3)
GEOG 121 Physical Geography (3)
GEOG 202 Geography of North America (3)
3. Complete a minimum of 16 credits from the following:
ANTH 270 Cultural Anthropology (3)
ECON 120 Power, Authority and Exchange (4)
GEOG 203 Economic Geography (3)
GRET 205 Principles to Geographic Information Systems (3)
METR 220 Introduction to Meteorology (4)
POLS 260 Comparative Political Systems (3)
POLS 270 International Relations (3)
SOCL 120 Introduction to Sociology (4)
STAT 170 Introduction to Statistics (3)
Any foreign language with course numbers 121, 122, 201, or 202 (4)

HISTORY

Curriculum Code: 10197

1. Complete courses *other than* HIST 211, HIST 212, and HIST 214 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (12 credits):
 HIST 211 U.S. History to 1877 (4)
 HIST 212 U.S. History: 1877 to the Present (4)
 HIST 214 African History (4)
3. Complete a minimum of 16 credits from the following:
 ENGL 255 American Literature I (4)
 ENGL 256 American Literature II (4)
 HIST 150 African American History (4)
 HIST 210 Studies in American History (4)
 HIST 220 Michigan History (4)
 HIST 230 British History (4)
 HIST 260 Conflict and Revolution in Southern Africa (4)
 RELG 250 Religions of East Asia (4)

HUMANITIES

Curriculum Code: 10119

1. Complete courses *other than* HUMS 213 and HUMS 214 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (8 credits):
 HUMS 213 World Civilizations I (4)
 HUMS 214 World Civilizations II (4)
3. Complete a minimum of 20 credits from the following:
 ENGL 201 Introduction to Poetry (4)
 ENGL 202 Introduction to Drama (4)
 ENGL 203 Introduction to Prose (4)
 ENGL 211 World Literature I (4)
 ENGL 212 World Literature II (4)
 ENGL 255 American Literature I (4)
 ENGL 256 American Literature II (4)
 HIST 211 U.S. History to 1877 (4)
 HIST 212 U.S. History: 1877 to the Present (4)
 HUMS 120 Western Art and Music History (4)
 HUMS 160 Mythology (4)
 HUMS 211 History of Art I (4)
 HUMS 212 History of Art II (4)
 PHIL 151 Introduction to Logic and Critical Thinking (4)
 PHIL 152 Introduction to Ethics (4)
 PHIL 153 Knowledge and Reality (4)
 PHIL 211 World Philosophies I (4)
 PHIL 212 World Philosophies II (4)
 RELG 211 World Religions I (4)
 RELG 212 World Religions II (4)

INTERNATIONAL STUDIES

Curriculum Code: 10252

1. Complete GEOG 200 and POLS 120 to satisfy the Social Science General Education Requirement.
2. Complete HUMS 213 and HUMS 214 to satisfy the Humanities General Education Requirement and the Global Diversity Core Requirement.
3. Complete *one of the following* (3 credits):
 POLS 260 Comparative Political Systems (3)
 POLS 270 International Relations (3)
4. Complete 8 credits of any foreign language with course numbers 121, 122, 201, or 202.

5. Complete a minimum of 14 credits from the following:
 ANTH 270 Cultural Anthropology (3)
 ECON 120 Power, Authority and Exchange (4)
 ECON 201 Principles of Economics - Micro (3)
 ECON 202 Principles of Economics - Macro (3)
 ENGL 211 World Literature I (4)
 ENGL 212 World Literature II (4)
 GEOG 203 Economic Geography (3)
 HIST 214 African History (4)
 HIST 230 British History (4)
 HUMS 220 Japanese Civilization (4)
 PHIL 211 World Philosophies I (4)
 PHIL 212 World Philosophies II (4)
 POLS 230 Politics and Government of Japan (3)
 PSYC 200 Introduction to Psychology (4)
 RELG 211 World Religions I (4)
 RELG 212 World Religions II (4)
 SOCL 120 Introduction to Sociology (4)
 SOCL 185 The Africans (2)
 SOCL 260 Minority Groups (3)
 SOCL 280 Introduction to Japanese Culture (3)

LIBERAL ARTS

Curriculum Code: 10251

Complete a minimum of 25 credits from the list of Limited Choice Electives at the end of this section. A maximum of 6 of those credits may come from any courses numbered 110 to 119 or with course codes ENRI, READ, or SPEL. The following courses are recommended choices.

- BIOL 210 Natural Resource Conservation (4)
 - CHEM 135 Chemistry in Society (4)
 - CPSC 120 Introduction to Computers (3)
 - ENGL 256 American Literature II (4)
 - MATH 201 Math for Liberal Arts I (3)
 - PHIL 152 Introduction to Ethics (4)
 - PSYC 200 Introduction to Psychology (4)
 - SOCL 120 Introduction to Sociology (4)
 - SPCH 280 Intercultural Communication (3)
- Any foreign language course with number 121, 122, 201, or 202 (4)

LITERATURE

Curriculum Code: 10124

1. Complete the following required courses (12 credits):
 ENGL 201 Introduction to Poetry (4)
 ENGL 202 Introduction to Drama (4)
 ENGL 203 Introduction to Prose (4)
2. Complete a minimum of 16 credits from *one of the following choices* (A,B):
 A. ENGL 255 American Literature I (4)
 ENGL 256 American Literature II (4)
 ENGL 260 African American Literature (4)
 ENGL 266 British Literature I (4)
 ENGL 267 British Literature II (4)
 ENGL 290 Shakespeare (4)
 HUMS 160 Mythology (4)
 PHIL 151 Introduction to Logic and Critical Thinking (4)
 RELG 241 Old Testament Literature (4)
 Any foreign language with course numbers 121, 122, 201, or 202 (4)
 B. EDUC 201 Education Practicum I (2)
 EDUC 220 Introduction to Education (3)
 ENGL 255 American Literature I (4)
 ENGL 256 American Literature II (4)
 PSYC 200 Introduction to Psychology (4)
 PSYC 204 Educational Psychology (3)

PHILOSOPHY

Curriculum Code: 10159

1. Complete courses *other than* PHIL 211 and PHIL 212 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (12 credits):

PHIL 211	World Philosophies I (4)
PHIL 212	World Philosophies II (4)
PHIL 151	Introduction to Logic and Critical Thinking (4)
3. Complete a minimum of 16 credits from the following:

HUMS 120	Western Art and Music History (4)
HUMS 213	World Civilizations I (4) (<i>See Note 1</i>)
HUMS 214	World Civilizations II (4) (<i>See Note 1</i>)
HUMS 225	Great Lakes Native Americans: History and Tradition (4)
PHIL 152	Introduction to Ethics (4) (<i>See Note 2</i>)
PHIL 153	Knowledge and Reality (4) (<i>See Note 2</i>)
PHIL 260	Contemporary Ethical Problems (4)
RELG 250	Religions of East Asia (4)

 Any foreign language with course numbers 121, 122, 201, or 202 (4)

NOTES

1. HUMS 213 and HUMS 214 may be used to fulfill the General Education Requirement if not already selected to fulfill the Humanities General Education Requirement listed in number 1 above.
2. Students may elect to take either PHIL 152 *OR* PHIL 153 but not both.

POLITICAL SCIENCE

Curriculum Code: 10750

1. Complete POLS 120 and SOCL 120 to satisfy the Social Science General Education Requirement.
2. Complete ISCI 131 to satisfy part of the Science and Mathematics General Education Requirement.
3. Complete HIST 211 and 212 to satisfy the Humanities General Education Requirement.
4. Complete the following required courses (7 credits):

POLS 121	State and Local Government (4)
POLS 260	Comparative Political Systems (3)
5. Complete a minimum of 18 credits from the following:
 (Note: If STAT 170 is selected, then select MATH 121 to satisfy part of the Science and Mathematics General Education Requirement.)

CPSC 120	Introduction to Computers (3)
ECON 120	Power, Authority and Exchange (4)
ECON 201	Principles of Economics - Micro (3)
ECON 202	Principles of Economics - Macro (3)
GEOG 200	World Regional Geography (4)
POLS 205	Government Internship (3)
POLS 240	Introduction to Public Policy (3)
POLS 250	American Political Parties and Interest Groups (3)
POLS 270	International Relations (3)
POLS 280	Politics and Government of Japan (3)
PSYC 200	Introduction to Psychology (4)
SOCL 255	Contemporary Social Problems (3)
SOCL 260	Minority Groups (3)
STAT 170	Introduction to Statistics (3)

 Any foreign language with course numbers 121, 122, 201, or 202 (4)

PSYCHOLOGY

Curriculum Code: 10215

1. Complete PSYC 200 to satisfy part of the Social Science General Education Requirement.
2. Complete ISCI 131 and MATH 121 to satisfy the Science and Mathematics General Education Requirement.
3. Complete *one* of the following two courses (3 credits):

PSYC 203	Social Psychology (3)
PSYC 204	Educational Psychology (3)
4. Complete *one* of the following three courses (3 credits):

PSYC 205	Human Growth and Development (3)
PSYC 221	Child Psychology (3)
PSYC 222	Adolescent Psychology (3)
5. Complete *one* of the following two courses (3 credits):

PSYC 209	Cognitive Psychology (3)
PSYC 210	Biological Psychology (3)
6. Complete *one* of the following three courses (3 credits):

PSYC 202	Psychology of Personality (3)
PSYC 240	Psychology of Human Sexuality (3)
PSYC 250	Abnormal Psychology (3)
7. Complete a minimum of 10 credits from the following:

ANTH 270	Cultural Anthropology (3)
CPSC 120	Introduction to Computers (3)
POLS 240	Introduction to Public Policy (3)
SOCL 120	Introduction to Sociology (4)
SOCL 254	Marriage and Family (3)
STAT 170	Introduction to Statistics (3)
STAT 215	Introduction to Probability and Statistics for Business (4)

 Any foreign language with course numbers 121, 122, 201, or 202 (4)
 Any PSYC course not used to complete one of the above requirements.

RELIGION

Curriculum Code: 10751

1. Complete courses *other than* RELG 211 and RELG 212 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (8 credits):

RELG 211	World Religions I (4)
RELG 212	World Religions II (4)
3. Complete a minimum of 19-20 credits from the following:

ANTH 270	Cultural Anthropology (3)
PHIL 152	Introduction to Ethics (4) (<i>See Note 1</i>)
PHIL 260	Contemporary Ethical Problems (4) (<i>See Note 1</i>)
RELG 241	Old Testament Literature (4)
RELG 242	New Testament Literature (4)
RELG 250	Religions of East Asia (4)

 Any foreign language with course numbers 121, 122, 201, or 202 (4)

NOTES

1. Students may elect to take either PHIL 152 *OR* PHIL 260 but not both.

SECONDARY EDUCATION

Curriculum Code: 10752

1. Complete PSYC 200 to satisfy part of the Social Science General Education Requirement.
2. Complete the following required courses (**11 credits**):
 CPSC 120 Introduction to Computers (3)
 EDUC 201 Education Practicum I (2)
 EDUC 220 Introduction to Education (3)
 PSYC 204 Educational Psychology (3)
3. Complete *one* of the following five courses (**3-4 credits**):
 ANTH 270 Cultural Anthropology (3)
 PSYC 205 Human Growth and Development (3)
 PSYC 222 Adolescent Psychology (3)
 SOCL 120 Introduction to Sociology (4)
 SOCL 260 Minority Groups (3)
4. Complete *one* of the following two courses (**4 credits**):
 MATH 112 Intermediate Algebra (4)
 MATH 121 College Algebra I (4)
5. Complete a minimum of **6-7 credits** from the list of Limited Choice Electives at the end of this section in the subject area in which you plan to teach.

SOCIAL SCIENCE

Curriculum Code: 10121

1. Complete SOCL 120 to satisfy part of the Social Science General Education Requirement.
2. Complete the following required courses (**11 credits**):
 ECON 201 Principles of Economics - Micro (3)
 GEOG 200 World Regional Geography (4)
 PSYC 200 Introduction to Psychology (4)
3. Complete one course from *two* of the following choices (A, B, C, D, E) (**6 credits**):
 - A. ECON 202 Principles of Economics - Macro (3)
 - B. GEOG 120 Introduction to Geography (3)
 GEOG 121 Physical Geography (3)
 GEOG 202 Geography of North America (3)
 - C. POLS 240 Introduction to Public Policy (3)
 POLS 250 American Political Parties and Interest Groups (3)
 POLS 260 Comparative Political Systems (3)
 POLS 270 International Relations (3)
 - D. PSYC 202 Psychology of Personality (3)
 PSYC 203 Social Psychology (3)
 PSYC 204 Educational Psychology (3)
 PSYC 205 Human Growth and Development (3)
 PSYC 221 Child Psychology (3)
 PSYC 222 Adolescent Psychology (3)
 PSYC 250 Abnormal Psychology (3)
 - E. ANTH 270 Cultural Anthropology (3)
 ANTH 275 Physical Anthropology and Archeology (3)
 ANTH 278 World Archeology (3)
 SOCL 254 Marriage and Family (3)
 SOCL 255 Contemporary Social Problems (3)
 SOCL 260 Minority Groups (3)
4. Complete a minimum of **8 credits** numbered 120 or higher from the list of Limited Choice Electives at the end of this section. Courses in social sciences, foreign languages, statistics, computer science and mathematics are recommended.

SOCIOLOGY

Curriculum Code: 10753

1. Complete POLS 120 and SOCL 120 to satisfy the Social Science General Education Requirement and the Global Diversity Core Requirement.
2. Complete ISCI 131 and 132 to satisfy the Science and Mathematics General Education Requirement.
3. Complete HUMS 213 and 214 to satisfy the Humanities General Education Requirement.
4. Complete the following required courses (**6 credits**):
 ANTH 270 Cultural Anthropology (3)
 SOCL 255 Contemporary Social Problems (3)
5. Complete a minimum of **19 credits** from the following:
 CPSC 120 Introduction to Computers (3)
 ECON 120 Power, Authority and Exchange (4)
 ECON 201 Principles of Economics - Micro (3)
 ECON 202 Principles of Economics - Macro (3)
 GEOG 200 World Regional Geography (4)
 GEOG 203 Economic Geography (3)
 MATH 121 College Algebra I (4)
 POLS 240 Introduction to Public Policy (3)
 POLS 260 Comparative Political Systems (3)
 POLS 270 International Relations (3)
 PSYC 200 Introduction to Psychology (4)
 PSYC 203 Social Psychology (3)
 SOCL 254 Marriage and Family (3)
 SOCL 260 Minority Groups (3)
 SOCL 280 Introduction to Japanese Culture (3)
 STAT 170 Introduction to Statistics (3)
 Any foreign language with course numbers 121, 122, 201, or 202 (4)

SPEECH COMMUNICATION

Curriculum Code: 10136

1. Complete SOCL 120 to satisfy part of the Social Science General Education Requirement.
2. Complete the following required courses (**9 credits**):
 SPCH 130 Fundamentals of Public Speaking (3)
 SPCH 140 Interpersonal Communication (3)
 SPCH 280 Intercultural Communication (3)
3. Complete a minimum of **6 credits** from the following:
 SPCH 110 Oral Communication in the Workplace (3)
 SPCH 260 Nonverbal Communication (3)
 SPCH 270 Mass Communication (3)
4. Complete a minimum of **10 credits** from the following:
 (Note: Students who elect foreign language courses are encouraged to take both first-year courses (121 and 122) in the language of their choice.)
 ANTH 270 Cultural Anthropology (3)
 CPSC 120 Introduction to Computers (3)
 LING 230 Introduction to Linguistics (3)
 PHIL 151 Introduction to Logic and Critical Thinking (4)
 POLS 260 Comparative Political Systems (3)
 PSYC 200 Introduction to Psychology (4)
 Any foreign language with course numbers 121, 122, 201, or 202 (4)

LIMITED CHOICE ELECTIVES FOR ASSOCIATE IN ARTS DEGREE

Some concentrations include limited choice electives. Those limited choice electives must be selected from the following:

1. Courses numbered 120 to 294 with any of the course codes listed below:

ANAT CHIN FREN HONR LING PHGY READ SPCH
 ANTH CPSC GEOG HUMS MATH PHIL RELG STAT
 ASTR ECON GEOL ISCI METR PHYS SOCL WRIT
 BIOL EDUC GRMN JAPN MICR POLS SOWK
 CHEM ENGL HIST JRNL OCNL PSYC SPAN

2. Courses on the list below:

ACCG 210, 211, 220, 221, 230, 231, 240, 241, 250, 260, 271, 280, 290
 ARTS 102, 103, 131, 132, 137, 140, 141, 145, 146, 151, 162, 171, 175, 176, 180, 182, 200, 201, 203, 204, 205, 206, 214, 262
 BUSN 118, 201, 250
 CHDV 101, 111, 120, 121, 188, 189, 220, 221
 CHIN 115
 CISB 100, 105, 120, 121, 122, 170, 175, 180, 240, 250, 255, 260, 280, 281

CJUS 101, 102, 103, 106, 130, 131, 133, 134, 135, 201, 203, 204, 250, 255
 DANC 100, 101, 102, 103, 104, 111, 112, 113, 114, 123, 132, 134, 165, 191, 201, 202, 203, 204, 211, 212, 283
 EMSA 100
 GRMN 115, 116
 HUSE 240, 241, 242, 244
 IMAG 101
 LEGL 215, 216
 MATH 112
 MGMT 225
 MKTG 140, 200, 202, 221
 MUSC 101, 102, 108, 119, 123, 133, 138, 139, 144, 145, 155, 156, 168, 169, 173, 174, 179, 180, 182, 183, 188, 199, 200, 240, 241, 244, 245, 248, 249, 251, 253, 270, 273, 274, 276, 280, 297
 SIGN 161, 162, 163, 164
 SOWK 101
 THEA 110, 120, 181, 210, 234, 285, 295, 296

3. A maximum of two credit hours from courses with any of the course codes listed below:

PFAQ PFDA PFHC PFIS PFPR
 PFCW PFFT PFHW PFOA PFTS

ASSOCIATE IN SCIENCE DEGREE

EFFECTIVE FALL 1998 – SUMMER 2003

This is primarily a transfer degree. It is designed for students who intend to transfer to a four-year college or university to pursue a baccalaureate degree in such disciplines or subject areas as the following:

Biology	Geoscience
Chemistry	Mathematics/Pre-Engineering
Computer Science	Medical Pre-Professional
Environmental Science	Physics/Pre-Engineering

The specific requirements for this degree are presented below. A minimum of 60 credits is required. This degree guide consists of General Education Requirements and a Subject Area Concentration. The curriculum is structured to enable students to satisfy the LCC General Education Core Requirements, as well as the MACRAO Transfer Agreement between two-year and four-year institutions in Michigan.

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

NOTE: Students should be aware that general education and subject area requirements vary from one college or university to another. Prior to beginning this curriculum, students should see an academic advisor or counselor in the Counseling and Advising Center (Room 103 of the Arts and Sciences Building, telephone number (517) 483-1904), obtain an appropriate transfer guide (also in the Counseling and Advising Center), and/or contact the school to which they will transfer for specific transfer institution requirements. (See *Transfer Information* in this section of the catalog for a list of institutions for which transfer guides are available).

In addition, students may request specific course substitutions by submitting a Course Substitution and Waiver Authorization for Degree Screening Form to the Liberal Studies Office of Instruction, Room 110, Arts and Sciences Building.

I. GENERAL EDUCATION REQUIREMENTS Minimum of 35 credits

By following the directions in this section, students will automatically be able to satisfy the following general education requirements:

- Lansing Community College General Education Core Requirements in the areas of mathematics, global perspectives and diversity, writing, science and technology, and speech communication. (Complete information about LCC Core requirements can be found on page 23 of this catalog.)
- The MACRAO Transfer Agreement. (See *Transfer Information* in this section of the catalog for a complete list of MACRAO requirements.)
- Additional General Education Requirements established specifically for this Associate in Science Degree.

Before selecting general education courses, students should consult II (SUBJECT AREA CONCENTRATIONS) below for possible recommendations and requirements. Credits for each course have been indicated in parenthesis.

(NOTE: In this section, courses that satisfy the LCC General Education Core Requirements are underlined.)

1. English Composition 8 credits

Completing any one of the courses listed in this section satisfies the LCC General Education Core Requirement in writing.

- Complete *one* course from the following:

<u>WRIT 121</u> (4)	<u>WRIT 131</u> (4)
AND	
- Complete *one* course from the following:

<u>WRIT 122</u> (4)	<u>ENGL 122</u> (4)
<u>WRIT 132</u> (4)	<u>ENGL 132</u> (4)
OR	

If WRIT 121 is waived, complete ENGL 122 or WRIT 122, AND a second WRIT or ENGL course with a number of 200 or higher.

2. Science and Mathematics Minimum of 8 credits

Completing at least one underlined course from A or B will satisfy the LCC General Education Core Requirement in science and technology. If C is not chosen in this category, then the LCC Core requirement for Mathematics must be met by one of the options described on page 23 of this catalog.

- A minimum of 8 credits must be chosen from *two* of the three categories below (A, B, and C).

A. Physical Science		
<u>CHEM 151 & 161</u> (5)	<u>METR 220</u> (4)	<u>PHYS 201 & 225</u> (5)
<u>GEOL 200</u> (3)	<u>OCNL 225</u> (4)	<u>PHYS 215 & 225</u> (6)
<u>GEOL 221</u> (4)		
<u>GEOL 222</u> (4)		
B. Biological Science		
<u>ANAT 201</u> (4)	<u>BIOL 128</u> (4)	<u>BIOL 265</u> (4)
<u>BIOL 121</u> (4)	<u>BIOL 210</u> (4)	<u>MICRO 203 & 204</u> (4)
<u>BIOL 127</u> (4)	<u>BIOL 260</u> (4)	<u>PHGY 202</u> (4)
C. Mathematics		
<u>MATH 121</u> (4)	<u>MATH 141</u> (3)	<u>STAT 170</u> (3)
<u>MATH 122</u> (3)	<u>MATH 151</u> (4)	<u>STAT 215</u> (4)
<u>MATH 126</u> (5)	<u>MATH 152</u> (4)	
<u>MATH 130</u> (3)	<u>MATH 201</u> (3)	

3. Social Science Minimum of 8 credits

Completing at least one underlined course from Category 3 OR Category 4 will satisfy the institutional Core requirement in Global Perspectives and Diversity.

- Complete *one* course in Political Science from the following:

<u>POLS 120</u> (4)	<u>POLS 121</u> (4)
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- Complete *one* course or course pair from the following:

<u>ECON 120</u> (4)	<u>GEOG 200</u> (4)	<u>SOCL 120</u> (4)
<u>ECON 201 & 202</u> (6)	<u>PSYC 200</u> (4)	

4. Humanities 8 credits

Completing at least one underlined course from Category 3 OR Category 4 will satisfy the institutional Core requirement in Global Perspectives and Diversity.

Complete *one* course from group A and *one* from group B. It is recommended that the Group A course be completed before the Group B course.

GROUP A		
<u>ENGL 211</u> (4)	<u>HUMS 211</u> (4)	<u>PHIL 211</u> (4)
<u>HIST 211</u> (4)	<u>HUMS 213</u> (4)	<u>RELG 211</u> (4)
GROUP B		
<u>ENGL 212</u> (4)	<u>HUMS 212</u> (4)	<u>RELG 212</u> (4)
<u>HIST 212</u> (4)	<u>HUMS 214</u> (4)	<u>PHIL 212</u> (4)
<u>HIST 214</u> (4)		

5. Speech 3 credits

Complete the following course: SPCH 120 (3)

II. SUBJECT AREA CONCENTRATIONS Minimum of 25 credits

The following Subject Area Concentrations list the remaining required and recommended courses that will apply toward an Associate in Science degree. Courses should be selected in consultation with an academic advisor or counselor to determine their transferability to a specific four-year school. Credits for each course have been indicated in parenthesis.

BIOLOGY

Curriculum Code: 10221

1. Complete MATH 121, CHEM 151 and 161 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (15 credits):
 - BIOL 127 Cell Biology (4)
 - BIOL 128 Organismal Biology (4)
 - CHEM 152 General Chemistry Lecture II (3)
 - CHEM 162 General Chemistry Laboratory II (1)
 - STAT 170 Introduction to Statistics (3)
3. Complete a minimum of 12 credits from the following:
 - BIOL 210 Natural Resource Conservation (4)
 - BIOL 260 Botany (4)
 - BIOL 265 Zoology (4)
 - BIOL 270 Human Genetics (3)
 - BIOL 275 Molecular Biology I (4)
 - CHEM 251 Organic Chemistry Lecture I (4)
 - CHEM 272 Organic Chemistry Laboratory (2)
 - MICR 203 Microbiology (3)
 - MICR 204 Microbiology Laboratory (1)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II
BIOL 127	BIOL 128
CHEM 151	CHEM 152
CHEM 161	CHEM 162
MATH 121	STAT 170

CHEMISTRY

Curriculum Code: 10117

1. Complete MATH 151, CHEM 151 and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (28 credits):

(NOTE: In order to complete sequences, MATH 253, PHYS 216, and PHYS 226 are also recommended.)

 - BIOL 127 Cell Biology (4)
 - CHEM 152 General Chemistry Lecture II (3)
 - CHEM 162 General Chemistry Laboratory II (1)
 - CHEM 251 Organic Chemistry Lecture I (4)
 - CHEM 252 Organic Chemistry Lecture II (4)
 - CHEM 272 Organic Chemistry Laboratory (2)
 - MATH 152 Calculus II (4)
 - PHYS 215 Physics I: Mechanics (5)
 - PHYS 225 Physics I Laboratory (1)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	BIOL 127	CHEM 251	CHEM 252
CHEM 161	CHEM 152	PHYS 215	CHEM 272
MATH 151	CHEM 162	PHYS 225	
	MATH 152		

COMPUTER SCIENCE

Curriculum Code: 10169

1. Complete MATH 151 and PHYS 215 and 225 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (19 credits):
 - CPSC 230 Algorithms and Computing with C++ (4)
 - CPSC 260 Discrete Structures in Computer Science (4)
 - CPSC 280 Data Structures (3)
 - MATH 152 Calculus II (4)
 - MATH 253 Calculus III (4)
3. Complete a minimum of 6 credits from the following:

(NOTE: In order to complete sequences, PHYS 216 is also recommended.)

 - MATH 254 Introduction to Differential Equations (3)
 - MATH 260 Linear Algebra (3)
 - PHYS 216 Physics II: Electromagnetism, Waves, and Optics (5)
 - PHYS 226 Physics II Laboratory (1)
 - STAT 215 Introduction to Probability and Statistics for Business (4)

ENVIRONMENTAL SCIENCE

Curriculum Code: 10755

1. Complete HUMS 213 and HUMS 214 to satisfy the Humanities General Education Requirement.
2. Complete MATH 121, CHEM 151 and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
3. Complete the following required courses (22 credits):
 - BIOL 128 Organismal Biology (4)
 - BIOL 210 Natural Resource Conservation (4)
 - CHEM 182 Introductory Organic Chemistry (3)
 - CHEM 192 Introductory Organic Chemistry Laboratory (1)
 - CPSC 120 Introduction to Computers (3)
 - GEOL 230 Environmental Geology (4)
 - STAT 170 Introduction to Statistics (3)
4. Complete a minimum of 4 credits from the following:
 - BIOL 260 Botany (4)
 - BIOL 265 Zoology (4)
 - GEOG 121 Physical Geography (3)
 - GRET 203 MicroStation Beginning (3)
 - METR 220 Introduction to Meteorology (4)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	BIOL 128	BIOL 210	GEOL 230
CHEM 161	CHEM 182		
CPSC 120	CHEM 192		
MATH 121	STAT 170		

GEOSCIENCE

Curriculum Code: 10174

1. Complete MATH 126, CHEM 151 and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (16 credits):
 CHEM 152 General Chemistry Lecture II (3)
 CHEM 162 General Chemistry Laboratory II (1)
 GEOL 221 Earth Materials and Processes: Physical Geology (4)
 GEOL 222 Earth and Life Through Time: Historical Geology (4)
 GEOL 230 Environmental Geology (4)
3. Complete a minimum of 10 credits from the following:
 (NOTE: PHYS 215 & 216 may be substituted for PHYS 201 & 202 with the appropriate math background.)
 CPSC 120 Introduction to Computers (3)
 GEOL 200 Michigan Geology (3)
 GEOL 210 Geology Field Studies (1)
 METR 220 Introduction to Meteorology (4)
 OCNL 225 Basic Oceanography (4)
 PHYS 201 Introductory Physics I (4)
 PHYS 202 Introductory Physics II (4)
 PHYS 225 Physics I Laboratory (1)
 PHYS 226 Physics II Laboratory (1)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	CHEM 152		GEOL 230
CHEM 161	CHEM 162		
GEOL 221	GEOL 222		
MATH 126			

MATHEMATICS/PRE-ENGINEERING

Curriculum Code: 10200

1. Complete MATH 151 and PHYS 215 and 225 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (19 credits):
 MATH 152 Calculus II (4)
 MATH 253 Calculus III (4)
 MATH 254 Introduction to Differential Equations (3)
 MATH 260 Linear Algebra (3)
 PHYS 216 Physics II: Electromagnetism, Waves, and Optics (5)
3. Complete a minimum of 8 credits from the following:
 CPSC 230 Algorithms and Computing With C++ (4)
 CPSC 260 Discrete Structures in Computer Science (4)
 CPSC 280 Data Structures (3)
 MATH 281 Honors Math Seminar I (1)
 PHYS 226 Physics II Laboratory (1)
 STAT 216 Introduction to Probability and Statistics for Business (4)

MEDICAL PRE-PROFESSIONAL

Curriculum Code: 10754

(NOTE: Students who are planning a career in dentistry, pharmacology, medicine, physical therapy, physicians assistant, etc. could follow this curriculum.)

1. Complete PSYC 200 to satisfy part of the Social Science General Education Requirement.
2. Complete MATH 126, CHEM 151, and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
3. Complete the following required courses (16 credits):
 BIOL 127 Cell Biology (4)
 CHEM 152 General Chemistry Lecture II (3)
 CHEM 162 General Chemistry Laboratory II (1)
 PHYS 201 Introductory Physics I (4)
 PHYS 202 Introductory Physics II (4)
4. Complete a minimum of 10 credits from the following:
 ANAT 201 Human Anatomy (4)
 CHEM 251 Organic Chemistry Lecture I (4)
 CHEM 252 Organic Chemistry Lecture II (4)
 CHEM 272 Organic Chemistry Laboratory (2)
 PHYS 225 Physics I Laboratory (1)
 PHYS 226 Physics II Laboratory (1)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BIOL 127	CHEM 152	PHYS 201	PHYS 202
CHEM 151	CHEM 162		
CHEM 161	PSYC 200		
MATH 126			

PHYSICS/PRE-ENGINEERING

Curriculum Code: 10112

1. Complete MATH 151, CHEM 151 and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (20 credits):
 MATH 152 Calculus II (4)
 MATH 253 Calculus III (4)
 PHYS 215 Physics I: Mechanics (5)
 PHYS 225 Physics I Laboratory (1)
 PHYS 216 Physics II: Electromagnetism, Waves and Optics (5)
 PHYS 226 Physics II Laboratory (1)
3. Complete a minimum of 7 credits from the following:
 BIOL 127 Cell Biology (4)
 CHEM 152 General Chemistry Lecture II (3)
 CHEM 162 General Chemistry Laboratory II (1)
 CPSC 150 FORTRAN (3)
 CPSC 230 Algorithms and Computing with C++ (4)
 MATH 254 Differential Equations (3)
 MATH 260 Linear Algebra (3)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	MATH 152	MATH 253	PHYS 216
CHEM 161		PHYS 215	PHYS 226
MATH 151		PHYS 225	

GENERAL ASSOCIATE DEGREE

Curriculum Code: 10863

EFFECTIVE FALL 1998 – SUMMER 2003

This degree is a customized program of study which should be approved by an advisor. A minimum of 60 credits is required and includes the LCC General Education Core requirements. Students must also complete EITHER a minimum of 12 related credits in an area of study of their own choosing OR they must complete the credits listed on a transfer institution curriculum guide. (See *Transfer Information* in this section of the catalog for a list of institutions for which transfer guides are available.) Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

The requirements for this program of study are outlined below. Prior to beginning this program, students should meet with an academic advisor or counselor in the Counseling and Advising Center (Room 103 of the Arts and Sciences Building, telephone number (517) 483-1904, or (517) 483-1191), or in the Counseling Services Department (Room 208 of the Student Personnel Services Building, telephone number (517) 483-1184).

REQUIREMENTS

TOTAL: 60 CREDITS

General Education Core Areas

12 Credits

(Mathematics competency required—See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

Customized Options (Choose One Option - See Note 1)

48 Credits

Option A

Credits in a Selected Area of Study	12
Elective Credits	36

Option B

Transfer Guide Requirements (See Note 2)	Variable
Elective Credits (See Note 3)	Variable

MINIMUM TOTAL

60

NOTES

1. Students should meet with an academic advisor or counselor prior to selecting courses for customized options.
2. Students should complete the credits required by a transfer institution on a transfer curriculum guide. See *Transfer Information* in this section of the catalog for a list of institutions for which transfer guides are available.
3. After completing transfer guide requirements, students selecting this option may also have to complete elective credits in order to meet the 60-credit minimum required for this degree.

APPLIED DEGREES AND CERTIFICATES

The programs presented in this section lead to an associate degree in applied arts, an associate degree in applied science, an associate degree in business, or a certificate. These degree and certificate programs are designed primarily for students who seek education and the acquisition of skills needed to enter the job market or to advance their current careers. Not all courses in these programs transfer to all colleges. Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

ACCOUNTING	Microcomputer Support Specialist, AB 79	Radiologic Technology, AAS 111	OFFICE CAREERS
Accounting, AB 48	Microcomputer Systems, AB 80	Respiratory Therapist, AAS 112	Administrative Assistant, AB 143
Accounting, CA 49	Microcomputer Systems, CA 81	Surgical Technology, CA 113	Executive Secretary, AB 144
Accounting, CPA Exam Preparation, AB 49	Programmer/Analyst, AB 82		Information/Word Processing, AB 145
Managerial Accounting, AB 50			Information/Word Processing, CA 146
			Automated Office Specialist, CA 146
			Legal Secretary, AB 147
			Medical Administrative Assistant, AB 148
			Medical Transcriptionist, AB 149
			Office Skills Training, CC 150
			Office Support, CA 150
			Records Management, AB 151
AGRICULTURE	COMPUTERS - ADVANCED	HEATING, AIR CONDITIONING, AND REFRIGERATION	PERFORMING ARTS
Precision Agriculture and Sustainable Development, CA 51	Advanced Microcomputer Application Specialist, CC 83	Heating, Air Conditioning, and Refrigeration, AAS 114	Dance Transfer and Dance Career, AAA 152
	Microcomputer User Support Specialist, CC 83	Heating and Air Conditioning, CA 114	Music Commercial Performance, AAA 153
	System Support Specialist for AS/400, CC 84		Music Management, AAA 154
	Windows Programming Specialist, CC 84		Music Transfer, AAA 155
		HOSPITALITY	Theatre-Acting Transfer, AAA 156
		Hotel-Motel/Food Management Specialist, AB 115	
			PHOTOGRAPHIC IMAGING
			Photographic Imaging, AAS 157
			QUALITY ASSURANCE
			Quality Assurance, AAS 158
			Quality Management, AAS 159
			REAL ESTATE
			Property Valuation and Assessment Administration, AB 160
			Property Valuation and Assessment Administration, CC 160
			Real Estate, AB 161
			Real Estate, CC 161
			SCIENCE - APPLIED
			Chemical Process Technology, AAA 162
			Chemical Process Technology, CA 162
			Chemical Technology, AAS 163
			Molecular Biotechnology, AAS 164
			Veterinary Technology, AAS 165
			SIGN LANGUAGE
			Sign Language Interpreter, AAA 166
			Sign Language Interpreter, CA 167
			STAGE TECHNOLOGY
			Stage Technology, AAA 168
			Stage Technology, CA 169
			TECHNOLOGY - GENERAL
			General Technology, AAS 170
			TRAVEL/TOURISM
			Tourism: Airline and Travel Agency Operation, AB 171
			TRUCK DRIVER TRAINING
			Truck Driver Training, CC 172
			KEY
			AB Associate Degree Business
			AAA Associate Degree Applied Arts
			AAS Associate Degree Applied Science
			CA Certificate of Achievement
			CC Certificate of Completion
ARCHITECTURE	CONSTRUCTION	HUMAN SERVICES CAREERS	
Architectural Technology, Computer Graphics Option, AAS 52	Residential Building, AAS 85	Child Development, AAS 116	
Architectural Technology, Core Option, AAS 53	Residential Building, CA 85	Child Development, CA 117	
Architectural Technology, Residential Design Option, AAS 54		Gerontology, AAS 118	
		Gerontology, CA 119	
		Human Services, General, AAS 120	
		Substance Abuse, AAS 121	
		Substance Abuse, CA 122	
			INDUSTRIAL
			Computerized Numerical Control Programmer, AAS 123
			Industrial Technology, AAS 124
			Industrial Technology, CA 124
			Machine Maintenance, AAS 125
			Machine Repair, CA 125
			Millwright, CA 126
			Machinist Toolmaker, AAS 127
			Tool and Die Maker, CA 127
			Welding Technology, AAS 128
			Welding Technology, CA 128
			INTERIOR DESIGN
			Interior Design Assistant, Pre-Professional, AAS 129
			LANDSCAPE CAREERS
			Horticulture, AAS 130
			Landscape Architecture, AAS 131
			LEGAL ASSISTANT
			Legal Assistant, AB 132
			Legal Assistant, Post-Baccalaureate, CA 133
			MANAGEMENT
			Human Resource Management, AB 134
			Labor Relations, AB 135
			Labor Relations, CC 135
			Management, AB 136
			Management, CA 137
			Management, Advanced, CA 138
			MARKETING
			Computer Sales Specialist, AB 139
			Field Sales and Marketing, AB 140
			Field Sales and Marketing, CA 140
			Marketing, AB 141
			Marketing, CA 141
			MEDIA TECHNOLOGY
			Media Technology, AAS 142
ART, DESIGN, AND MULTIMEDIA	COURT AND CONFERENCE REPORTING		
Airbrush Illustration, CA 55	Court and Conference Reporting, AB 86		
Computer Graphics, Animation, AAA 56			
Computer Graphics, Multimedia, AAA 57			
Computer Graphics, Multimedia, CA 58			
Figure Studies, CA 58			
Fine Art Foundation, AAA 59			
Graphic Design, AAA 60			
Humorous Illustration, CA 60			
			CREDIT UNION MANAGEMENT
			Credit Union Management, AB 87
			Credit Union Management, CC 87
			CRIMINAL JUSTICE
			Criminal Justice, Corrections, AB 88
			Criminal Justice, Law Enforcement, AB 89
			Mid-Michigan Police Academy, CC 90
			DRAFTING
			CAD/CAM Engineering Technician, AAS 91
			Drafting and Design, AAS 92
			Drafting and Design, CA 92
			ELECTRICAL
			Electrical Technology, AAS 93
			Electrical Technology, Construction, CA 94
			Electrical Technology, Control and Maintenance, CA 94
			Electronics Technology, Biomedical Option, AAS 95
			Electronics Technology, Communications Option, AAS 96
			Electronics Technology, Digital Option, AAS 97
			ENVIRONMENTAL TECHNOLOGY
			Environmental Resource Management Technology, AAS 98
			Geographic Resources and Environmental Technology, AAS 99
			FIRE SCIENCE
			Fire Science Academy, CC 100
			Fire Science Technology, AAS 101
			HEALTH CAREERS
			Dental Assistant, CA 102
			Dental Hygienist, AAS 103
			Diagnostic Medical Sonography, CA 104
			Emergency Medical Services, AAS 105
			Basic Emergency Medical Service, CA 106
			Massage Therapy, CC 106
			Medical Assistant, CA 107
			Multi-Skilled Patient Care Technician, CC 107
			Nursing, LPN Option, CA 108
			Nursing, RN Option, AAS 109
			Paramedic, CA 110

**ACCOUNTING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10162 (Effective Fall 1998–Summer 2003)

Graduates of this program are qualified to work as a paraprofessional in most areas of accounting, such as financial reporting, cost accounting, governmental accounting, tax preparation and auditing. Typically the paraprofessional works under the supervision of a professional accountant, but may be doing essentially the same types of work. Job titles include full-charge bookkeeper, tax preparer, and internal auditor, among others. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 31 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
ACCG 220	Intermediate Accounting I	4
ACCG 221	Intermediate Accounting II	4
ACCG 230	Cost Accounting	4
ACCG 240	Federal Income Tax I	4
ACCG 260	Microcomputer Accounting Systems	4
LEGL 215	Business Law I, Basic Principles	3

LIMITED CHOICE REQUIREMENTS TOTAL: 29–30 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 12 Credits (See the <i>GENERAL EDUCATION</i> section above)	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
CHOICE 2: Accounting Specialty Area 11–12 Credits	
ACCG 160 Payroll Systems and Business Taxes	2
ACCG 231 Managerial Accounting	4
ACCG 235 Budgeting	2
ACCG 241 Federal Income Tax II	4
ACCG 250 Advanced Accounting	4
ACCG 280 Governmental Accounting	4
ACCG 290 Auditing	3
CHOICE 3: Other Accounting and Business Related (See Note 1) 6 Credits	
ACCG 245 Accounting Internship	2
ACCG 271 Principles of Finance	3
INSU 265 Principles of Risk and Insurance	3
LEGL 219 Advanced Business Law for Accounting Majors	4
MINIMUM TOTAL	60

NOTES

- Students may also select from unchosen courses in Choice 2.
- For graduation from this program, a student must have earned a minimum 2.00 grade point average in courses with an ACCG prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	ACCG 211	ACCG 220	ACCG 221
LEGL 215	ACCG 260	ACCG 230	Lim.Ch.
Lim.Ch.	Lim.Ch.	ACCG 240	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.		Lim.Ch.

**ACCOUNTING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10714 (Effective Fall 1998–Summer 2003)

Certificate holders qualify for clerical-level accounting positions that frequently include the need for general office skills in addition to accounting. Job titles include billing clerk, bookkeeper, payroll clerk, accounts receivable clerk, and accounts payable clerk. In smaller companies, a certificate holder may do all accounting tasks other than those handled by the company's CPA firm or other outside accountants.

REQUIREMENTS		TOTAL: 17 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 160	Payroll Systems and Business Taxes	2
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
ACCG 260	Microcomputer Accounting Systems	4
OADM 215	Records and Information Management I	3

LIMITED CHOICE REQUIREMENTS TOTAL: 12–15 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Accounting Specialty 2–3 Credits	
ACCG 140 Individual Income Taxes	3
ACCG 235 Budgeting	2
CHOICE 2: Word Processing 4 Credits	
CABS 114 WordPerfect—Beginning for DOS	2
CABS 115 WordPerfect—Advanced for DOS	2
CABS 119 Word for Windows	2
CABS 121 WordPerfect for Windows	2
CABS 219 Advanced Microsoft Word	2
CHOICE 3: Office Skills 3–4 Credits	
OADM 195 Human Behavior in the Work Place	3
OADM 216 Records and Information Management II	4
OADM 220 Administrative Office Management	4
CHOICE 4: Written Communication 3–4 Credits	
WRIT 127 Business Communications	3
WRIT 121 Composition I	4

ELECTIVES TOTAL: 2 CREDITS
Complete the indicated number of credits in courses of your choice.

MINIMUM TOTAL 31

SUGGESTED COURSE SEQUENCE

I	II
ACCG 210	ACCG 160
OADM 215	ACCG 211
Lim.Ch.	ACCG 260
Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.
	Elec.

**ACCOUNTING, C.P.A. EXAM PREPARATION
ASSOCIATE IN BUSINESS DEGREE****Curriculum Code: 10255 (Effective Fall 1998–Summer 2003)**

This curriculum is intended for people with a bachelor's degree in another field who want to make a career change to accounting. The focus is on learning the material necessary to pass the exam to become a Certified Public Accountant (C.P.A.). Virtually all jobs in accounting and auditing are available to the C.P.A. The main job a C.P.A. is eligible to do that other accountants cannot is that of external auditor, which involves expressing an independent opinion on financial statements prepared by others. Some public accounting experience is required prior to certification in some states. The student is advised to review the requirements for certification as defined by the State Board of Accountancy. In addition, students should contact the Board of Accountancy, State of Michigan, Consumer and Industry Services to receive an authoritative list of requirements to sit for the C.P.A. exam.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 42 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
ACCG 220	Intermediate Accounting I	4
ACCG 221	Intermediate Accounting II	4
ACCG 230	Cost Accounting	4
ACCG 240	Federal Income Tax I	4
ACCG 241	Federal Income Tax II	4
ACCG 260	Microcomputer Accounting Systems	4
ACCG 290	Auditing	3
LEGL 215	Business Law I, Basic Principles	3
LEGL 219	Advanced Business Law for Accounting Majors	4

LIMITED CHOICE REQUIREMENTS		TOTAL: 18–20 CREDITS
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Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1:	General Education Core Areas (See Note 1)	12 Credits
	(See the <i>GENERAL EDUCATION</i> section above)	
	Writing Core Area	3
	Speech Communication Core Area	3
	Science/Technology Core Area	3
	Global Perspectives and Diversity Core Area	3
CHOICE 2:	Governmental/Fund Accounting	4 Credits
ACCG 250	Advanced Accounting	4
ACCG 280	Governmental Accounting	4
CHOICE 3:	Accounting Related	2–4 Credits
ACCG 231	Managerial Accounting	4
ACCG 295	CPA Review—Tax, Managerial and Cost, Government, and Nonprofit	1
ACCG 296	CPA Review—Business Law	1
ACCG 297	CPA Review—Auditing	1
ACCG 298	CPA Review—Financial Accounting and Reporting	1
ECON 201	Principles of Economics—Micro	3

MINIMUM TOTAL	60
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NOTES

- Presenting evidence of an earned baccalaureate degree from an accredited college or university would fulfill all General Education Core requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	ACCG 211	ACCG 220	ACCG 221
LEGL 215	ACCG 260	ACCG 230	ACCG 241
Lim.Ch.	LEGL 219	ACCG 240	ACCG 290
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
			Lim.Ch.

**MANAGERIAL ACCOUNTING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10247 (Effective Fall 1998–Summer 2003)

This program combines study in Accounting and Quality Assurance. Historically these skills lead to jobs in manufacturing. Today, however, service, merchandising, and governmental organizations are emphasizing cost and quality control. There should be an increasing demand for graduates of this program to assist management in budgeting, pricing, problem solving, statistical analysis, and controlling costs and quality. Job titles might be quality control auditor or cost accountant. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Qld Central Building, Room 210, telephone number (517) 493-1522.

REQUIREMENTS		TOTAL: 34 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
ACCG 220	Intermediate Accounting I	4
ACCG 230	Cost Accounting	4
ACCG 231	Managerial Accounting	4
ACCG 260	Microcomputer Accounting Systems	4
QUAL 100	Introduction to Quality Assurance	3
QUAL 103	Probability and Statistics for Quality Assurance	4
QUAL 205	Cost of Quality	3

LIMITED CHOICE REQUIREMENTS TOTAL: 27–28 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	12 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Accounting Related	9 Credits
ACCG 160 Payroll Systems and Business Taxes	2
ACCG 235 Budgeting	2
ACCG 240 Federal Income Tax I	4
ACCG 241 Federal Income Tax II	4
ACCG 280 Governmental Accounting	4
ACCG 290 Auditing	3

CHOICE 3: Quality Related (Choose one subchoice)	6–7 Credits
Subchoice 3A	
QUAL 104 Process Control Charting	3
QUAL 107 Problem-Solving Techniques	3
Subchoice 3B	
QUAL 121 Introduction to Statistical Process Control	3
QUAL 203 Quality Planning and Systems Management	4

MINIMUM TOTAL 61

NOTES

- For graduation from this program, a student must have earned a minimum 2.00 grade point average in courses with an ACCG prefix and QUAL prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	ACCG 211	ACCG 220	ACCG 231
QUAL 100	ACCG 260	ACCG 230	Lim.Ch.
QUAL 103	QUAL 205	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.		Lim.Ch.

**PRECISION AGRICULTURE AND SUSTAINABLE DEVELOPMENT
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10852 (Effective Fall 1998–Summer 2003)

Students completing this certificate will be prepared for entry-level positions in precision agriculture and its various application areas in the agribusiness arena. Positions as pest scouts, custom applicators, technology resource technicians, and crop advisory specialists are a few of the positions available. This certificate provides basic computer skills as well as background and hands-on experience in GIS and GPS technologies.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 24 CREDITS

CODE	TITLE	CREDIT HOURS
AGRI 101	Principles of Precision Agritechnology	2
AGRI 106	Diseases and Insects of Agronomic Crops	2
AGRI 200	Vegetation and Weed Management	3
AGRI 201	Principles of Sustainable Agriculture	3
GRET 203	MicroStation Beginning	3
GRET 205	Principles of Geographic Information Systems	3
GRET 210	Principles of Global Positioning Systems	3
HORT 102	Introduction to Ornamental Horticulture	2
LAND 282	Computer Drafting/Design in Landscape Architecture	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 7–9 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Specializations (Choose 1 Subchoice) 7–9 Credits

Subchoice 1A: Truck Driver Training Program (See Note 1)

TDTP 110	Truck Train I	3
TDTP 111	Truck Train II	3
TDTP 112	Truck Train III	3

Subchoice 1B: Computer Option

GRET 253	Basics of ARC/VIEW	1
GRET 255	Beginning ARC/INFO	3
GRET 256	Advanced ARC/INFO	3

MINIMUM TOTAL

31

NOTES

- The Truck Driver Training Program is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. For the most recent and complete information, interested students should contact Lansing Community College, Truck Driver Training Program, 2416 25th Street, Augusta, MI 49012, Program Director, John Theroux, telephone number (616) 731-4125.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
AGRI 101	AGRI 200
AGRI 106	AGRI 201
GRET 205	GRET 203
HORT 102	GRET 210
LAND 282	Lim.Ch.
Lim.Ch.	Lim.Ch.

**ARCHITECTURAL TECHNOLOGY, COMPUTER GRAPHICS OPTION
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10226 (Effective Fall 1998–Summer 2003)

This architectural degree option places emphasis on the development of computer aided design and drafting skills, which supplements a student's basic knowledge of architecture technology. This option provides students with a working knowledge of and the opportunity to work with the latest CAD softwares in use in today's architectural offices. Basic, advanced, and independent study courses are taught using the major computer software systems: AutoCAD, DataCAD, MicroStation, and AES. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Architectural Studies Center, Gannon Vocational-Technical Center, Room 450, telephone number (517) 483-1327.

REQUIREMENTS

TOTAL: 26 CREDITS

CODE	TITLE	CREDIT HOURS
ARCH 101	Architectural Drafting I	4
ARCH 102	Architectural Drafting II	4
ARCH 121	Visual Communication I	3
ARCH 201	Architectural Drafting III	4
ARCH 271	Structural Theory	4
BLDT 281	BOCA/Uniform Code	3
MATH 121	College Algebra I	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 44–45 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Computer Graphics 18 Credits

ARCH 221	Architectural DataCAD I	4
ARCH 222	Architectural DataCAD II	4
ARCH 225	Architectural DataCAD Independent Study	2
ARCH 231	Architectural AutoCAD I	4
ARCH 232	Architectural AutoCAD II	4
ARCH 235	Architectural AutoCAD Independent Study	2
ARCH 237	Architectural Computer Rendering	3
ARCH 241	Architectural AES Computer Graphics I	4
ARCH 242	Architectural AES Computer Graphics II	4
ARCH 245	Architectural AES Independent Study	2
ARCH 251	Architectural MicroStation I	4
ARCH 252	Architectural MicroStation II	4
ARCH 255	MicroStation Independent Study	2

CHOICE 3: History and Preservation 3 Credits

ARCH 141	Architectural History I	3
ARCH 142	Architectural History II	3
ARCH 146	Preservation and Adaptive Reuse Architecture	3

CHOICE 4: Materials, Structures and Systems 7–8 Credits	
ARCH 273	Environmental Systems 4
ARCH 276	Alternative Structures 3
ARCH 278	Energy Efficient Design 4
ARCH 283	Materials of Construction 4
BLDT 277	Construction Cost Estimating 4

CHOICE 5: Architectural Related (See Note 1) 4 Credits

MINIMUM TOTAL 70

NOTES

1. Allows completion of courses which relate to specific career preparation for the field of architectural computer graphics and have not been applied in any of the above categories.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARCH 101	ARCH 102	ARCH 201	BLDT 281
ARCH 121	ARCH 271	Lim.Ch.	Lim.Ch.
MATH 121	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	

**ARCHITECTURAL TECHNOLOGY, CORE OPTION
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10233 (Effective Fall 1998–Summer 2003)

The Architectural Studies Program offers students interested in the field of architecture three degree options. This degree option makes available a comprehensive program of study, involving all aspects of the contemporary architectural profession. Graduates of this comprehensive program are prepared to work as para-professionals in the offices of registered architects, engineers, interior designers, residential designers and builders, component suppliers and manufacturers, assisting those offices with the preparation of drawn documentation, design work, research, and field supervision. Students within this option area are also prepared to pursue a higher degree in architecture. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Architectural Studies Center, Gannon Vocational-Technical Center, Room 450, telephone number (517) 483-1327.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 33 CREDITS
ARCH 101	Architectural Drafting I	4	
ARCH 102	Architectural Drafting II	4	
ARCH 121	Visual Communication I	3	
ARCH 201	Architectural Drafting III	4	
ARCH 202	Architectural Drafting IV	4	
ARCH 211	Design Studio I	3	
ARCH 271	Structural Theory	4	
BLDT 281	BOCA/Uniform Code	3	
MATH 121	College Algebra I	4	

LIMITED CHOICE REQUIREMENTS TOTAL: 37-41 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 12 Credits

- (See the *GENERAL EDUCATION* section above)
- Writing Core Area 3
- Speech Communication Core Area 3
- Science/Technology Core Area 3
- Global Perspectives and Diversity Core Area 3

CHOICE 2: Computer Graphics 7-8 Credits

- ARCH 221 Architectural DataCAD I 4
- ARCH 222 Architectural DataCAD II 4
- ARCH 231 Architectural AutoCAD I 4
- ARCH 232 Architectural AutoCAD II 4
- ARCH 237 Architectural Computer Rendering 3
- ARCH 241 Architectural AES Computer Graphics I 4
- ARCH 242 Architectural AES Computer Graphics II 4
- ARCH 251 Architectural MicroStation I 4
- ARCH 252 Architectural MicroStation II 4

CHOICE 3: Materials, Structures and Systems 7-8 Credits

- ARCH 273 Environmental Systems 4
- ARCH 276 Alternative Structures 3
- ARCH 278 Energy Efficient Design 4
- ARCH 283 Materials of Construction 4
- BLDT 277 Construction Cost Estimating 4

- CHOICE 4: History and Preservation 6 Credits**
- ARCH 141 Architectural History I 3
- ARCH 142 Architectural History II 3
- ARCH 146 Preservation and Adaptive Reuse Architecture 3

- CHOICE 5: Design 2-3 Credits**
- ARCH 128 Residential Planning 2
- ARCH 181 Barrier-Free Design 3
- ARCH 182 Universal Design 2
- ARCH 212 Design Studio II 3
- ARCH 213 Facilities Design 3

- CHOICE 6: Architectural Related (See Note 1) 3-4 Credits**

MINIMUM TOTAL 70

NOTES

1. Allows completion of courses which relate to specific career preparation for the field of architecture and have not been applied in any of the above categories.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARCH 101	ARCH 102	ARCH 201	ARCH 202
ARCH 121	ARCH 211	ARCH 271	BLDT 281
MATH 121	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**ARCHITECTURAL TECHNOLOGY, RESIDENTIAL DESIGN OPTION
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10758 (Effective Fall 1998–Summer 2003)

This degree option will provide architectural students with the opportunity to study all aspects of single and multi-family residential design and construction. Areas of required study include residential design theory, preparation of residential working drawings, construction techniques, construction materials, residential landscaping, residential interiors, computer graphics, presentation techniques, structural design, and architectural history. Students will have the opportunity to take a cross-disciplinary array of technology courses, preparing for work in all segments of the residential design/build markets. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Architectural Studies Center, Gannon Vocational-Technical Center, Room 450, telephone number (517) 483-1327.

REQUIREMENTS

TOTAL: 26 CREDITS

CODE	TITLE	CREDIT HOURS
ARCH 101	Architectural Drafting I	4
ARCH 102	Architectural Drafting II	4
ARCH 121	Visual Communication I	3
ARCH 128	Residential Planning	2
ARCH 271	Structural Theory	4
BLDT 281	BOCA/Uniform Code	3
LAND 132	Residential Landscaping	2
MATH 121	College Algebra I	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 44-50 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 12 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Computer Graphics 7-8 Credits

ARCH 221	Architectural DataCAD I	4
ARCH 222	Architectural DataCAD II	4
ARCH 225	Architectural DataCAD Independent Study	2
ARCH 231	Architectural AutoCAD I	4
ARCH 232	Architectural AutoCAD II	4
ARCH 235	Architectural AutoCAD Independent Study	2
ARCH 237	Architectural Computer Rendering	3

CHOICE 3: Building Trades 7-8 Credits

BLDT 100	Introduction to Construction	3
BLDT 121	Residential Framing and Foundations	4
BLDT 277	Construction Cost Estimating	4

CHOICE 4: Materials Structures and Systems 7-8 Credits

ARCH 273	Environmental Systems	4
ARCH 276	Alternative Structures	3
ARCH 278	Energy Efficient Design	4
ARCH 283	Materials of Construction	4

CHOICE 5: History 3 Credits	
ARCH 142	Architectural History II 3
ARCH 146	Preservation and Adaptive Reuse Architecture 3
INTR 232	Twentieth Century Interior Design 3

CHOICE 6: Interior Design 6-7 Credits	
INTR 151	Computer-Aided Kitchen Design 3
INTR 190	Materials for Interiors 3
INTR 240	Interior Lighting 3
INTR 246	Residential Interiors 4

CHOICE 7: Architectural Related (See Note 1) 2-4 Credits	
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MINIMUM TOTAL 70

NOTES

1. Allows completion of courses which relate to specific career preparation for the field of residential design and have not been applied in any of the above categories.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARCH 121	ARCH 101	ARCH 102	BLDT 281
ARCH 128	LAND 132	ARCH 271	Lim.Ch.
MATH 121	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.	Lim.Ch.	

**AIRBRUSH ILLUSTRATION
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10858 (Effective Fall 1998–Summer 2003)

This certificate program consists of practical hands-on courses that provide students with the technical knowledge and skills needed to create airbrush artwork on a variety of surfaces and materials. Students are prepared for an entry-level position in fields such as automotive customization, sign painting, photo retouching, nail design, and the fashion industry.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS		TOTAL: 25.5 CREDITS
CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing	3
ARTS 137	Drawing II	2
ARTS 195	Employment and Business Issues for Artists	2
ARTS 221	Airbrush Techniques I	3
ARTS 222	Airbrush Techniques II	3
ARTS 224	Automotive Airbrush Techniques	3
ARTS 269	The Portfolio	1
AUTO 185	Basic Auto Painting	2.5

LIMITED CHOICE REQUIREMENTS		TOTAL: 6 CREDITS
Complete the indicated number of credits from <i>each CHOICE</i> listed below.		
ARTS 162	Typography	3
ARTS 200	Painting I	3
ARTS 213	Illustration Fundamentals	3
ARTS 216	Humorous Illustration I	3

MINIMUM TOTAL 31.5

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
ARTS 102	ARTS 132	ARTS 195
ARTS 131	ARTS 137	ARTS 224
ARTS 221	ARTS 222	ARTS 269
AUTO 185	Lim.Ch.	Lim.Ch.

COMPUTER GRAPHICS ANIMATION ASSOCIATE IN APPLIED ARTS DEGREE

Curriculum Code: 10284 (Effective Fall 1998--Summer 2003)

A computer animator is an artist who designs for video and film and uses a computer as a primary tool. Animators must have creative abilities and design, drawing, problem-solving, production, communication, and presentation skills. Computer animators are employed in advertising, video production, the motion picture industry (special effects to full cartoon features), and in the growing multimedia industry, creating games, training materials, and presentations. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 63 CREDITS
ARTS 102	2-Dimensional Design	3	
ARTS 131	Drawing I	3	
ARTS 132	Life Drawing	3	
ARTS 137	Drawing II	2	
ARTS 151	Computer Graphics/Illustration	3	
ARTS 162	Typography	3	
ARTS 171	Computer Graphics/Photography	3	
ARTS 175	Electronic Design	3	
ARTS 195	Employment and Business Issues for Artists	2	
ARTS 216	Humorous Illustration I	3	
ARTS 231	Computer Graphics/Advanced Illustration	3	
ARTS 232	Computer Graphics/2-D Animation	4	
ARTS 233	Computer Graphics/2-D Interactive	4	
ARTS 234	Computer Graphics/3-D Animation I	4	
ARTS 235	Computer Graphics/3-D Animation II	3	
ARTS 236	Computer Graphics/Production	3	
ARTS 269	The Portfolio (<i>See Note 1</i>)	1	
ARTS 281	Art Internship	3	
CISB 200	Information Systems Technology and Problem Solving	3	
IMAG 118	Film Production I	4	
IMAG 205	Topics in Hybrid Imaging	3	

LIMITED CHOICE REQUIREMENTS

TOTAL: 9 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits

(*See the GENERAL EDUCATION section above*)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (<i>See Note 2</i>)	0
Global Perspectives and Diversity Core Area (<i>See Note 2</i>)	3

MINIMUM TOTAL 72

NOTES

- The Portfolio is considered to be the final course in this curriculum. All other courses must already be completed or be taken concurrently with ARTS 269.
- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

- It is recommended that all students entering this curriculum have computer experience in both Windows NT and Macintosh Operating Systems. This experience may come from life or work experience, or other studies, as well as CABS 100 Seminars—Introduction to Windows NT and introduction to the Macintosh. Students should consult with an advisor in the Art, Design and Multimedia Program if they are not sure about their computer skill level.
- For graduation, a student must have earned a minimum grade point of 2.0 in all courses with an ARTS and IMAG prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARTS 102	ARTS 132	ARTS 175	ARTS 232
ARTS 131	ARTS 137	ARTS 216	ARTS 235
IMAG 118	ARTS 151	ARTS 231	IMAG 205
Lim.Ch.	ARTS 162	ARTS 234	Lim.Ch.
Lim.Ch.	ARTS 171	CISB 200	

V

ARTS 195
ARTS 233
ARTS 236
ARTS 269
ARTS 281

**COMPUTER GRAPHICS, MULTIMEDIA
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10194 (Effective Fall 1998–Summer 2003)

A multimedia designer is a computer artist who uses many electronic tools to create interactive art. Multimedia designers must have creative abilities and design, drawing, problem-solving, production, communication, and presentation skills. Multimedia is a cooperative process. The multimedia designer should expect to work as part of a team which may include animators, graphic designers, photographers, audio and video producers, writers and others. Employment can be with advertising agencies, on-line magazines and newspapers, in-house training in the public and private sector, and the education/entertainment industry.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 40 CREDITS
ARTS 131	Drawing I	3	
ARTS 151	Computer Graphics/Illustration	3	
ARTS 162	Typography	3	
ARTS 171	Computer Graphics/Photography	3	
ARTS 232	Computer Graphics/2-D Animation	4	
ARTS 233	Computer Graphics/2-D Interactive	4	
ARTS 234	Computer Graphics/3-D Animation I	4	
ARTS 235	Computer Graphics/3-D Animation II	3	
ARTS 269	The Portfolio (See Note 1)	1	
CISB 200	Information Systems Technology and Problem Solving	3	
CISB 258	Developing Multimedia Home Pages for the WWW	2	
IMAG 118	Film Production I	4	
IMAG 205	Topics in Hybrid Imaging	3	

LIMITED CHOICE REQUIREMENTS TOTAL: 31-35 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the GENERAL EDUCATION section above)		
Writing Core Area		3
Speech Communication Core Area		3
Science/Technology Core Area (See Note 2)		0
Global Perspectives and Diversity Core Area		3

CHOICE 2: Electronic Design 1 Credits

ARWS 132	Introduction to Quark Xpress	1
ARWS 133	Introduction to PageMaker	1

CHOICE 3: Basic Photography 2-4 Credits

IMAG 101	Basic Photography for Nonmajors	2
IMAG 111	Introduction to Photographic Technology I	4

CHOICE 4: Computer Information Systems 2-4 Credits

CISB 102	Introduction to the Internet in Business	2
CISB 119	Introduction to Windows Programming with Visual Basic	4
CISB 120	Introduction to Programming and Logic	4

CHOICE 5: Specialty (Choose one subchoice) 17 Credits

Subchoice 5A: Art Specialty

ARTS 102	2-Dimensional Design	3
ARTS 132	Life Drawing	3
ARTS 195	Employment and Business Issues for Artists	2
ARTS 216	Humorous Illustration I	3
ARTS 231	Computer Graphics/Advanced Illustration	3
ARTS 236	Computer Graphics/Production	3

Subchoice 5B: Photography Specialty

IMAG 112	Design Fundamentals for Imaging Technologies	3
IMAG 113	Lighting Concepts and Applications	3
IMAG 114	Introduction to Photographic Color Technology	3
IMAG 121	Imaging Technology	2
IMAG 203	Topics in Film/Multimedia	3
IMAG 233	The Business of Photography: Practices and Directions	3

MINIMUM TOTAL 71

NOTES

- The Portfolio is considered to be the final course in this curriculum. All other courses must already be completed or be taken concurrently with ARTS 269.
- Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
- It is recommended that all students entering this curriculum have computer experience in both Windows NT and Macintosh Operating Systems. This experience may come from life or work experience, or other studies, as well as CABS 100 Seminars—Introduction to Windows NT and Introduction to the Macintosh. Students should consult with an advisor in the Arts, Design and Multimedia Program if they are not sure about their computer skill level.
- For graduation, a student must have earned a minimum grade point of 2.0 in all courses with an ARTS and IMAG prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

Subchoice 5A: Art Specialty

I	II	III	IV
ARTS 102	ARTS 132	ARTS 216	ARTS 232
ARTS 131	ARTS 151	ARTS 231	ARTS 235
IMAG 118	ARTS 162	ARTS 234	CISB 258
Lim.Ch.	ARTS 171	CISB 200	IMAG 205
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

V

ARTS 195			
ARTS 233			
ARTS 236			
ARTS 269			
Lim.Ch.			

Subchoice 5B: Photography Specialty

I	II	III	IV
IMAG 112	ARTS 131	ARTS 151	ARTS 233
IMAG 113	IMAG 114	ARTS 162	ARTS 234
Lim.Ch.	IMAG 118	ARTS 171	CISB 200
Lim.Ch.	IMAG 121	ARTS 232	IMAG 203
Lim.Ch.	Lim.Ch.	Lim.Ch.	IMAG 205

V

ARTS 235			
ARTS 269			
CISB 258			
IMAG 233			
Lim.Ch.			

**COMPUTER GRAPHICS, MULTIMEDIA
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10857 (Effective Fall 1998–Summer 2003)

This certificate of achievement is designed for students who hold a post secondary degree (A.A., B.A., B.F.A., or M.F.A.) in the visual arts and wish to acquire or enhance their computer graphics skills to prepare for employment in the animation and multimedia fields.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS

Total: 38 CREDITS

CODE	TITLE	CREDIT HOURS
ARTS 151	Computer Graphics/Illustration (See Note 2)	3
ARTS 171	Computer Graphics/Photography (See Note 2)	3
ARTS 195	Employment and Business Issues for Artists	2
ARTS 231	Computer Graphics/Advanced Illustration	3
ARTS 232	Computer Graphics/2-D Animation (See Note 2)	4
ARTS 233	Computer Graphics/2-D Interactive	4
ARTS 234	Computer Graphics/3-D Animation I	4
ARTS 235	Computer Graphics/3-D Animation II	3
ARTS 236	Computer Graphics/Production	3
ARTS 269	The Portfolio	1
ARTS 281	Art Internship	3
CISB 258	Developing Multimedia Home Pages for the WWW	2
IMAG 205	Topics in Hybrid Imaging	3
MINIMUM TOTAL		38

NOTES

- It is recommended that all students entering this curriculum have computer experience in both Windows NT and Macintosh Operating Systems. This experience may come from life or work experience, or other studies, as well as CABS 100 Seminars—Introduction to Windows NT and Introduction to the Macintosh. Students should consult with an advisor in the Art, Design and Multimedia Program if they are not sure about their computer skill level.
- Students in this curriculum may be granted approval to waive the prerequisites for this course by contacting an advisor in the Art, Design and Multimedia Program.
- For graduation, a student must have earned a minimum grade point of 2.0 in all courses with an ARTS and IMAG prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARTS 151	ARTS 231	ARTS 233	ARTS 236
ARTS 171	ARTS 232	ARTS 235	ARTS 269
ARTS 195	ARTS 234	IMAG 205	ARTS 281 CISB 258

**FIGURE STUDIES
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10850 (Effective Fall 1998–Summer 2003)

This certificate of achievement is designed for artists who want to concentrate on the human figure as a subject matter in their artwork. Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS

TOTAL: 31 CREDITS

CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing (See Note 1)	3
ARTS 195	Employment and Business Issues for Artists	2
ARTS 203	Figure Painting (See Note 2)	3
ARTS 276	Art Independent Study	3
HUMS 211	History of Art I	4
HUMS 212	History of Art II	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 9 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:		Credits
ARTS 140	Printmaking I	3
ARTS 145	Screen Printing I	3

CHOICE 2:		Credits
ARTS 141	Printmaking II	3
ARTS 146	Screen Printing II	3
ARTS 151	Computer Graphics/Illustration	3
ARTS 204	Watercolor I	3
ARTS 205	Watercolor II	3
ARTS 206	Advanced Watercolor	3
ARTS 216	Humorous Illustration I	3

MINIMUM TOTAL 40

NOTES

- ARTS 132 must be taken three times for a total of 9 credits.
- ARTS 203 must be taken once toward the requirements for this certificate, and may also be taken up to two additional times toward Choice 2 requirements.
- Take ARTS 140 or ARTS 145 to satisfy Choice 1. The course that is not selected for Choice 1 may be taken as part of Choice 2 requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
ARTS 102	ARTS 132	ARTS 132
ARTS 131	ARTS 132	ARTS 195
HUMS 211	HUMS 212	ARTS 203
Lim.Ch.	Lim.Ch.	ARTS 276 Lim.Ch.

**FINE ART FOUNDATION
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10271 (Effective Fall 1998–Summer 2003)

This curriculum is designed for artists who wish to expand their creative horizons or refine their artistic style. The emphasis is on the exploration of an artist's abilities through the use of traditional materials and techniques. Painting, drawing, printmaking, and watercolor are fine arts. A career in fine arts requires dedication, discipline, and sacrifice. Success can come slowly in this visual art, and most artists do their best work after years of experience. Fine artists are self-employed professionals who sell their work through artist's representatives, galleries, art fairs, and juried exhibitions. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS		TOTAL: 36 CREDITS
CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 103	3-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing (See Note 1)	3
ARTS 140	Printmaking I	3
ARTS 145	Screen Printing I	3
ARTS 190	Matting and Framing Techniques	1
ARTS 200	Painting I	3
ARTS 204	Watercolor I	3
HUMS 211	History of Art I	4
HUMS 212	History of Art II	4

LIMITED CHOICE REQUIREMENTS TOTAL: 30 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
(See the GENERAL EDUCATION section above)	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 2)	0

CHOICE 2: Art	21 Credits	
ARTS 137	Drawing II	2
ARTS 141	Printmaking II	3
ARTS 146	Screen Printing II	3
ARTS 151	Computer Graphics/Illustration	3
ARTS 171	Computer Graphics/Photography	3
ARTS 195	Employment and Business Issues for Artists	2
ARTS 201	Painting II	3
ARTS 203	Figure Painting	3
ARTS 205	Watercolor II	3
ARTS 206	Advanced Watercolor	3
ARTS 269	The Portfolio	1

MINIMUM TOTAL 66

NOTES

- ARTS 132 must be taken two times for a total of 6 credits.
- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARTS 102	ARTS 103	ARTS 132	ARTS 190
ARTS 131	ARTS 132	HUMS 212	ARTS 204
ARTS 140	ARTS 200	Lim.Ch.1	Lim.Ch.1
ARTS 145	HUMS 211	Lim.Ch.2	Lim.Ch.2
Lim.Ch.1			Lim.Ch.2
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v			
			Lim.Ch.2
			Lim.Ch.2
			Lim.Ch.2
			Lim.Ch.2
			Lim.Ch.2

**GRAPHIC DESIGN
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10219 (Effective Fall 1998–Summer 2003)

A graphic designer is an artist who creatively and effectively designs informational or promotional materials for publication and/or use in a variety of mass media situations. Artistic skills related to producing effective visual information are essential for a graphic designer. An understanding of the principles of typography, color theory, computer graphic applications, and pre-press techniques is necessary. Graphic designers are employed by design studios, advertising agencies, printing companies, publishers, newspapers, sign companies, and businesses that generate their own publications. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS

TOTAL: 58 CREDITS

CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing	3
ARTS 137	Drawing II	2
ARTS 162	Typography	3
ARTS 171	Computer Graphics/Photography	3
ARTS 175	Electronic Design	3
ARTS 177	Computer Prepress Production Techniques	3
ARTS 180	Graphic Design I	3
ARTS 181	Graphic Design II	3
ARTS 182	Graphic Design III	3
ARTS 195	Employment and Business Issues for Artists	2
ARTS 231	Computer Graphics/Advanced Illustration	3
ARTS 269	The Portfolio	1
ARTS 281	Art Internship	3
ARWS 132	Introduction to Quark Express	1
CABS 195	Microsoft Windows	2
HUMS 211	History of Art I	4
HUMS 212	History of Art II	4
IMAG 205	Topics in Hybrid Imaging	3
MKTG 140	Introduction to Advertising	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 9 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	General Education Core Areas	9 Credits
(See the GENERAL EDUCATION section above)		
	Writing Core Area	3
	Speech Communication Core Area	3
	Science/Technology Core Area	3
	Global Perspectives and Diversity Core Area (See Note 1)	0
	MINIMUM TOTAL	67

NOTES

1. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARTS 102	ARTS 132	ARTS 171	ARTS 177
ARTS 131	ARTS 137	ARTS 181	ARTS 182
ARTS 162	ARTS 175	ARWS 132	ARTS 231
HUMS 211	ARTS 180	CABS 195	ARTS 281
Lim.Ch.	HUMS 212	MKTG 140	IMAG 205
V			
ARTS 195			
ARTS 269			
Lim.Ch.			
Lim.Ch.			

**HUMOROUS ILLUSTRATION
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10854 (Effective Fall 1998–Summer 2003)

This certificate of achievement program consists of practical hands-on courses that provide students with the necessary technical knowledge and skills needed to create humorous illustrations, cartooning, and caricatures. Certificate holders may improve their opportunities for advancement in this or a related field. Additional education enhances an individual's employment opportunities.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS

TOTAL: 30 CREDITS

CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing	3
ARTS 137	Drawing II	2
ARTS 162	Typography	3
ARTS 195	Employment and Business Issues for Artists	2
ARTS 213	Illustration Fundamentals	3
ARTS 216	Humorous Illustration I	3
ARTS 217	Humorous Illustration II	3
ARTS 227	Humorous Illustration III	3
ARTS 269	The Portfolio	1
ARWS 131	Introduction to Computer Illustration Workshop	1

MINIMUM TOTAL

30

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
ARTS 102	ARTS 132	ARTS 213
ARTS 131	ARTS 137	ARTS 227
ARTS 162	ARTS 195	ARTS 269
ARTS 216	ARTS 217	
	ARWS 131	

**AIR CONDITIONING AND ELECTRICAL ACCESSORIES
CERTIFICATE OF COMPLETION**

Curriculum Code: 10846 (Effective Fall 1998–Summer 2003)

This certificate program prepares individuals to take the State of Michigan Mechanics Certification Tests to become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 10.5 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 110	Auto Electrical Theory	5
AUTO 160	Auto Air Conditioning	2.5
MINIMUM TOTAL		10.5

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

- AUTO 100
- AUTO 110
- AUTO 160

**ALTERNATE FUELS
CERTIFICATE OF COMPLETION**

Curriculum Code: 10855 (Effective Fall 1998–Summer 2003)

This certificate program trains students specifically in the area of alternative fuels. In addition, students are prepared to take the State of Michigan Mechanics Certification Tests to become automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 18 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 215	Engine Performance/Tune-Up	5
AUTO 225	Automotive Computers	5
AUTO 260	Introduction to Alternative Fuels	2
AUTO 261	Alternative Fuels-Compressed Natural Gas (CNG)	3
MINIMUM TOTAL		18

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

- AUTO 100
- AUTO 215
- AUTO 225
- AUTO 260
- AUTO 261

**AUTO BODY REPAIR
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10188 (Effective Fall 1998–Summer 2003)

Auto body repair technicians possess the necessary skills to perform collision repair and refinishing according to the "manufacturers specifications." Using hand and power tools, they straighten bent frames and body sections, replace badly damaged parts, smooth out minor dents and creases, remove rust, fill small holes, and renew painted surfaces. Auto body repair technicians are employed by collision repair shops, new car dealerships, refinishing businesses, and auto restoration shops. Formal training is highly desirable, because advances in technology in recent years have greatly changed the structure, the components, and even the materials used in automobiles. This program does not provide state certification. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 43 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 110	Auto Electrical Theory	5
AUTO 150	Automotive Suspension	2.5
AUTO 160	Auto Air Conditioning	2.5
AUTO 180	Auto Body Welding/Metal Finishing	5
AUTO 182	Major Collision Repair	5
AUTO 184	UniBody and Frame Repair	2.5
AUTO 185	Basic Auto Painting	2.5
AUTO 186	Advanced Painting	5
AUTO 188	Auto Body Repair and Painting	4
AUTO 285	Automotive Internship	6

LIMITED CHOICE REQUIREMENTS **TOTAL: 21 CREDITS**
Complete the indicated number of credits from *each CHOICE* listed below:

CHOICE 1: General Education Core Areas	12 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
CHOICE 2: Automotive Related	5 Credits
AUTO 215 Engine Performance/Tune-Up	5
AUTO 225 Automotive Computers	5
CHOICE 3: Mathematics	4 Credits
MATH 112 Intermediate Algebra	4
MATH 117 Math for Business	4
MINIMUM TOTAL	64

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AUTO 100	AUTO 150	AUTO 160	AUTO 188
AUTO 110	AUTO 182	AUTO 186	AUTO 285
AUTO 180	AUTO 184	Lim.Ch.	Lim.Ch.
AUTO 185	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.		

**AUTO BODY REPAIR
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10166 (Effective Fall 1998–Summer 2003)

This program provides the technical knowledge and skills needed to perform collision repair and refinishing. Students will be prepared for an entry-level position. This program does not provide state certification. State certification tests are available at any Michigan Secretary of State Office.

REQUIREMENTS		TOTAL: 31 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 180	Auto Body Welding/Metal Finishing	5
AUTO 182	Major Collision Repair	5
AUTO 184	UniBody and Frame Repair	2.5
AUTO 185	Basic Auto Painting	2.5
AUTO 186	Advanced Painting	5
AUTO 188	Auto Body Repair and Painting	4
MATH 050	Mathematics-Principles and Practices	4
MINIMUM TOTAL		31

NOTES

1. AUTO 188 may be repeated for additional credit.

SUGGESTED COURSE SEQUENCE

I	II
AUTO 100	AUTO 182
AUTO 180	AUTO 134
AUTO 185	AUTO 186
MATH 050	AUTO 188

**AUTOMOTIVE DRIVE LINES
CERTIFICATE OF COMPLETION**

Curriculum Code: 10856 (Effective Fall 1998–Summer 2003)

This certificate program prepares individuals to take the State of Michigan Mechanics Certification Tests to become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 15.5 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 120	Auto Drive Train	2.5
AUTO 121	Automatic Transmissions	5
AUTO 122	Advanced Transmissions	2.5
AUTO 130	Automotive Engines	2.5
MINIMUM TOTAL		15.5

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

- AUTO 100
- AUTO 120
- AUTO 121
- AUTO 122
- AUTO 130

**AUTOMOTIVE STEERING, SUSPENSION, AND BRAKES
CERTIFICATE OF COMPLETION**

Curriculum Code: 10851 (Effective Fall 1998–Summer 2003)

This certificate program prepares individuals to take the State of Michigan Mechanics Certification Tests and become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 11 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 140	Automotive Brakes	2.5
AUTO 150	Automotive Suspension	2.5
AUTO 230	Anti-Lock Braking Systems	3
MINIMUM TOTAL		11

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

- AUTO 100
- AUTO 140
- AUTO 150
- AUTO 230

**AUTOMOTIVE TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10238 (Effective Fall 1998–Summer 2003)

This program prepares individuals to work in the automotive field as a technician. Students learn all aspects of automobile repair, diagnosis and maintenance. This program prepares the individual to take the State of Michigan Mechanics Certification Tests and become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 44 CREDITS
AUTO 100	Auto Service I	3	
AUTO 110	Auto Electrical Theory	5	
AUTO 120	Auto Drive Train	2.5	
AUTO 121	Automatic Transmissions	5	
AUTO 122	Advanced Transmission	2.5	
AUTO 130	Automotive Engines	2.5	
AUTO 140	Automotive Brakes	2.5	
AUTO 150	Automotive Suspension	2.5	
AUTO 160	Auto Air Conditioning	2.5	
AUTO 215	Engine Performance/Tune-Up	5	
AUTO 225	Automotive Computers	5	
AUTO 230	Anti-Lock Braking Systems	3	
WRIT 124	Technical Writing	3	

LIMITED CHOICE REQUIREMENTS

TOTAL: 18 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below:

CHOICE 1: General Education Core Areas 9 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Automotive Related 9 Credits

AUTO 139	Small Engine Repair	2.5
AUTO 180	Auto Body Welding/Metal Finishing	5
AUTO 185	Basic Auto Painting	2.5
AUTO 280	Automotive Service Laboratory	6
AUTO 285	Automotive Internship	6
MACH 105	Machine Tool Survey	3
MACH 135	Metallurgy and Heat Treat	4

MINIMUM TOTAL 62

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AUTO 100	AUTO 121	AUTO 120	AUTO 230
AUTO 110	AUTO 160	AUTO 122	Lim.Ch.
AUTO 130	AUTO 215	AUTO 150	Lim.Ch.
AUTO 140	Lim.Ch.	AUTO 225	Lim.Ch.
WRIT 124		Lim.Ch.	

**AUTOMOTIVE TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10140 (Effective Fall 1998–Summer 2003)

This certificate program prepares individuals to take the State of Michigan Mechanics Certification Tests to become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

REQUIREMENTS

TOTAL: 35.5 CREDITS

CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 110	Auto Electrical Theory	5
AUTO 140	Automotive Brakes	2.5
AUTO 150	Automotive Suspension	2.5
AUTO 160	Auto Air Conditioning	2.5
AUTO 215	Engine Performance/Tune-Up	5
AUTO 225	Automotive Computers	5
AUTO 280	Automotive Service Laboratory	6
MATH 050	Mathematics-Principles and Practices	4
MINIMUM TOTAL		35.5

SUGGESTED COURSE SEQUENCE

I	II
AUTO 100	AUTO 140
AUTO 110	AUTO 150
AUTO 215	AUTO 160
MATH 050	AUTO 225
	AUTO 280

**ENGINE PERFORMANCE AND DIAGNOSIS
CERTIFICATE OF COMPLETION**

Curriculum Code: 10848 (Effective Fall 1998–Summer 2003)

This certificate program prepares individuals to take the State of Michigan Mechanics Certification Tests to become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 3 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS**TOTAL: 20 CREDITS**

CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 110	Auto Electrical Theory	5
AUTO 215	Engine Performance/Tune-up	5
AUTO 225	Automotive Computers	5
AUTO 251	Advanced Computer Diagnosis	2
MINIMUM TOTAL		20

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
AUTO 100	AUTO 225
AUTO 110	AUTO 251
AUTO 215	

**AIRFRAME MAINTENANCE TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10757 (Effective Fall 1998–Summer 2003)

Airframe Maintenance Technicians maintain aircraft in accordance with the Federal Aviation Regulations. Technicians perform inspections, repairs, and alterations to sheet metal and composite aircraft structures, and their related systems. In addition, they troubleshoot the operation of hydraulic, pneumatic, ice and rain, landing gear, fire protection, fuel, atmospheric control, communication and navigation, flight controls, electrical, and other associated systems. Aviation maintenance technicians are employed throughout the world maintaining aircraft for major air carriers, commuter airlines, air freight operators, corporate flight departments, fixed base operators, and a variety of other specialized aviation businesses. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Aviation Program at the LCC Aviation Center, telephone number (517) 483-1406.

REQUIREMENTS

TOTAL: 56 CREDITS

CODE	TITLE	CREDIT HOURS
AVAF 125	Aircraft Systems I	2
AVAF 126	Aircraft Systems II	6
AVAF 127	Aircraft Systems III	3
AVAF 134	Aircraft Instruments	2
AVAF 208	Aircraft Structures I	4
AVAF 209	Aircraft Structures II	4
AVAF 210	Aircraft Structures III	3
AVAF 211	Aircraft Electrical I	4
AVAF 212	Aircraft Electrical II	4
AVAF 246	National Airframe Certification Procedures	1
AVEL 200	Flight Line Testing	2
AVGM 111	Aviation General I	4
AVGM 112	Aviation General II	6
AVGM 113	Aviation General III	4
AVGM 114	Material and Processes	5
WELD 210	Aircraft Welding	2

LIMITED CHOICE REQUIREMENTS

TOTAL: 12 CREDITS

Complete the indicated number of credits from each **CHOICE** listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

MINIMUM TOTAL 68

NOTES

- Students must complete each course with a minimum grade of 70 percent and pass Pre-Tests for General and Airframe with a minimum grade of 80 percent to be approved for the Federal Aviation Administration written tests.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AVGM 111	AVAF 125	AVAF 127	Lim.Ch.
AVGM 112	AVAF 126	AVAF 134	Lim.Ch.
AVGM 113	AVAF 208	AVAF 209	Lim.Ch.
AVGM 114	AVAF 211	AVAF 210	Lim.Ch.
	WELD 210	AVAF 212	
		AVAF 246	
		AVEL 200	

**AVIATION FLIGHT TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10259 (Effective Fall 1998–Summer 2003)

The commercial flight training program provides all required ground, simulator, and in-flight technical training to meet Federal Aviation Administration requirements for Commercial Pilot Certification. This program will conduct ab-initio training (no previous experience) or build on previous experience of the student. Students entering this program are required to accomplish an F.A.A. Class II medical exam prior to entering training. Normal motor skills and academic ability will provide functional competency to support certification. Graduates are initially employed as instructor pilots by flight training schools. As the graduates achieve 1200 to 1500 flight hours, they are competitive for hiring by regional or commuter airlines as First Officers.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Aviation Program at the LCC Aviation Center, telephone number (517) 483-1406.

REQUIREMENTS TOTAL: 45 CREDITS

CODE	TITLE	CREDIT HOURS
AVFT 201	Flight Training I	7.5
AVFT 202	Flight Training II	5
AVFT 203	Flight Training III	5.5
AVFT 204	Flight Training IV	5
AVGS 101	Private Pilot Ground School	4
AVGS 121	Aviation Meteorology	4
AVGS 211	Instrument Pilot Ground School	4
AVGS 221	Commercial Pilot Ground School	4
AVPP 185	Preventive Maintenance	2
AVST 211	Flight Simulator I	1
AVST 212	Flight Simulator II	1
AVST 213	Flight Simulator III	1
AVST 214	Flight Simulator IV	1

LIMITED CHOICE REQUIREMENTS TOTAL: 22 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits
(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Advanced Flight Training 10 Credits

AVFT 205	CFI Flight Training	3.5
AVFT 206	Flight Instructor Instrument Flight Training	2.5
AVFT 207	Multi-engine Flight Training	1.5
AVFT 208	Multi-engine Instructor Flight Training	.75
AVFT 224	Tail Wheel Transition	1
AVGS 222	Flight Instructor Ground School	4
AVST 215	Multi-engine Flight Simulator	1

MINIMUM TOTAL 67

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AVFT 201	AVFT 202	AVFT 203	AVFT 204
AVGS 101	AVGS 121	AVGS 221	AVST 214
AVST 211	AVGS 211	AVPP 185	Lim.Ch.
	AVST 212	AVST 213	Lim.Ch.
V	VI		
Lim.Ch.	Lim.Ch.		
Lim.Ch.	Lim.Ch.		
Lim.Ch.			

**AVIONICS
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10260 (Effective Fall 1998–Summer 2003)

Aviation electronics (avionics) is the application of electronics to aviation. Avionics technicians install and service complex communication, navigation, radar, and autopilot equipment. The avionics work environment is clean, well-lighted, and temperature-controlled. Students will find employment opportunities at airlines, airports, electronics manufacturers, and government agencies. LCC Avionics students can qualify for several industry training certificates from Allied Signal Aerospace. In addition, LCC offers on-site testing for the General Radiotelephone Operator License. Although students do not need any special skills to start the Avionics Program, they should be aware that color blindness may cause them difficulty because various electronic components are color-coded.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Aviation Program at the LCC Aviation Center, telephone number (517) 483-1406.

REQUIREMENTS TOTAL: 60 CREDITS

CODE	TITLE	CREDIT HOURS
AVAF 130	Avionics Airframe Applications	3
AVEL 150	Avionics Installation and Generation	2
AVEL 151	Avionics Installation and Generation Lab	1
AVEL 190	Receiver Troubleshooting	2
AVEL 191	Receiver Troubleshooting Lab	1
AVEL 200	Flight Line Testing	2
AVEL 201	Flight Line Testing Lab	1
AVEL 220	Avionics Systems I	3
AVEL 221	Avionics Systems I Lab	2
AVEL 225	Avionics Licensing and Regulations	1
AVEL 226	FAA Rules and Regulations for Avionics Technicians	1
AVEL 230	Avionics Systems II	3
AVEL 231	Avionics Systems II Lab	2
AVIR 140	Avionics Instruments I	1
ELCT 101	Analog Problems	4
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 112	Transistors	6
ELCT 120	Programming Preparation	2
ELCT 130	Machine Language Programming	2
ELCT 131	Digital Basics	2
ELCT 211	Linear Circuits I	4
ELCT 212	Linear Circuits II	4
ELCT 231	Advanced Digital Electronics	5

LIMITED CHOICE REQUIREMENTS TOTAL: 12 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	12 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
MINIMUM TOTAL	72

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AVAF 130	AVEL 150	AVEL 190	AVEL 220
AVIR 140	AVEL 151	AVEL 191	AVEL 221
ELCT 101	ELCT 112	AVEL 200	ELCT 211
ELCT 109	ELCT 130	AVEL 201	ELCT 231
ELCT 110	ELCT 131		Lim.Ch.
ELCT 120	Lim.Ch.		

v

AVEL 225
AVEL 226
AVEL 230
AVEL 231
ELCT 212
Lim.Ch.
Lim.Ch.

**AVIONICS INSTALLATION
CERTIFICATE OF COMPLETION**

Curriculum Code: 10847 (Effective Fall 1998–Summer 2003)

Aviation electronics (avionics) is the application of electronics to aviation. This program is designed for students who are interested in installing and testing complex communication, navigation, radar, and autopilot equipment in aircraft. Employment opportunities are at airports that have avionics sales and service facilities, airlines, and aircraft manufacturers.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Aviation Program at the LCC Aviation Center, telephone number (517) 483-1406.

REQUIREMENTS		TOTAL: 22 CREDITS
CODE	TITLE	CREDIT HOURS
AVAF 130	Avionics Airframe Applications	3
AVEL 150	Avionics Installation and Generation	2
AVEL 151	Avionics Installation and Generation Lab	1
AVEL 200	Flight Line Testing	2
AVEL 201	Flight Line Testing Lab	1
AVIR 140	Avionics Instruments I	1
ELCT 101	Analog Problems	4
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 120	Programming Preparation	2

LIMITED CHOICE REQUIREMENTS TOTAL: 2 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	Practical Experience	2 Credits
AVEL 297	Avionics Internship	2
AVEL 299	Advanced Avionics Laboratory	2
MINIMUM TOTAL		24

NOTES

- Although students do not need any special skills to start the Avionics Certificate Program, they should be aware that color blindness may cause them difficulty because various electronic components are color coded.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
AVAF 130	AVEL 150	AVEL 200
AVIR 140	AVEL 151	AVEL 201
ELCT 101	ELCT 120	Lim.Ch.
ELCT 109		
ELCT 110		

**POWERPLANT MAINTENANCE TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10745 (Effective Fall 1998–Summer 2003)

Powerplant maintenance technicians maintain aircraft in accordance with the Federal Aviation Regulations. Technicians perform inspections, repairs, and alterations to aircraft powerplants, propellers, and their related systems. In addition, they troubleshoot the operation of induction, cooling, exhaust, fuel metering, ignition, electrical, starting, lubrication propeller, and other associated systems. Powerplant maintenance technicians are employed throughout the world maintaining aircraft for major air carriers, commuter airlines, air freight operators, corporate flight departments, fixed base operators, and a variety of other specialized aviation businesses. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Aviation Program at the LCC Aviation Center, telephone number (517) 483-1406.

REQUIREMENTS

TOTAL: 59 CREDITS

CODE	TITLE	CREDIT HOURS
AVAF 212	Aircraft Electrical II	4
AVGM 111	Aviation General I	4
AVGM 112	Aviation General II	6
AVGM 113	Aviation General III	4
AVGM 114	Material and Processes	5
AVPP 241	Reciprocating Engine	8
AVPP 251	Reciprocating Engine Systems	2
AVPP 253	Reciprocating Ignition Systems	5
AVPP 255	Reciprocating Induction Systems	4
AVPP 257	Aircraft Propeller Systems	4
AVPP 259	Turbine Engine I	4
AVPP 261	Turbine Engine II	4
AVPP 263	Turbine Engine Systems	2
AVPP 265	Powerplant Instruments	2
AVPP 267	National Powerplant Certification Procedures	1

LIMITED CHOICE REQUIREMENTS

TOTAL: 12 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

MINIMUM TOTAL 71

NOTES

1. Students must complete each course with a minimum grade of 70 percent and pass Pre-Tests for General and Powerplant with a minimum grade of 80 percent to be approved for the Federal Aviation Administration written tests.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AVGM 111	AVAF 212	AVPP 253	AVPP 261
AVGM 112	AVPP 241	AVPP 255	AVPP 263
AVGM 113	AVPP 251	AVPP 257	AVPP 265
AVGM 114	Lim.Ch.	AVPP 259	AVPP 267
			Lim.Ch.
			Lim.Ch.
			Lim.Ch.

**BUILDING MAINTENANCE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10211 (Effective Fall 1998–Summer 2003)

Building maintenance workers are required to maintain the aesthetic and structural integrity of buildings. These include houses, apartments and commercial, industrial, and institutional buildings. They may be responsible for maintenance and upkeep of all mechanical, plumbing, and electrical equipment, as well as groundskeeping. They should also be versatile enough to do routine painting, drywall, plastering, woodworking, pool and lawn maintenance, as well as some custodial work. Building maintenance workers can either be self-employed or work for apartment complexes, hospitals, office complexes, hotels, schools, commercial buildings, or restaurants.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS TOTAL: 49 CREDITS

CODE	TITLE	CREDIT HOURS
BLDR 101	Basic Woodworking	2
BLDR 123	Basic Painting and Decorating	3
BLDR 132	General Home Maintenance	2
BLDT 121	Residential Framing and Foundations	4
BLDT 126	Interior Carpentry	4
ELTE 100	Electrical Safety Practices	1
ELTE 112	Basic Wiring Installation	2
HORT 105	Pests and Problems of Ornamental Plants	2
HVAC 100	Fundamentals of Heating, Ventilating, and Air Conditioning	3
HVAC 105	Sheet Metal Fabrication and Installation	2
HVAC 110	Applied Electricity I	2
HVAC 120	Heating I	4
HVAC 130	Air Conditioning I	4
HVAC 220	Heating II	4
HVAC 221	Introduction to Hydronics	3
HVAC 240	Refrigeration I	4
LAND 133	Residential Landscape Maintenance	3

LIMITED CHOICE REQUIREMENTS TOTAL: 12 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	12 Credits
(See the GENERAL EDUCATION section above)	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
MINIMUM TOTAL	61

NOTES

1. HVAC 110 can substitute as the prerequisite for ELTE 112.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BLDR 101	BLDR 123	BLDR 132	BLDT 126
ELTE 100	ELTE 112	BLDT 121	HVAC 240
HVAC 100	HVAC 120	HORT 105	LAND 133
HVAC 105	HVAC 130	HVAC 220	Lim.Ch.
HVAC 110	Lim.Ch.	HVAC 221	Lim.Ch.
		Lim.Ch.	

**BUILDING MAINTENANCE
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10237 (Effective Fall 1998–Summer 2003)

This program consists of practical hands-on courses that provide students with the necessary technical knowledge and skills needed for an entry-level position in the maintenance of residential and commercial buildings.

REQUIREMENTS TOTAL: 32 CREDITS

CODE	TITLE	CREDIT HOURS
BLDR 101	Basic Woodworking	2
BLDR 132	General Home Maintenance	2
ELTE 100	Electrical Safety Practices	1
ELTE 112	Basic Wiring Installation	2
HVAC 100	Fundamentals of Heating, Ventilating, and Air Conditioning	3
HVAC 105	Sheet Metal Fabrication and Installation	2
HVAC 110	Applied Electricity I	2
HVAC 120	Heating I	4
HVAC 130	Air Conditioning I	4
HVAC 220	Heating II	4
HVAC 221	Introduction to Hydronics	3
LAND 133	Residential Landscape Maintenance	3

LIMITED CHOICE REQUIREMENTS TOTAL: 4 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Maintenance Related	4 Credits	
BLDT 121	Residential Framing and Foundations	4
BLDT 126	Interior Carpentry	4
HVAC 240	Refrigeration I	4
MATH 114	Technical Math I	4
MINIMUM TOTAL	36	

NOTES

1. HVAC 110 can substitute as the prerequisite for ELTE 112.

SUGGESTED COURSE SEQUENCE

I	II	III
BLDR 101	ELTE 112	HVAC 220
BLDR 132	HVAC 105	HVAC 221
ELTE 100	HVAC 120	Lim.Ch.
HVAC 100	HVAC 130	
HVAC 110	LAND 133	

**BUSINESS ADMINISTRATION
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10243 (Effective Fall 1998–Summer 2003)

This degree program provides basic instruction in key business areas, such as management, marketing, finances, computers and other business-related areas. Graduates of this program may qualify for entry-level/hands-on positions. Additional education will enhance an individual's employment and advancement opportunities. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 41 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
BUSN 118	Introduction to Business	3
BUSN 201	International Business	3
CISB 200	Information Systems Technology and Problem Solving	3
ECON 201	Principles of Economics—Micro	3
LEGL 215	Business Law I, Basic Principles	3
MATH 117	Math for Business	4
MGMT 200	Creative Thinking for Business	3
MGMT 225	Principles of Management	3
MGMT 234	Diversity in the Workplace— A Domestic and Global Perspective	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 20–23 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Management Related (See Note 2) 5–6 Credits

CHOICE 3: Marketing Related (See Note 3) 5–6 Credits

CHOICE 4: Computer Related (See Note 4) 4–5 Credits

CHOICE 5: Business Related 6 Credits

ACCG 211	Principles of Accounting II	4
ECON 202	Principles of Economics—Macro	3
ECON 213	Economic/Business History of the U.S.	3
LABR 200	Introduction to Labor Relations	3
LABR 204	Employment Law for Managers	3
LEGL 216	Business Law II, Commercial Law	3
LEGL 217	Business Law III, Business Organizations	3

MINIMUM TOTAL 61

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Choose courses with a MGMT prefix that are not already used to meet degree requirements. Up to 3 credits total from the T.I.M.E. Series may be used (MGMT 240–MGMT 278). BUSN 295 may also be used.
3. Choose courses with a MKTG prefix that are not already used to meet degree requirements. BUSN 229 and/or BUSN 250 may also be used.
4. Choose CABS-prefix courses of 110 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	BUSN 201	ACCG 210	LEGL 215
MATH 117	CISB 200	ECON 201	Lim.Ch.
SPCH 110	MGMT 234	MGMT 200	Lim.Ch.
WRIT 127	MKTG 200	MGMT 225	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**INTERNATIONAL BUSINESS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10240 (Effective Fall 1998–Summer 2003)

International business managers plan, organize, and control projects from start to finish for businesses and organizations with international connections. They help their company achieve its goals in differing cultural and governmental situations. Graduates of this program may work for a variety of organizations and businesses, both in this hemisphere and overseas. Knowledge of a foreign language and a technical or business specialty increases one's employability. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 37 CREDITS
ACCG 210	Principles of Accounting I	4	
BUSN 118	Introduction to Business	3	
BUSN 201	International Business	3	
CISB 100	Introduction to Computer Information Systems	3	
CISB 200	Information Systems Technology and Problem Solving	3	
ECON 201	Principles of Economics—Micro	3	
ECON 202	Principles of Economics—Macro	3	
MGMT 234	Diversity in the Workplace— A Domestic and Global Perspective	3	
MKTG 119	Marketing and Managing Your Professional Image	3	
MKTG 200	Principles of Marketing	3	
SPCH 110	Oral Communication in the Workplace	3	
WRIT 127	Business Communications	3	

LIMITED CHOICE REQUIREMENTS

TOTAL: 23 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 1) **0 Credits**
(See the GENERAL EDUCATION section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Foreign Language (Choose 1 Subchoice) **8 Credits**

Subchoice 2A	
FREN 121	Elementary French I
FREN 122	Elementary French II
Subchoice 2B	
GRMN 121	Elementary German I
GRMN 122	Elementary German II
Subchoice 2C	
JAPN 121	Elementary Japanese I
JAPN 122	Elementary Japanese II
Subchoice 2D	
SPAN 121	Elementary Spanish I
SPAN 122	Elementary Spanish II

CHOICE 3: International/Business Related		15 Credits
ACCG 211	Principles of Accounting II	4
BUSN 295	Small Business Management	3
GEOG 200	World Regional Geography	4
GEOG 203	Economic Geography	3
HUMS 213	World Civilizations I	4
HUMS 214	World Civilizations II	4
LEGL 215	Business Law I, Basic Principles	3
MGMT 225	Principles of Management	3
MGMT 231	Team Development	3
MGMT 237	Managing for Continual Improvement	3
MGMT 280	Management Internship	3
POLS 270	International Relations	3

MINIMUM TOTAL

60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	BUSN 201	ACCG 210	MGMT 234
CISB 100	ECON 201	CISB 200	Lim.Ch.2
SPCH 110	MKTG 119	ECON 202	Lim.Ch.
WRIT 127	MKTG 200	Lim.Ch.2	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	

**CIVIL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10178 (Effective Fall 1998–Summer 2003)

Civil engineering technicians apply theory and principles of civil engineering in planning, designing, and overseeing the construction and maintenance of structures and facilities in the highway system. They may work at construction or survey sites, offices, or in testing labs with engineers, surveyors, supervisors, managers, or skilled trade workers. The successful civil engineering technician must have a working knowledge of college algebra and trigonometry, civil drafting, communications, construction materials, and surveying, and must be computer literate. Civil engineering technicians work for construction, engineering, and architecture firms, government agencies, mapping agencies, and private petroleum and mining companies.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS **TOTAL: 48 CREDITS**

CGDE	TITLE	CREDIT HOURS
CIVL 101	Civil Drafting	4
CIVL 120	Surveying	4
CIVL 124	Route Survey	4
CIVL 131	Traffic Technology	3
CIVL 132	Construction Materials	5
CIVL 135	Soils Technology	3
CIVL 136	Hydrology and Highway Technology	5
CIVL 200	Civil Mathematics	5
CIVL 241	Statics and Strength of Materials	5
GRET 203	MicroStation Beginning	3
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 14–15 CREDITS**

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas **6 Credits**
(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 1)	0

CHOICE 2: Mathematics **4–5 Credits**

MATH 115	Technical Math II	4
MATH 126	College Algebra and Trigonometry	5

CHOICE 3: Physical Science **4 Credits**

PHYS 200	Applied Physics	4
PHYS 201	Introductory Physics I	4

MINIMUM TOTAL **62**

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students who are interested in practical field experience may apply for the Student Civil Technician Co-op Program. Contact the Technology Careers Department at 483-1336.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CIVL 120	CIVL 101	Lim.Ch.1	CIVL 131
SPCH 120	CIVL 124	GRET 203	CIVL 132
Lim.Ch.1	CIVL 135	SOCL 120	CIVL 136
Lim.Ch.2	CIVL 200	Lim.Ch.3	CIVL 241

**COMPUTER NETWORKING AND COMMUNICATIONS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10791 (Effective Fall 1998-Summer 2003)

Computer networking and communication specialists plan, develop, and administer network and communication systems. They may develop applications to be deployed and oversee the operation of the network. They may provide software and hardware support for the networking infrastructure including database development. They will work with Internet and World Wide Web connections including the development of home pages and e-mail.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 6 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS **TOTAL: 43 CREDITS**

CODE	TITLE	CREDIT HOURS
CABS 195	Microsoft Windows	2
CISB 100	Introduction to Computer Information Systems	3
CISB 102	Introduction to the Internet in Business	2
CISB 119	Introduction to Windows Programming With Visual BASIC	4
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 151	Using Lotus Notes	2
CISB 152	Developing Lotus Notes Applications	2
CISB 200	Information Systems Technology and Problem Solving	3
CISB 202	Advanced Internet for Business and Education	2
CISB 204	Web Site Management	2
CISB 230	Introduction to Local Area Networks	3
CISB 231	Advanced Local Area Networks	3
CISB 233	Microsoft Windows NT Server	3
CISB 253	WWW Interactive Programming	4
CISB 258	Developing Multimedia Home Pages for the WWW	2

LIMITED CHOICE REQUIREMENTS **TOTAL: 17 CREDITS**
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas **9 Credits**
(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3

CHOICE 2: Computer Specialty Area (See Note 2) **8 Credits**

CABS 110	Microsoft Office	3
CABS 210	Advanced Microsoft Office	3
CISB 122	Advanced Windows Programming With Visual BASIC	3
CISB 136	SQL: Structured Query Language	2
CISB 141	PowerBuilder	2
CISB 143	Oracle Database for Business	2
CISB 180	C Programming with Business Application	3
CISB 235	Microcomputer Hardware Support	3
CISB 236	Microcomputer Software Support	3
CISB 247	Microcomputer Project	2
CISB 250	Database Concepts	3

CISB 260	Systems Analysis and Design	4
CISB 281	Visual C++ Programming	3
CISB 283	Introduction to JAVA Programming	3
MINIMUM TOTAL		60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Other CABS or CISB-prefix courses may be approved for Choice 2 by a Computer Information Systems Academic Program advisor

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CABS 195	CISB 130	CISB 152	CISB 231
CISB 100	CISB 133	CISB 200	CISB 233
CISB 102	CISB 151	CISB 204	CISB 253
CISB 119	CISB 202	CISB 230	CISB 258
Lim.Ch.2	Lim.Ch.1	Lim.Ch.1	Lim.Ch.1
	Lim.Ch.2	Lim.Ch.2	Lim.Ch.2

**COMPUTER SECURITY AND CONTROLS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10253 (Effective Fall 1998–Summer 2003)

Computer auditors plan and conduct audits of data processing systems and applications to safeguard assets, ensure accuracy of data, and promote operational efficiency. They may interview workers and examine records to gather data by following an audit plan and using the computer. They analyze data gathered to evaluate effectiveness of controls and determine accuracy of reports and efficiency and security of operations. They devise, write, and test computer programs necessary to obtain information needed for audit. They devise controls for new or modified computer applications to prevent inaccurate calculations and data loss, and to ensure discovery of errors.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 52 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
ACCG 220	Intermediate Accounting I	4
ACCG 221	Intermediate Accounting II	4
ACCG 290	Auditing	3
CISB 100	Introduction to Computer Information Systems	3
CISB 120	Introduction to Programming and Logic	4
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 170	COBOL I	4
CISB 200	Information Systems Technology and Problem Solving	3
CISB 201	Information Systems Auditing	3
CISB 250	Database Concepts	3
CISB 260	Systems Analysis and Design	4
CISB 270	COBOL II	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 9 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the GENERAL EDUCATION section above)	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3

MINIMUM TOTAL 61

NOTES

1. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
2. For graduation, a student must have earned a minimum 2.0 grade point average in courses with a CISB and ACCG prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	ACCG 211	ACCG 220	ACCG 221
CISB 100	CISB 130	CISB 133	CISB 200
CISB 120	CISB 170	CISB 201	CISB 250
Lim.Ch.	CISB 260	CISB 270	Lim.Ch.
		Lim.Ch.	
v			
ACCG 290			

**ELECTRONICS TECHNOLOGY, COMPUTER TECHNICIAN
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10743 (Effective Fall 1998--Summer 2003)

A computer service technician is highly knowledgeable in both computer hardware and software. This person must not only understand the operation of the computer system, but must also diagnose and repair the system when it fails, make upgrades and perform preventive maintenance. A computer service technician also answers customers' questions relating to correct use of computers or components and may install new equipment. A successful computer service technician must understand electronics, computer hardware and software, and how they work together to make the computer operate. Computer service technicians are employed in computer sales and service shops and any place a large number of computers are found. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 58 CREDITS

CODE	TITLE	CREDIT HOURS
CABS 195	Microsoft Windows	2
CISB 107	DOS Management	1
CISB 120	Introduction to Programming and Logic	4
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 200	Information Systems Technology and Problem Solving	3
CISB 230	Introduction to Local Area Networks	3
CISB 231	Advanced Local Area Networks	3
CISB 236	Microcomputer Software Support	3
ELCT 100	Schematic Drawing	1
ELCT 120	Programming Preparation	2
ELCT 151	Computer Troubleshooting I	3
ELCT 160	Logic Problems Analysis I	3
ELCT 161	Soldering/Desoldering	1
ELCT 170	Computer Repair Electronics I	6
ELCT 171	Computer Repair Electronics II	6
ELCT 180	Computer Test Equipment I	3
ELCT 181	Computer Test Equipment II	2
SPCH 110	Oral Communication in the Workplace	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 9 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	3 Credits
(See the <i>GENERAL EDUCATION</i> section above)	
Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3
CHOICE 2: Word Processing	2 Credits
CABS 114 WordPerfect—Beginning for DOS	2
CABS 119 Word for Windows	2
CABS 121 WordPerfect for Windows	2

CHOICE 3: Spreadsheet	2 Credits
CABS 123 Lotus 123 for DOS	2
CABS 126 Excel	2
CABS 127 Quattro Pro	2
CABS 128 Lotus 123 for Windows	2

CHOICE 4: Database	2 Credits
CABS 132 Paradox Database	2
CABS 133 Microsoft Access Database	2

MINIMUM TOTAL 67

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students interested in specializing in microcomputer software support should review the curriculum guide for Microcomputer Support Specialist, #10713.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ELCT 100	CISB 120	CABS 195	CISB 231
ELCT 120	CISB 130	CISB 107	CISB 236
ELCT 160	ELCT 151	CISB 200	CISB 133
ELCT 161	ELCT 171	CISB 230	Lim.Ch.
ELCT 170	ELCT 181	WRIT 124	Lim.Ch.
ELCT 180		Lim.Ch.	
SPCH 110		Lim.Ch.	

**COMPUTER REPAIR TECHNICIAN
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10168 (Effective Fall 1998–Summer 2003)

This program provides technical knowledge and skills to repair and service computers, test computers and computer components and diagnose causes of malfunctions. Individuals are prepared for entry-level positions.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 25 CREDITS
CODE	TITLE	CREDIT HOURS
ELCT 100	Schematic Drawing	1
ELCT 151	Computer Troubleshooting I	3
ELCT 160	Logic Problems Analysis I	3
ELCT 161	Soldering/Desoldering	1
ELCT 170	Computer Repair Electronics I	6
ELCT 171	Computer Repair Electronics II	6
ELCT 190	Computer Test Equipment I	3
ELCT 181	Computer Test Equipment II	2

LIMITED CHOICE REQUIREMENTS TOTAL: 6-7 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Software	3 Credits
CABS 195 Microsoft Windows	2
CISB 107 DOS Management	1
CISB 130 Data Communications	3
CISB 230 Introduction to Local Area Networks	3
CISB 240 Operating Systems	3
ELCT 120 Programming Preparation	2

CHOICE 2: Communication	3-4 Credits
SPCH 110 Oral Communication in the Workplace	3
WRIT 117 Writing Preparation II	4
WRIT 124 Technical Writing	3

MINIMUM TOTAL 31

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
ELCT 100	ELCT 151
ELCT 160	ELCT 171
ELCT 161	ELCT 181
ELCT 170	Lim.Ch.
ELCT 180	Lim.Ch.
Lim.Ch.	

**INTERNET FOR BUSINESS
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10793 (Effective Fall 1998–Summer 2003)

This program provides students with technical knowledge and skills to use the Internet, the global network which links computer users and information on a world-wide scale. Students will learn how to maximize the use of Internet and World Wide Web resources. Emphasis in this program is on business applications.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 24 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 195	Microsoft Windows	2
CISB 100	Introduction to Computer Information Systems	3
CISB 102	Introduction to the Internet in Business	2
CISB 119	Introduction to Windows Programming With Visual BASIC	4
CISB 130	Data Communications	3
CISB 202	Advanced Internet for Business and Education	2
CISB 204	Web Site Management	2
CISB 258	Developing Multimedia Home Pages for the WWW	2
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS TOTAL: 6-7 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Programming	3-4 Credits
CISB 253 WWW Interactive Programming	4
CISB 283 Introduction to JAVA Programming	3

CHOICE 2: Speech Communication	3 Credits
SPCH 110 Oral Communication in the Workplace	3
SPCH 120 Dynamics of Communication	3

MINIMUM TOTAL 30

NOTES

1. For graduation from this program, a student must have earned a minimum 2.0 grade point average in courses with CABS and CISB prefixes.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
CABS 195	CISB 130	CISB 204
CISB 100	CISB 202	WRIT 121
CISB 102	CISB 258	Lim.Ch.
CISB 119	Lim.Ch.	

**MICROCOMPUTER SUPPORT SPECIALIST
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10713 (Effective Fall 1998–Summer 2003)

Microcomputer support specialists install, modify and make minor repairs to microcomputer hardware and software systems and provide technical assistance and training to system users. They install or assist service personnel in installation of hardware and peripheral components, such as monitors, keyboards, printers, and disk drives on user's premises, following design or installation specifications. They may also load software packages into the computer; instruct users in use of equipment, software, and manuals; answer clients' inquiries concerning the systems operation; and diagnose system hardware, software, and operator problems.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department Office, Old Central Building, Room 210, telephone number 483-1522.

REQUIREMENTS

TOTAL: 33 CREDITS

CODE	TITLE	CREDIT HOURS
CABS 133	Microsoft Access Database	2
CABS 195	Microsoft Windows	2
CABS 233	Advanced Microsoft Access Programming	4
CISB 100	Introduction to Computer Information Systems	3
CISB 119	Introduction to Windows Programming With Visual BASIC	4
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 200	Information Systems Technology and Problem Solving	3
CISB 230	Introduction to Local Area Networks	3
CISB 235	Microcomputer Hardware Support	3
CISB 236	Microcomputer Software Support	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 28–30 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3

CHOICE 2: Word Processing 4–5 Credits

CABS 119	Word for Windows	2
CABS 121	WordPerfect for Windows	2
CABS 180	Desktop Publishing Using Pagemaker	3
CABS 219	Advanced Microsoft Word	2

CHOICE 3: Spreadsheets 4 Credits

CABS 126	Excel	2
CABS 127	Quattro Pro	2
CABS 128	Lotus 123 for Windows	2
CABS 129	Excel-Advanced	2

CHOICE 4: Graphics 2 Credits

CABS 140	Business Graphics Using Harvard Graphics	2
CABS 182	Microsoft PowerPoint/Windows	2

CHOICE 5: Computer Related (See Note 2) 5 Credits

CABS 110	Microsoft Office	3
CISB 102	Introduction to the Internet in Business	2
CISB 202	Advanced Internet for Business and Education	2
CISB 231	Advanced Local Area Networks	3
CISB 247	Microcomputer Project	2
CISB 253	WWW Interactive Programming	4
CISB 258	Developing Multimedia Home Pages for the WWW	2
CISB 260	Systems Analysis and Design	4

CHOICE 6: Accounting 3–4 Credits

ACCG 100	Practical Accounting for Non-Majors	3
ACCG 210	Principles of Accounting I	4

MINIMUM TOTAL

61

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students may also select from any course with a CABS or CISB prefix not already used to meet degree requirements.
- For graduation, a student must have earned a minimum 2.0 grade point average in courses with a CABS and CISB prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CABS 195	CABS 133	CABS 233	CISB 230
CISB 100	CISB 119	CISB 130	CISB 235
Lim.Ch.	Lim.Ch.	CISB 133	CISB 236
Lim.Ch.	Lim.Ch.	CISB 200	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
		Lim.Ch.	Lim.Ch.

**MICROCOMPUTER SYSTEMS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10111 (Effective Fall 1998–Summer 2003)

Microcomputer systems programmers develop programs to be run on today's powerful microcomputer systems and networks. Study and experience follows either an object-oriented or procedural programming track. Skills in the areas of computer programming, communication, systems analysis and design, business systems applications, microcomputer support, and systems control are required to succeed in jobs related to computer systems in business.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 31 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
CABS 110	Microsoft Office	3
CABS 195	Microsoft Windows	2
CISB 100	Introduction to Computer Information Systems	3
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 209	Information Systems Technology and Problem Solving	3
CISB 230	Introduction to Local Area Networks	3
CISB 250	Database Concepts	3
CISB 260	Systems Analysis and Design	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 29-31 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3

CHOICE 2: Programming Track (Choose 1 Subchoice) 10-11 Credits

Subchoice 2A: Object Oriented Programming Track

CISB 119	Introduction to Windows Programming With Visual BASIC	4
CISB 122	Advanced Windows Programming With Visual BASIC	3
CISB 281	Visual C++ Programming	3

Subchoice 2B: Procedural Programming Track

CISB 129	Introduction to Programming and Logic	4
CISB 180	C Programming with Business Application	3
CISB 280	C++ Language with OOP	4

CHOICE 3: Computer Specialty Area (See Note 3) 8 Credits

CABS 133	Microsoft Access Database	2
CISB 102	Introduction to the Internet in Business	2
CISB 202	Advanced Internet for Business and Education	2
CISB 231	Advanced Local Area Networks	3
CISB 235	Microcomputer Hardware Support	3
CISB 236	Microcomputer Software Support	3
CISB 253	WWW Interactive Programming	4
CISB 258	Developing Multimedia Home Pages for the WWW	2

CHOICE 4: Computer Related	2-3 Credits
CISB 245	Programming Internship 3
CISB 247	Microcomputer Project 2

MINIMUM TOTAL 60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. For graduation, a student must have earned a minimum 2.0 grade point average in courses with a CISB prefix.
3. Other CABS or CISB-prefix courses may be approved for Choice 3 by a Computer Information Systems Academic Program advisor.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	CABS 110	CISB 230	CISB 200
CABS 195	CISB 130	CISB 260	CISB 250
CISB 100	CISB 133	Lim.Ch.1	Lim.Ch.1
Lim.Ch.1	Lim.Ch.2	Lim.Ch.2	Lim.Ch.3
Lim.Ch.2	Lim.Ch.3	Lim.Ch.3	Lim.Ch.4

**MICROCOMPUTER SYSTEMS
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10107 (Effective Fall 1998–Summer 2003)

Certificate holders may qualify for entry-level/hands-on positions in this or a related area. Additional training will enhance an individual's employment and advancement opportunities.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 11 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 110	Microsoft Office	3
CABS 195	Microsoft Windows	2
CISB 100	Introduction to Computer Information Systems	3
CISB 130	Data Communications	3

LIMITED CHOICE REQUIREMENTS TOTAL: 19–20 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	Programming Introduction	4 Credits
CISB 119	Introduction to Windows Programming With Visual BASIC	4
CISB 120	Introduction to Programming and Logic	4

CHOICE 2:	Computer Related (See Note 2)	9 Credits
CABS 133	Microsoft Access Database	2
CISB 102	Introduction to the Internet in Business	2
CISB 133	Operating Systems	3
CISB 202	Advanced Internet for Business and Education	2
CISB 230	Introduction to Local Area Networks	3
CISB 231	Advanced Local Area Networks	3
CISB 235	Microcomputer Hardware Support	3
CISB 236	Microcomputer Software Support	3
CISB 253	WWW Interactive Programming	4
CISB 258	Developing Multimedia Home Pages for the WWW	2

CHOICE 3:	Writing	3–4 Credits
WRIT 121	Composition I	4
WRIT 124	Technical Writing	3
WRIT 127	Business Communications	3

CHOICE 4:	Speech Communication	3 Credits
SPCH 110	Oral Communication in the Workplace	3
SPCH 120	Dynamics of Communication	3

MINIMUM TOTAL 30

NOTES

- For graduation, a student must have earned a minimum 2.0 grade point average in courses with a CISB prefix.
- Other CABS or CISB-prefix courses may be approved for Choice 2 by a Computer Information Systems Academic Program advisor.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CABS 195	CABS 110
CISB 100	CISB 130
Lim.Ch.1	Lim.Ch.2
Lim.Ch.2	Lim.Ch.2
Lim.Ch.3	Lim.Ch.4

**PROGRAMMER/ANALYST
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10113 (Effective Fall 1998–Summer 2003)

Programmer/Analysts plan, develop, test, and document computer programs at the request of a specific user, applying knowledge of programming techniques and computer systems. They may evaluate user requests to determine feasibility, cost and time required, as well as compatibility with current system and computer capabilities. In addition, they read manuals, periodicals, and technical reports to develop programs that meet user requirements. They formulate a plan outlining steps required to develop programs and convert project specifications into program source instructions which are entered into the computer system and tested. They may write documentation and the user manual.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 37 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
CISB 100	Introduction to Computer Information Systems	3
CISB 120	Introduction to Programming and Logic	4
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 170	COBOL I	4
CISB 200	Information Systems Technology and Problem Solving	3
CISB 250	Database Concepts	3
CISB 260	Systems Analysis and Design	4
CISB 261	Systems Implementation with CASE Tools	3
CISB 270	COBOL II	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 23 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3

CHOICE 2: Additional Language (Choose 1 Subchoice) 7 Credits

Subchoice 2A

CISB 175	Beginning RPG on the AS/400	3
CISB 275	Advanced RPG on the AS/400	4

Subchoice 2B

CISB 180	C Programming with Business Application	3
CISB 280	C++ Language with OOP	4

CHOICE 3: Computer Related (See Note 2) 7 Credits

CABS 110	Microsoft Office	3
CABS 195	Microsoft Windows	2
CISB 102	Introduction to the Internet in Business	2
CISB 119	Introduction to Windows Programming with Visual Basic	4
CISB 122	Advanced Windows Programming with Visual Basic	3
CISB 136	SQL: Structured Query Language	2
CISB 230	Introduction to Local Area Networks	3
CISB 245	Programming Internship	3
CISB 253	WWW Interactive Programming	4
CISB 283	Introduction to JAVA Programming	3

MINIMUM TOTAL 60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students may also select from unchosen courses in Choice 2 or any course with a CISB prefix not already used to meet degree requirements.
3. For graduation from this program, a student must have earned a minimum 2.0 grade point average in courses with a CISB prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	CISB 130	CISB 170	CISB 250
CISB 100	CISB 133	CISB 200	CISB 270
CISB 120	CISB 260	CISB 261	Lim.Ch.1
Lim.Ch.1	Lim.Ch.1	Lim.Ch.2	Lim.Ch.3
	Lim.Ch.2	Lim.Ch.3	Lim.Ch.3

**ADVANCED MICROCOMPUTER APPLICATIONS SPECIALIST
CERTIFICATE OF COMPLETION**

Curriculum Code: 10765 (Effective Fall 1998–Summer 2003)

This certificate of completion is designed for students who either hold a post-secondary degree (associate or bachelor) in a Computer Information Systems-related area or have 3 or more years work experience in a Computer Information Systems-related job. To receive this certificate of completion applicants must attach proof of a degree or work experience to the application for the certificate.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 18 CREDITS	
CODE	TITLE	CREDIT HOURS	
CABS 195	Microsoft Windows	2	
CABS 119	Word for Windows	2	
CABS 126	Excel	2	
CABS 129	Excel-Advanced	2	
CABS 133	Microsoft Access Database	2	
CABS 182	Microsoft PowerPoint/Windows	2	
CABS 219	Advanced Microsoft Word	2	
CABS 233	Advanced Microsoft Access Programming	4	

MINIMUM TOTAL 18

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CABS 195	CABS 129
CABS 119	CABS 182
CABS 126	CABS 219
CABS 133	CABS 233

**MICROCOMPUTER USER SUPPORT SPECIALIST
CERTIFICATE OF COMPLETION**

Curriculum Code: 10766 (Effective Fall 1998–Summer 2003)

This certificate of completion is designed for students who either hold a post-secondary degree (associate or bachelor) in a Computer Information Systems-related area or have three or more years work experience in a Computer Information Systems-related job. To receive this certificate of completion applicants must attach proof of a degree or work experience to the application for the certificate.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 17 CREDITS	
CODE	TITLE	CREDIT HOURS	
CABS 195	Microsoft Windows	2	
CISB 200	Information Systems Technology and Problem Solving	3	
CISB 230	Introduction to Local Area Networks	3	
CISB 231	Advanced Local Area Networks	3	
CISB 235	Microcomputer Hardware Support	3	
CISB 236	Microcomputer Software Support	3	

MINIMUM TOTAL 17

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CABS 195	CISB 200
CISB 230	CISB 231
CISB 235	CISB 236

**SYSTEM SUPPORT SPECIALIST FOR THE AS/400
CERTIFICATE OF COMPLETION**

Curriculum Code: 10764 (Effective Fall 1998–Summer 2003)

This certificate of completion is designed for students who either hold a post-secondary degree (associate or bachelor) in a Computer Information Systems-related area or have three or more years work experience in a Computer Information Systems-related job. To receive this certificate of completion applicants must attach proof of a degree or work experience to the application for this certificate.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 17 CREDITS
CODE	TITLE	CREDIT HOURS
CISB 175	Beginning RPG on the AS/400	3
CISB 176	AS/400 Environment	1
CISB 177	AS/400 Operations	3
CISB 249	Advanced Concepts in Computer Information Systems	3
CISB 271	COBOL/400: Implementing the COBOL Language on the AS/400	3
CISB 275	Advanced RPG on the AS/400	4
MINIMUM TOTAL		17

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CISB 175	CISB 249
CISB 176	CISB 271
CISB 177	CISB 275

**WINDOWS PROGRAMMING SPECIALIST
CERTIFICATE OF COMPLETION**

Curriculum Code: 10763 (Effective Fall 1998–Summer 2003)

This certificate of completion is designed for students who either hold a post-secondary degree (associate or bachelor) in a Computer Information Systems-related area or have three or more years work experience in a Computer Information Systems-related job. To receive this certificate of completion applicants must attach proof of a degree or work experience to the application for the certificate.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 12 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 195	Microsoft Windows	2
CISB 119	Introduction to Windows Programming With Visual BASIC	4
CISB 122	Advanced Windows Programming With Visual BASIC	3
CISB 281	Visual C++ Programming	3
LIMITED CHOICE REQUIREMENTS		TOTAL: 3-4 CREDITS
Complete the indicated number of credits from each CHOICE listed below.		

CHOICE 1:	Multimedia	Credits
CISB 256	Multimedia in Business	3
CISB 257	Multimedia Presentations	2
CISB 258	Developing Multimedia Home Pages for the WWW	2
CISB 259	Introduction to Developing Multimedia Training	2
CISB 253	WWW Interactive Programming	4
CISB 233	Introduction to JAVA Programming	3
MINIMUM TOTAL		15

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
CABS 195	CISB 122	CISB 281
CISB 119	Lim. Ch.	

**RESIDENTIAL BUILDING
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10167 (Effective Fall 1998–Summer 2003)

This program prepares an individual to build single family structures and multiple housing buildings such as apartments and condominiums. A residential builder must have basic math skills, understand construction methods and techniques, and know the proper use of construction materials. They must also have significant knowledge of blueprint reading, estimating, code requirements, and small business administration and management. Students will be prepared to obtain a Residential Builder's License or a Maintenance and Alteration Contractor's License. This program also assists students in preparing for the Michigan Builder's License Exam which is administered by the National Assessment Institute and the State of Michigan. This program *does not* lead to journey status.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 46 CREDITS
ARCH 271	Structural Theory	4	
ARCH 278	Energy Efficient Design	4	
ARCH 283	Materials of Construction	4	
BLDT 100	Introduction to Construction	3	
BLDT 103	Structural Blueprint Reading	4	
BLDT 121	Residential Framing and Foundations	4	
BLDT 124	Remodeling, Shingling, and Siding	4	
BLDT 126	Interior Carpentry	4	
BLDT 262	Builders Business License	4	
BLDT 277	Construction Cost Estimating	4	
BLDT 281	BOCA/Uniform Code	3	
MATH 112	Intermediate Algebra	4	

LIMITED CHOICE REQUIREMENTS

TOTAL: 14 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Building/Business Related 2 Credits

ACCG 100	Practical Accounting for Non-Majors	3
BLDR 101	Basic Woodworking	2
BLDT 285	Residential Building Internship	2
BLDT 298	Builder's License Review	1
BUSN 118	Introduction to Business	3
CIVL 120	Surveying	4

MINIMUM TOTAL 60

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BLDT 100	ARCH 278	ARCH 283	ARCH 271
BLDT 103	BLDT 124	BLDT 126	BLDT 262
BLDT 121	MATH 112	BLDT 277	BLDT 281
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.			

**RESIDENTIAL BUILDING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10135 (Effective Fall 1998–Summer 2003)

This certificate consists of practical hands-on courses that prepare an individual for the job market with just one year of training. This program *does not* lead to journey status.

REQUIREMENTS

TOTAL: 30 CREDITS

CODE	TITLE	CREDIT HOURS
ARCH 283	Materials of Construction	4
BLDT 100	Introduction to Construction	3
BLDT 103	Structural Blueprint Reading	4
BLDT 121	Residential Framing and Foundations	4
BLDT 126	Interior Carpentry	4
BLDT 277	Construction Cost Estimating	4
BLDT 281	BOCA/Uniform Code	3
MATH 050	Mathematics-Principles and Practices	4

MINIMUM TOTAL 30

SUGGESTED COURSE SEQUENCE

I	II
BLDT 100	ARCH 283
BLDT 121	BLDT 103
BLDT 126	BLDT 277
MATH 050	BLDT 281

**COURT AND CONFERENCE REPORTING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10273 (Effective Fall 1998–Summer 2003)

Reporters are communication specialists who use a steno machine to make a verbatim record of legal proceedings and produce an accurate transcript of what was said. They can also be realtime reporters and/or captioners, providing instant translation for deaf or hard-of-hearing persons. Court reporters work in all environments where a verbatim record is needed or voice-to-text translation is required for communication access. Official reporters work in the courtroom. Freelance reporters work in a freelance firm or home office. Realtime reporters work in a classroom or conference setting. Captioners work at a television station. State certification is required and national certification is highly recommended. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Court and Conference Reporting Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1998/99 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Room 232 Gannon Vocational-Technical Center, telephone (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE COURT AND CONFERENCE REPORTING PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 49 CREDITS
CODE	TITLE	CREDIT HOURS
CACR 101	Machine Shorthand Theory I	6
CACR 111	Machine Shorthand Theory II	6
CACR 121	Introduction to Speedbuilding	6
CACR 205	Court Reporting I	11
CACR 206	Court Reporting II	11
CACR 215	Intermediate Speedbuilding	6
CACR 250	Internship	2
CACR 270	Realtime Reporting	1

LIMITED CHOICE REQUIREMENTS TOTAL: 15-23 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas	12 Credits
(See the GENERAL EDUCATION section above)	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Professional Related Courses	3 Credits
CJUS 103 Criminal Law	3
LEGL 215 Business Law I, Basic Principles	3

CHOICE 3: Advanced Speedbuilding Courses (See Note 2)	0-8 Credits
CACR 225 Advanced Speedbuilding I	4
CACR 226 Advanced Speedbuilding II	4

MINIMUM TOTAL 64

NOTES

- CACR 250 requires 128-159 verified hours of actual writing fieldwork.
- CACR 225 and 226 are required courses for students not achieving the top speed level requirements in CACR 215.
- Students must begin Court and Conference Reporting courses in the fall or spring. A deposit of \$75 for a steno machine and \$25 for a stand is required for students admitted into the program. Students are responsible for obtaining their own equipment upon completion of the program.
- CACR 260 is a Certified Shorthand Reporter (CSR) exam prep course. It is offered to alumni eight weeks prior to the CSR exam. It is not a required course for the program.
- A final grade of 3.0 or higher is required to advance to the next related CACR course.
- For graduation, students must attain the following minimum speeds with 95-97 percent accuracy: three timings at 230 wpm Q&A; three timings at 200 wpm Jury Charge; three timings at 180 wpm Literary; and two typing timings at 60 net wpm.
- This curriculum meets all of the National Court Reporters Association Committee on Approved Student Education (CASE) minimum standards for receiving a degree in Court and Conference Reporting.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CACR 101 Lim.Ch.1 Lim.Ch.1	CACR 111 Lim.Ch.1 Lim.Ch.1	CACR 121	CACR 205 CACR 270
V	VI		
CACR 206 CACR 250 Lim.Ch.2	CACR 215		

**CREDIT UNION MANAGEMENT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10103 (Effective Fall 1998–Summer 2003)

A credit union manager is responsible for the smooth and efficient functioning of the organization and is responsible to the members of that credit union. Handling money and confidential information, credit union managers make decisions in accordance with policy set by the institution's board of directors and federal and state laws and regulations. Graduates of this program are prepared to work in various types and sizes of credit unions and other financial institutions.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS TOTAL: 39 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
BUSN 118	Introduction to Business	3
CISB 200	Information Systems Technology and Problem Solving	3
CUAI 102	Credit Union Accounting	3
CUMA 100	Introduction to Credit Union Operations	3
CUMA 200	Credit and Collections	3
CUMA 201	Credit Union Financial Counseling	2
CUMA 215	Business Law for Credit Unions	3
MGMT 225	Principles of Management	3
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS TOTAL: 22–23 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 1) (See the GENERAL EDUCATION section above)	0 Credits	
Writing Core Area	0	
Speech Communication Core Area	0	
Science/Technology Core Area	0	
Global Perspectives and Diversity Core Area	0	
CHOICE 2: Management Related	10 Credits	
ACCG 211	Principles of Accounting II	4
BUSN 201	International Business	3
BUSN 250	Personal Finance	2
ECON 201	Principles of Economics—Micro	3
ECON 202	Principles of Economics—Macro	3
INSU 265	Principles of Risk and Insurance	3
LABR 200	Introduction to Labor Relations	3
LABR 204	Employment Law for Managers	3
MATH 117	Math for Business	4
MGMT 224	Human Resource Management	3
MGMT 228	Organizational Behavior	3
MGMT 237	Managing for Continual Improvement	3
MGMT 239	Time and Stress Management	3
MGMT 304	Organizational Development	3

MGMT 337	Human Resource Management Skills	3
MKTG 119	Marketing and Managing Your Professional Image	3
MKTG 221	Consumer Behavior	2
REAL 275	Real Estate Financing	3

CHOICE 3: Computer Related (See Note 2) 4–5 Credits

MINIMUM TOTAL 61

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Choose CABS-prefix courses of 110 or above and/or CISB-prefix courses of 100 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	CUAI 102	ACCG 210	CISB 200
CUMA 100	CUMA 200	CUMA 201	MGMT 225
SPCH 110	MKTG 200	CUMA 215	MGMT 234
WRIT 127	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**CREDIT UNION MANAGEMENT
CERTIFICATE OF COMPLETION**

Curriculum Code: 10151 (Effective Fall 1998–Summer 2003)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

REQUIREMENTS TOTAL: 17 CREDITS

CODE	TITLE	CREDIT HOURS
CUAI 102	Credit Union Accounting	3
CUMA 100	Introduction to Credit Union Operations	3
CUMA 200	Credit and Collections	3
CUMA 201	Credit Union Financial Counseling	2
CUMA 215	Business Law for Credit Unions	3
MGMT 225	Principles of Management	3

LIMITED CHOICE REQUIREMENTS TOTAL: 3 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: Communication	3 Credits	
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

MINIMUM TOTAL 20

SUGGESTED COURSE SEQUENCE

I	II
CUAI 102	CUMA 200
CUMA 100	CUMA 201
CUMA 215	MGMT 225
Lim.Ch.	

**CRIMINAL JUSTICE, CORRECTIONS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10170 (Effective Fall 1998–Summer 2003)

This degree program prepares an individual for a career as a probation or parole officer, corrections officer, halfway house administrator, jail corrections officer, juvenile corrections professional, or local corrections position. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Criminal Justice and Law Center, Old Central Building, Room 224, telephone number (517) 483-1570.

REQUIREMENTS

TOTAL: 47 CREDITS

CODE	TITLE	CREDIT HOURS
CISB 100	Introduction to Computer Information Systems	3
CJUS 101	Introduction to Criminal Justice	3
CJUS 133	Juvenile Residential Services	3
CJUS 134	Probation and Parole	3
CJUS 245	Report Writing in Criminal Justice	2
LEGL 160	Critical Thinking in Law	3
PSYC 200	Introduction to Psychology	4
SOCL 120	Introduction to Sociology	4
SPCH 110	Oral Communication in the Workplace	3
WRIT 121	Composition I	4

Vocational Certificate Requirements (See Note 1)

CJUS 131	Introduction to Corrections	3
CJUS 135	Legal Issues in Corrections	3
CJUS 250	Correctional Institutions	3
CJUS 251	Correctional Clients	3
CJUS 255	Human Relations in Criminal Justice	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 15 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas 3 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 2)	0
Speech Communication Core Area (See Note 2)	0
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 2)	0

CHOICE 2: Related Professional Courses 12 Credits

CJUS 102	Crime Causes and Conditions	3
CJUS 106	Introduction to Juvenile Justice	3
CJUS 205	Policing into the 21st Century	3
SOCL 255	Contemporary Social Problems	3
SOCL 260	Minority Groups	3

County and Local Detention Vocational Certificate (See Note 3)

CJUS 130	Local Detention	3
CJUS 242	Unarmed Defense	3
CJUS 246	Jail Safety and I.D. Issues	4
CJUS 256	Interpersonal Communication in Jails	1
WRIT 117	Writing Preparation II (See Note 4)	4

MINIMUM TOTAL 62

NOTES

1. Students completing these five courses with a minimum 2.0 grade in each class will receive the Michigan Corrections Officer Vocational Certificate.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
3. Students completing courses listed below and CJUS 135, 245, 251 and 255 with a minimum 2.0 grade in each class will receive the County and Local Detention Vocational Certificate.
4. This course will be waived if student scores six or above on writing assessment test.
5. All Vocational Certificate courses are certified by the Michigan Corrections Officer Training Council.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CJUS 101	CJUS 131	CISB 100	CJUS 255
LEGL 160	CJUS 245	CJUS 133	PSYC 200
SOCL 120	CJUS 250	CJUS 134	Lim.Ch.2
WRIT 121	CJUS 251	CJUS 135	Lim.Ch.2
	SPCH 110	Lim.Ch.1	Lim.Ch.2

V

Lim.Ch.2

**CRIMINAL JUSTICE, LAW ENFORCEMENT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10257 (Effective Fall 1998–Summer 2003)

This degree program prepares an individual for a career as a law enforcement officer. It also prepares the individual for possible entry to the Police Academy Program. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Criminal Justice and Law Center, Old Central Building, Room 224, telephone number (517) 483-1570.

REQUIREMENTS

TOTAL: 40 CREDITS

CODE	TITLE	CREDIT HOURS
CISB 100	Introduction to Computer Information Systems	3
CJUS 101	Introduction to Criminal Justice	3
CJUS 102	Crime Causes and Conditions	3
CJUS 103	Criminal Law	3
CJUS 106	Introduction to Juvenile Justice	3
CJUS 133	Juvenile Residential Services	3
CJUS 201	Criminal Justice Organization and Administration	3
CJUS 205	Policing into the 21st Century	3
CJUS 255	Human Relations in Criminal Justice	3
LEGL 160	Critical Thinking in Law	3
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 20–28 CREDITS

Complete the indicated number of credit from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas 3 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 1)	0

CHOICE 2: Law Enforcement (Choose 1 Subchoice) 17–25 Credits

Subchoice 2A: Mid-Michigan Police Academy Requirements

CJUS 260	Criminal Investigation and Procedures	3
CJUS 261	Michigan Criminal Law and Procedure	3
CJUS 262	Patrol Procedures and Tactics	3
CJUS 263	Standard First Aid	2
CJUS 264	Report Writing in Law Enforcement	1
CJUS 265	Highway Traffic Operations	3
CJUS 266	Basic Police Science	3
CJUS 267	Law Enforcement Physical Training	2
CJUS 268	Precision Driving	3
PFFT 114	Advanced Circuit Training	2

Subchoice 2B: Other Law Enforcement

CJUS 130	Local Detention	3
CJUS 203	Criminal Procedure	3
CJUS 204	Criminal Investigation	4
PSYC 200	Introduction to Psychology	4
SOCL 255	Contemporary Social Problems	3

MINIMUM TOTAL

60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

Subchoice 2A: Mid-Michigan Police Academy

I	II	III	IV
CJUS 101	CJUS 106	CISB 100	Police Academy
CJUS 102	CJUS 201	CJUS 103	
LEGL 160	CJUS 205	CJUS 133	
WRIT 121	CJUS 255	MGMT 234	
	Lim.Ch.1	SPCH 110	

Subchoice 2B: Other Law Enforcement

I	II	III	IV
CJUS 101	CJUS 106	CISB 100	CJUS 130
CJUS 102	CJUS 201	CJUS 103	PSYC 200
LEGL 160	CJUS 205	CJUS 133	
WRIT 121	CJUS 255	MGMT 234	
	Lim.Ch.1	SPCH 110	

V

CJUS 203
CJUS 204
SOCL 255

**MID-MICHIGAN POLICE ACADEMY
CERTIFICATE OF COMPLETION**

Curriculum Code: 10737 (Effective Fall 1998–Summer 2003)

The Mid-Michigan Police Academy at Lansing Community College is a 15-week basic police training program designed to meet or exceed state mandated certification requirements for preparing individuals for a career in law enforcement. Within the 15 weeks, more than 650 hours are utilized to provide training in 70 different topic areas. The curriculum includes topics such as criminal law and procedure, investigations, patrol procedures, human relations, conflict mediation, firearms, precision driving, use of lethal and non-lethal force, defensive tactics, report writing, traffic enforcement, victimization, and crime prevention. The emphasis in this academy is placed upon practical and hands-on training techniques. All courses for this program must be completed in a single semester.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. All of the courses for this program are open only to students officially admitted to the Police Academy Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or program requirements for this program may change each academic year. For the most recent and complete information about admission requirements, contact the Police Academy Coordinator, William Martin, in the Police Academy Office, Old Central Building, Room 129B, telephone number (517) 483-5248, or contact the LCC Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE MID-MICHIGAN POLICE ACADEMY PROGRAM

For current information about admission requirements, contact the Police Academy Coordinator, William Martin, in the Police Academy Office, Old Central Building, Room 129B, telephone number (517) 483-5248, or contact the LCC Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

MID-MICHIGAN POLICE ACADEMY PROGRAM REQUIREMENTS

Curriculum Code: 10737

REQUIREMENTS		TOTAL: 25 CREDITS
CODE	TITLE	CREDIT HOURS
CJUS 260	Criminal Investigation and Procedures	3
CJUS 261	Michigan Criminal Law and Procedure	3
CJUS 262	Patrol Procedures and Tactics	3
CJUS 263	Standard First Aid	2
CJUS 264	Report Writing in Law Enforcement	1
CJUS 265	Highway Traffic Operations	3
CJUS 266	Basic Police Science	3
CJUS 267	Law Enforcement Physical Training	2
CJUS 268	Precision Driving	3
PFFT 114	Advanced Circuit Training	2
MINIMUM TOTAL		25

**CAD/CAM ENGINEERING TECHNICIAN
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10128 (Effective Fall 1998–Summer 2003)

This curriculum is intended for those students planning to pursue an advanced degree in the engineering field. While striving for that goal, students often seek employment as computer-aided design (CAD) operators. A CAD operator is an integral part of all decisions made in developing a finished product. Responsibilities include graphically representing, either manually or electronically, the information received from an engineering design work team. CAD operators are employed by engineering and consulting firms, the automotive industry, manufacturers of special machinery, etc. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 46 CREDITS

CODE	TITLE	CREDIT HOURS
CHEM 151	General Chemistry Lecture I	4
CHEM 161	General Chemistry Laboratory I	1
CNCP 105	Basic Machining Processes	3
DTDS 101	Drafting I	4
DTDS 102	Drafting II	4
DTDS 103	Geometric Tolerancing	2
DTDS 104	Descriptive Geometry	4
MATH 151	Calculus I	4
MATH 152	Calculus II	4
MATH 253	Calculus III	4
PHYS 215	Physics I: Mechanics	5
PHYS 216	Physics II: Electromagnetism, Waves, and Optics	5
PHYS 225	Physics I Laboratory	1
PHYS 226	Physics II Laboratory	1

LIMITED CHOICE REQUIREMENTS

TOTAL: 21 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3

CHOICE 2: Computer Graphics (See Note 2) 12 Credits

Subchoice 2A

DTDS 131	AutoCAD Basic 2-D	4
DTDS 132	AutoCAD Advanced 3-D	4
DTDS 233	AutoCAD Solids	4

Subchoice 2B

DTDS 180	Unigraphics I	4
DTDS 181	Unigraphics II	4
DTDS 182	Unigraphics III	4

MINIMUM TOTAL 67

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. The Computer Graphics series (12 credits) may be replaced by another approved computer graphics software package available through the Drafting and Design Program. See a Drafting and Design advisor for more information.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	DTDS 102	CNCP 105	DTDS 103
CHEM 161	MATH 152	MATH 253	DTDS 104
DTDS 101	PHYS 215	PHYS 216	Lim.Ch.
MATH 151	PHYS 225	PHYS 226	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**DRAFTING AND DESIGN
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10165 (Effective Fall 1998–Summer 2003)

This program prepares individuals to apply technical knowledge and skills to plan and prepare scale pictorial interpretations of engineering and design concepts. Students receive instruction in the use of precision drawing instruments, computer-assisted design programs, sketching and illustration, and specification interpretation. Proficiency in the use of current computer-aided design packages, up-to-date geometric tolerancing techniques, and descriptive geometry applications is necessary to succeed in the industrial workplace. Employment possibilities include engineering firms, consulting firms, the automotive industry, manufacturers of special machinery, tool and die industry, etc.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 41 CREDITS
CODE	TITLE	CREDIT HOURS
CNCP 105	Basic Machining Processes	3
DTDS 101	Drafting I	4
DTDS 102	Drafting II	4
DTDS 103	Geometric Tolerancing	2
DTDS 104	Descriptive Geometry	4
DTDS 202	Die Design and Construction	4
DTDS 204	Jigs and Fixture Design	4
MACH 100	Manufacturing Processes	4
MACH 135	Metallurgy and Heat Treat	4
MATH 114	Technical Math I	4
MATH 115	Technical Math II	4

LIMITED CHOICE REQUIREMENTS TOTAL: 24 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits
(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Computer Graphics (See Note 1) 12 Credits
Subchoice 2A

DTDS 131	AutoCAD Basic 2-D	4
DTDS 132	AutoCAD Advanced 3-D	4
DTDS 233	AutoCAD Solids	4

Subchoice 2B

DTDS 180	Unigraphics I	4
DTDS 181	Unigraphics II	4
DTDS 182	Unigraphics III	4

MINIMUM TOTAL 65

NOTES

- The Computer Graphics series (12 credits) may be replaced by another approved computer graphics software package available through the Drafting and Design Program. See a Drafting and Design advisor for more information.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
DTDS 101	DTDS 102	CNCP 105	DTDS 204
DTDS 103	DTDS 104	DTDS 202	MACH 135
MACH 100	MATH 115	Lim.Ch.	Lim.Ch.
MATH 114	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.	Lim.Ch.	

**DRAFTING AND DESIGN
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10145 (Effective Fall 1998–Summer 2003)

This curriculum has been identified by local industry as comprising the minimal requirements needed for employment consideration. Students completing this curriculum are eligible to apply for entry-level drafting or computer-aided designer (CAD) positions.

REQUIREMENTS		TOTAL: 22 CREDITS
CODE	TITLE	CREDIT HOURS
DTDS 101	Drafting I	4
DTDS 102	Drafting II	4
DTDS 103	Geometric Tolerancing	2
DTDS 104	Descriptive Geometry	4
MACH 100	Manufacturing Processes	4
MATH 114	Technical Math I	4

LIMITED CHOICE REQUIREMENTS TOTAL: 12 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Computer Graphics (See Note 1) 12 Credits

Subchoice 1A		
DTDS 131	AutoCAD Basic 2-D	4
DTDS 132	AutoCAD Advanced 3-D	4
DTDS 233	AutoCAD Solids	4

Subchoice 1B

DTDS 180	Unigraphics I	4
DTDS 181	Unigraphics II	4
DTDS 182	Unigraphics III	4

MINIMUM TOTAL 34

NOTES

- The Computer Graphics series (12 credits) may be replaced by another approved computer graphics software package available through the Drafting and Design Program. See a Drafting and Design advisor for more information.

SUGGESTED COURSE SEQUENCE

I	II	III
DTDS 101	DTDS 102	Lim.Ch.
MACH 100	DTDS 103	
MATH 114	DTDS 104	
Lim.Ch.	Lim.Ch.	

**ELECTRICAL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10134 (Effective Fall 1998–Summer 2003)

Students in this program may select either the construction specialty or the machine control and maintenance specialty. Construction electricians install electrical wiring and systems in homes, offices, stores, or industrial plants. Machine control designers are responsible for designing control circuits which operate machinery in plants. Maintenance electricians work in industry maintaining and troubleshooting power and control circuits on machinery. Both specialties require mechanical aptitude, logical thinking, and problem-solving skills. Employment opportunities vary with each specialty.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 33 CREDITS

CODE	TITLE	CREDIT HOURS
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
ELTE 112	Basic Wiring Installation	2
ELTE 121	Analyzing Electric Circuits	5
ELTE 123	Motors and Transformers	4
ELTE 131	Introduction to Machine Control	4
ELTE 145	Electrical Prints for Buildings	4
ELTE 150	Electric Motor Maintenance	2
ELTE 260	Introduction to Programmable Logic Controllers	4
INAU 100	Introduction to Industrial Automation	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 34 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Electrical Specialization (Choose 1 Subchoice) 22 Credits

Subchoice 2A: Construction Specialization

BLDT 103	Structural Blueprint Reading	4
BLDT 277	Construction Cost Estimating	4
ELTE 141	National Electrical Code I	4
ELTE 142	National Electrical Code II	4
ELTE 240	Electrical Estimating	3
HVAC 100	Fundamentals of Heating, Ventilating, and Air Conditioning	3

Subchoice 2B: Machine Control and Maintenance Specialization

ELTE 122	Industrial Control Electronics	5
ELTE 232	Industrial Control Design	3
ELTE 261	Allen-Bradley PLC-5 Advanced	6
INAU 200	Applied Automation	4
MFGM 101	Industrial Hydraulics	4

MINIMUM TOTAL 67

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

Construction Specialty

I	II	III	IV
ELTE 100	ELTE 112	BLDT 103	BLDT 277
ELTE 110	ELTE 121	ELTE 123	ELTE 142
INAU 100	ELTE 131	ELTE 141	HVAC 100
Lim.Ch.	ELTE 145	ELTE 240	Lim.Ch.
Lim.Ch.	ELTE 150	ELTE 260	Lim.Ch.

Control and Maintenance Specialty

I	II	III	IV
ELTE 100	ELTE 112	ELTE 123	ELTE 122
ELTE 110	ELTE 121	ELTE 232	ELTE 261
INAU 100	ELTE 131	ELTE 260	INAU 200
Lim.Ch.	ELTE 145	MFGM 101	Lim.Ch.
Lim.Ch.	ELTE 150	Lim.Ch.	

ELECTRICAL TECHNOLOGY, CONSTRUCTION CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 10759 (Effective Fall 1998–Summer 2003)

This certificate is designed to provide students with a background in applied electrical theory and the basic mechanical skills necessary to the practicing construction electrician.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 42 CREDITS
CODE	TITLE	CREDIT HOURS
BLDT 103	Structural Blueprint Reading	4
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
ELTE 112	Basic Wiring Installation	2
ELTE 121	Analyzing Electric Circuits	5
ELTE 123	Motors and Transformers	4
ELTE 131	Introduction to Machine Control	4
ELTE 141	National Electrical Code I	4
ELTE 145	Electrical Prints for Buildings	4
ELTE 240	Electrical Estimating	3
ELTE 260	Introduction to Programmable Logic Controllers	4
INAU 100	Introduction to Industrial Automation	4
MINIMUM TOTAL		42

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
ELTE 100	ELTE 112	BLDT 103
ELTE 110	ELTE 121	ELTE 123
ELTE 141	ELTE 131	ELTE 240
INAU 100	ELTE 145	ELTE 260

ELECTRICAL TECHNOLOGY, CONTROL AND MAINTENANCE CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 10760 (Effective Fall 1998–Summer 2003)

This certificate is designed to provide students with a background in applied electrical theory and the basic mechanical skills necessary to the practicing electrician in the machine control field.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 40 CREDITS
CODE	TITLE	CREDIT HOURS
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
ELTE 112	Basic Wiring Installation	2
ELTE 121	Analyzing Electric Circuits	5
ELTE 122	Industrial Control Electronics	5
ELTE 123	Motors and Transformers	4
ELTE 131	Introduction to Machine Control	4
ELTE 150	Electric Motor Maintenance	2
ELTE 260	Introduction to Programmable Logic Controllers	4
ELTE 261	Allen-Bradley PLC-5 Advanced	6
INAU 100	Introduction to Industrial Automation	4
MINIMUM TOTAL		40

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ELTE 100	ELTE 112	ELTE 123	ELTE 122
ELTE 110	ELTE 121	ELTE 260	ELTE 261
INAU 100	ELTE 131		
	ELTE 150		

**ELECTRONICS TECHNOLOGY, BIOMEDICAL OPTION
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10138 (Effective Fall 1998–Summer 2003)

Biomedical electronics technicians inspect, maintain, repair, calibrate, and modify electronic electrical, mechanical, hydraulic, and pneumatic equipment and instruments used in medical therapy, diagnosis, and research. They may also be involved in the operation and/or supervision of biomedical equipment and in equipment control. Second-year students complete an internship in a biomedical electronics repair facility under the supervision of a biomedical electronics technician. Biomedical electronics technicians are employed by hospitals, biomedical equipment manufacturers, and independent biomedical service facilities. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 62 CREDITS

CODE	TITLE	CREDIT HOURS
ANAT 145	Introductory Anatomy and Physiology	4
CISB 200	Information Systems Technology and Problem Solving	3
ELCT 100	Schematic Drawing	1
ELCT 101	Analog Problems	4
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 112	Transistors	6
ELCT 120	Programming Preparation	2
ELCT 130	Machine Language Programming	2
ELCT 131	Digital Basics	2
ELCT 161	Soldering/Desoldering	1
ELCT 211	Linear Circuits I	4
ELCT 212	Linear Circuits II	4
ELCT 231	Advanced Digital Electronics	5
ELCT 241	Analog Troubleshooting	1
ELCT 251	Digital Troubleshooting I	1
ELCT 261	Consumer Product Systems	3
ELCT 281	Biomedical Instrumentation	4
ELCT 290	Biomedical Internship	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 3 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	3 Credits
(See the GENERAL EDUCATION section above)	
Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3
MINIMUM TOTAL	65

NOTES

- Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ELCT 100	CISB 200	ANAT 145	ELCT 212
ELCT 101	ELCT 112	ELCT 211	ELCT 261
ELCT 109	ELCT 130	ELCT 231	ELCT 290
ELCT 110	ELCT 131	ELCT 241	Lim.Ch.
ELCT 120	WRIT 124	ELCT 251	
ELCT 161		ELCT 281	
SPCH 110			

**ELECTRONICS TECHNOLOGY, COMMUNICATIONS OPTION
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10155 (Effective Fall 1998–Summer 2003)

Communications (or telecommunications) technicians install, repair and maintain radio, television, telephone and computer equipment. Most technicians work at repair facilities, on customers' premises, or in the field installing or repairing transmitters, receivers, antennas, and computer communications devices. Digital and analog circuits are combined with communications topics. Subjects include AM, FM, receivers, transmitters, antennas, transmission lines, microwave devices, and data communications. Communications technicians are employed at radio and television stations, two-way radio and cellular telephone service facilities, police, fire, and governmental agencies, as well as educational institutions. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 62 CREDITS

CODE	TITLE	CREDIT HOURS
CISB 130	Data Communications	3
CISB 200	Information Systems Technology and Problem Solving	3
ELCT 100	Schematic Drawing	1
ELCT 101	Analog Problems	4
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 112	Transistors	6
ELCT 120	Programming Preparation	2
ELCT 130	Machine Language Programming	2
ELCT 131	Digital Basics	2
ELCT 161	Soldering/Desoldering	1
ELCT 211	Linear Circuits I	4
ELCT 212	Linear Circuits II	4
ELCT 231	Advanced Digital Electronics	5
ELCT 241	Analog Troubleshooting	1
ELCT 251	Digital Troubleshooting I	1
ELCT 261	Consumer Product Systems	3
ELCT 271	Communications I	4
ELCT 272	Communications II	4
SPCH 110	Oral Communication in the Workplace	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 3 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	3 Credits
(See the <i>GENERAL EDUCATION</i> section above)	
Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3

MINIMUM TOTAL 65

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ELCT 100	CISB 200	ELCT 211	CISB 130
ELCT 101	ELCT 112	ELCT 231	ELCT 212
ELCT 109	ELCT 130	ELCT 241	ELCT 261
ELCT 110	ELCT 131	ELCT 251	ELCT 272
ELCT 120	WRIT 124	ELCT 271	Lim.Ch.
ELCT 161			
SPCH 110			

**ELECTRONICS TECHNOLOGY, DIGITAL OPTION
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10127 (Effective Fall 1998–Summer 2003)

Digital electronics technicians install, operate, maintain and service computer systems. They also diagnose problems caused by mechanical or electrical malfunctions in individual computer units and in complex systems such as local area networks (LANS) and industrial controllers. They deal with the analysis and component level troubleshooting of digital logic and microcomputer circuits and systems, as well as microprocessor based computers, computer peripherals, and control systems. Digital electronics technicians are employed with automotive manufacturers, industrial automation companies, business machine services companies, telephone companies, instrumentation sales, robotics repair companies maintenance companies, etc. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 64 CREDITS

CODE	TITLE	CREDIT HOURS
CISB 200	Information Systems Technology and Problem Solving	3
ELCT 100	Schematic Drawing	1
ELCT 101	Analog Problems	4
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 112	Transistors	6
ELCT 120	Programming Preparation	2
ELCT 130	Machine Language Programming	2
ELCT 131	Digital Basics	2
ELCT 161	Soldering/Desoldering	1
ELCT 211	Linear Circuits I	4
ELCT 212	Linear Circuits II	4
ELCT 230	Advanced Microprocessor	5
ELCT 231	Advanced Digital Electronics	5
ELCT 232	Digital Project	3
ELCT 241	Analog Troubleshooting	1
ELCT 242	Computer Interfacing and Peripherals	5
ELCT 251	Digital Troubleshooting I	1
ELCT 252	Digital Troubleshooting II	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 3 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas

3 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3

MINIMUM TOTAL 67

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ELCT 100	CISB 200	ELCT 211	ELCT 212
ELCT 101	ELCT 112	ELCT 230	ELCT 232
ELCT 109	ELCT 130	ELCT 231	ELCT 242
ELCT 110	ELCT 131	ELCT 241	ELCT 252
ELCT 120	WRIT 124	ELCT 251	Lim.Ch.
ELCT 161			
SPCH 110			

**ENVIRONMENTAL RESOURCE MANAGEMENT TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE**

Curriculum Code: 10793 (Effective Fall 1998–Summer 2003)

Environmental Technicians may work for environmental/engineering consulting firms, local or state regulatory agencies, manufacturers, recycling and waste management companies and local utility and public service (works) departments. They perform tasks such as environmental sample collection and monitoring, instrument calibration, report writing and data management. Environmental Technicians may help clients comply with governmental environmental standards, assist in field investigations, work as a team member on a waste or contamination site. They use computer skills to work with environmental data as well as the concepts of chemistry, biology, meteorology, geology and hydrology to help professionals determine the movement and effects of environmental contaminants. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092.

REQUIREMENTS		TOTAL: 50 Credits
CODE	TITLE	CREDIT HOURS
BIOL 210	Natural Resource Conservation	4
CHEM 151	General Chemistry Lecture I	4
CHEM 161	General Chemistry Laboratory I	1
CHEM 182	Introductory Organic Chemistry	3
CHEM 192	Introductory Organic Chemistry Laboratory	1
CPSC 120	Introduction to Computers	3
ENVR 121	Environmental Rules and Regulations	3
ENVR 122	Environmental Sampling and Instrumentation	4
ENVR 131	Industrial Processes and Pollution Prevention	3
GEOLOGY 230	Environmental Geology	4
GRET 203	MicroStation Beginning	3
MATH 121	College Algebra I	4
SPCH 120	Dynamics of Communication	3
STAT 170	Introduction to Statistics	3
WRIT 121	Composition I	4
	Hazardous Waste Operator and Emergency Response Training (Hazwoper) (See Note 1)	3

LIMITED CHOICE REQUIREMENTS TOTAL: 15–21 Credits
Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1:	General Education Core Areas	4 Credits
	(See the GENERAL EDUCATION section above)	
	Writing Core Area (See Note 2)	0
	Speech Communication Core Area (See Note 2)	0
	Science/Technology Core Area (See Note 2)	0
	Global Perspectives and Diversity Core Area (See Note 3)	4

CHOICE 2:	Environmentally Related Courses	11–17 Credits
CIVL 135	Soils Technology	3
FIRE 120	Chemistry of Hazardous Materials	3
FIRE 220	Hazardous Materials in the Fire Service	4
GRET 220	Hydrological Systems	3
METR 220	Introduction to Meteorology	4
SCIN 287	Internship in Science Technology	4
MINIMUM TOTAL		65

NOTES

- Hazardous Waste Operator and Emergency Response Training (HMMT 201) to be taken through the proposed Hazardous Materials Mitigation Technology program or at the Michigan State Police Hazmat Training Center.
- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students are recommended to take HUMS 213, PHIL 211, or SOCL 120 to fulfill this Core area.

COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	CHEM 182	ENVR 131	BIOL 210
CHEM 161	CHEM 192	GEOLOGY 230	HMMT 201
ENVR 121	CPSC 120	GRET 203	Lim. Ch. 2
MATH 121	ENVR 122	Lim. Ch. 1	
WRIT 121	SPCH 120		
	STAT 170		

**GEOGRAPHIC RESOURCE AND ENVIRONMENTAL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10224 (Effective Fall 1998–Summer 2003)

GRET combines computer technology, mapping technologies, aerial photography, and satellite imagery with the most current environmental resource management and environmental analysis software. Geographic Information Systems (GIS) technicians work with computer drafting, design, database management, graphic design, and computer analysis. Environmental technology requirements include a working knowledge of natural systems and related regulations and their assessment, planning, restoration, and management. GIS technicians are employed with engineering and design firms, state and federal agencies, environmental firms, parks and recreation departments, and with municipalities and local government units. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 51 CREDITS

CODE	TITLE	CREDIT HOURS
GRET 203	MicroStation Beginning	3
GRET 204	MicroStation Graphic Environment	3
GRET 205	Principles of Geographic Information Systems	3
GRET 208	Advanced Techniques in GIS	3
GRET 209	Applications in Geographic Information Systems	3
GRET 210	Principles of Global Positioning Systems	3
GRET 220	Hydrological Systems	3
GRET 221	Landforms and Soil Systems in GIS	3
GRET 223	Environmental Resource Management	3
GRET 240	Basic Map Orientation and Construction	3
GRET 241	Air Photo Interpretation	3
GRET 243	ORACLE for Geographic Information Systems	3
GRET 255	Beginning ARC/INFO	3
LAND 150	Principles of Landscape Architecture	3
LAND 180	Landscape Ecology	3
LAND 242	Ecological Land Planning	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 15–16 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
(See the GENERAL EDUCATION section above)	
Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Additional Related Courses	6–7 Credits	
GRET 211	GIS Mapping Systems	3
GRET 213	Advanced Microstation	3
GRET 214	G.R.A.S.S. Beginning	3
GRET 248	GIS Analysis Systems	3
GRET 253	Basics of ARC/VIEW	1
LAND 181	Landscape Restoration and Management	3
LAND 282	Computer Drafting/Design in Landscape Architecture	3
LAND 283	Beginning LandCADD	3

MINIMUM TOTAL 66

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
GRET 203	GRET 204	GRET 208	GRET 209
GRET 205	GRET 210	GRET 221	GRET 223
GRET 220	GRET 241	GRET 243	Lim.Ch.
GRET 240	LAND 242	GRET 255	Lim.Ch.
LAND 180	WRIT 124	LAND 150	Lim.Ch.
	Lim.Ch.	Lim.Ch.	

**FIRE SCIENCE ACADEMY
CERTIFICATE OF COMPLETION**

Curriculum Code: 10709 (Effective Fall 1998—Summer 1999)

The Regional Fire Training Center provides the Fire Academy Certificate Program to prepare individuals in basic fire training and fitness. Successful completion leads to certification by the Michigan Fire Fighting Training Council for Fire Fighter I and II, HAZ MAT Awareness, and HAZ MAT Operations.

The Fire Science Academy is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Fire Science Academy Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1997/98 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE FIRE SCIENCE ACADEMY PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 14 CREDITS
CODE	TITLE	CREDIT HOURS
FIRE 101	Michigan F.F.T.C. Basic Fire Training Level I A and B	9
FIRE 102	Michigan F.F.T.C. Basic Fire Training Level II C and D	4
PFHW 111	Emergency Services Fitness III	1
MINIMUM TOTAL		14

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

- FIRE 101
- FIRE 102
- PFHW 111

**FIRE SCIENCE TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10123 (Effective Fall 1998–Summer 2003)

This degree program prepares an individual for a career in fire fighting. Included in this curriculum is successful completion of a Michigan Fire Fighting Training Council Fire Fighter I and Fire Fighter II course. In addition, students are required to complete course work in fire safety information and inspection, fire suppression, hazardous material spills and investigative techniques, fire prevention and law, building construction, command and administration, and hydraulics and pump operation. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS TOTAL: 58 CREDITS

CODE	TITLE	CREDIT HOURS
FIRE 100	Introduction to Fire Fighting	3
FIRE 101	Michigan F.F.T.C. Basic Fire Training Level I A and B	9
FIRE 102	Michigan F.F.T.C. Basic Fire Training Level II C and D	4
FIRE 110	Fire Prevention and Law	3
FIRE 115	Building Construction for the Fire Service	4
FIRE 120	Chemistry of Hazardous Materials	3
FIRE 125	Fire Protection Systems and Equipment	4
FIRE 130	Hydraulics and Pump Operations	4
FIRE 150	Fire Command and Operations	4
FIRE 210	Fire Investigation	4
FIRE 220	Hazardous Materials in the Fire Service	4
FIRE 250	Fire Administration	4
PFHW 110	Emergency Services Fitness II	1
PFHW 111	Emergency Services Fitness III	1
SPCH 120	Dynamics of Communication	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS TOTAL: 6 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core	6 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 2)</i>	0
Speech Communication Core Area <i>(See Note 2)</i>	0
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
MINIMUM TOTAL	64

NOTES

- This curriculum includes FIRE 101 and FIRE 102 which are the Fire Academy courses. The Fire Academy Certificate Program is a selective admission program with admission requirements beyond those required for admission to the college. Students with Michigan Fire Fighter I or I & II certification may be eligible for FIRE 101 and/or FIRE 102 to be waived. Students should consult with an Emergency Medical Services program advisor regarding this segment of the program.
- Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
FIRE 100	FIRE 110	FIRE 115	FIRE 130
FIRE 101	SPCH 120		FIRE 120
FIRE 210			
FIRE 102	WRIT 124		FIRE 125
FIRE 220			
PFHW 110	Lim.Ch.		FIRE 150
FIRE 250	Lim.Ch.		PFHW 111

DENTAL ASSISTANT CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 10193 (Effective Fall 1998—Summer 1999)

Dental assistants assist the dentist with the delivery of dental care and treatment procedures at the chairside in dental offices, public health clinics, dental schools, and hospitals. This program prepares individuals to be Registered Dental Assistants responsible for transferring dental instruments; charting the teeth; preparing and delivering dental materials; taking impressions and making models of the teeth; placing and removing rubber dams; placing and removing temporary crowns; and exposing and processing dental x-ray pictures. Upon graduation from this accredited program one is eligible to take the state of Michigan written and clinical licensing exams. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Dental Assistant Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1998/99 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254. For Dental Assistant career advising information, contact the Dental Advisor at the Dental Assistant Program office, Arts and Sciences Building, Room 007F, telephone number (517) 483-1457.

REQUIREMENTS FOR ADMISSION TO THE DENTAL ASSISTANT PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 34.5 CREDITS
CODE	TITLE	CREDIT HOURS
DADH 128	Dental Radiography	4
DAST 110	Dental Instruments	1
DAST 111	Preclinic Dental Assisting	3
DAST 112	Dental Anatomy	4
DAST 114	Preventive Dentistry and Procedures	3
DAST 116	Dental Materials	3
DAST 118	Dental Assisting Principles	1
DAST 120	Clinical Dental Assisting I	6
DAST 126	Registered Dental Assistant Procedures for Dental Assistants	3
DAST 130	Clinical Dental Assisting II	2
DAST 140	Clinical Dental Assisting III	4
EMSB 102	CPR for Health Care Professionals	.5
MINIMUM TOTAL		34.5

SUGGESTED COURSE SEQUENCE

Students begin this program each fall semester and courses are offered once a year in the following sequence.

I	II	III
DAST 110	DADH 128	DAST 140
DAST 111	DAST 120	
DAST 112	DAST 126	
DAST 114	DAST 130	
DAST 116		
DAST 118		
EMSB 102		

**DENTAL HYGIENIST
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10279 (Effective Fall 1998—Spring 2000)

Dental hygienists are licensed preventive oral health care professionals. They provide educational, clinical, and therapeutic services to patients in dental offices, schools, hospitals, long-term care facilities, and other public health programs. Clinical skills include performing patient assessments, taking health histories; examining head, neck and oral tissues for disease; checking blood pressures; exposing and processing dental x-ray pictures; applying decay-preventing agents to the teeth; polishing fillings; scaling and root planing teeth; and polishing teeth. Upon graduation from this accredited program one is eligible to take the written and clinical licensing exams. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Dental Hygienist Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1998/99 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254. For Dental Hygienist career advising information, contact the Dental Advisor at the Dental Hygienist Program office, Arts and Sciences Building, Room 007F, telephone number (517) 483-1457.

REQUIREMENTS FOR ADMISSION TO THE DENTAL HYGIENIST PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS

TOTAL: 68.5 CREDITS

CODE	TITLE	CREDIT HOURS
ANAT 201	Human Anatomy	4
DADH 128	Dental Radiography	4
DHYN 110	Preclinical Dental Hygiene	6
DHYN 112	Oral Anatomy	4
DHYN 114	Oral Pathology	2
DHYN 116	Dental Pharmacology	2
DHYN 120	Clinical Dental Hygiene I	6
DHYN 122	Principles of Periodontics	2
DHYN 124	Nutrition and Oral Health	1
DHYN 126	Dental Materials and Methods	3
DHYN 210	Clinical Dental Hygiene II	6
DHYN 212	Advanced Dental Hygiene Procedures	4
DHYN 214	Clinical Oral Pathology	1
DHYN 216	Dental Public Health and Education	2
DHYN 220	Clinical Dental Hygiene III	7
DHYN 222	Community Oral Health	4
EMSB 102	CPR for Health Care Professionals	.5
MICR 203	Microbiology	3
PHGY 202	Human Physiology	4
SPCH 120	Dynamics of Communication	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 6 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas (See the GENERAL EDUCATION section above)	6 Credits
Writing Core Area	3
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3

MINIMUM TOTAL 74.5

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. DHYN 224, Testing Styles and Inventory, 2 credits, is an optional course to prepare for Dental Hygiene licensure exams.
3. Dental Hygienist students desiring eligibility to sit for the Michigan Registered Dental Assistant licensure exam must also successfully complete DHYN 230, RDA Pro-DH, 3 credits, offered spring semester.

SUGGESTED COURSE SEQUENCE

Courses listed in semesters I, II, and III below must be completed prior to admission to the Dental Hygienist Program as part of the requirements for admission. Once admitted to the program, students begin semester IV courses during fall semester. DHYN and DADH courses are offered once a year in the following sequence for a two-year period and are scheduled fall and spring semesters only.

I	II	III	IV	V	VI	VII
ANAT 201 Lim.Ch.	PHGY 202 SPCH 120	MICR 203 Lim.Ch.	DHYN 110 DHYN 112 DHYN 114 DHYN 116 EMSB 102	DADH 128 DHYN 120 DHYN 122 DHYN 124 DHYN 126	DHYN 210 DHYN 212 DHYN 214 DHYN 216	DHYN 220 DHYN 222

DIAGNOSTIC MEDICAL SONOGRAPHY ASSOCIATE IN APPLIED SCIENCE DEGREE

Curriculum Code: 10790 (Effective Fall 1998—Summer 1999)

Program prepares an individual to use ultrasonic equipment. The sonographer produces images to demonstrate body parts and assist the physician in the diagnosis of medical abnormalities using equipment with a high frequency sound wave (much like sonar). Graduates of the program will be eligible for examination by the American Registry of Diagnostic Medical Sonographers.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Diagnostic Medical Sonography Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. The program requirements below apply only to those students who have been admitted to the program for the 1998/99 academic year. For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS

TOTAL: 51 CREDITS

CODE	TITLE	CREDIT HOURS
IDMS 200	Sonographic Introduction	2
IDMS 201	General Sonography I: Abdomen	4
IDMS 202	OB/GYN Sonography I	4
IDMS 219	Sonographic Imaging	1
IDMS 234	Sonographic Physics	2
IDMS 245	Sonographic Instrumentation	2
IDMS 265	General Sonography II: Abdomen and Small Parts	4
IDMS 266	OB/GYN Sonography II	3
IDMS 280	Introduction to Clinical Experience I	8
IDMS 281	Clinical Experience II	9
IDMS 282	Clinical Experience III	12

LIMITED CHOICE REQUIREMENTS

TOTAL: 12 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	12 Credits
(See the GENERAL EDUCATION section above)	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
MINIMUM TOTAL	63

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
IDMS 200	IDMS 245	IDMS 219
IDMS 201	IDMS 265	IDMS 282
IDMS 202	IDMS 266	Lim.Ch.
IDMS 234	IDMS 281	Lim.Ch.
IDMS 280	Lim.Ch.	
Lim.Ch.		

**EMERGENCY MEDICAL SERVICES
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10276 (Effective Fall 1998–Summer 2003)

This degree program prepares the individual extensively for a career in emergency medical care. Included in this curriculum are the Basic EMT and Paramedic Certificate Program requirements. In addition, students elect course work designed to prepare them for new and expanding roles in the field of EMS. The elective courses include preparation in the skills and knowledge for (1) the expanded scope of practice in the prehospital setting, (2) hospital or walk-in clinic paramedic, (3) critical care transport specialist, (4) medical treatment of victims of hazardous material exposure, (5) EMS management, (6) teaching injury and illness prevention, and (7) teaching emergency first aid. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS

TOTAL: 62 CREDITS

CODE	TITLE	CREDIT HOURS
ANAT 145	Introductory Anatomy and Physiology	4
CISB 200	Information Systems Technology and Problem Solving	3
EMTA 101	Basic EMT I	4
EMTA 102	Basic EMT II	2
EMTA 103	Basic EMT III	4
EMTA 104	Basic EMT IV	2
EMTA 112	Basic EMT Clinical	2
OADM 275	Cultural Differences in Business	3
PARA 221	Medical Trauma I	4
PARA 222	Medical Trauma II	4
PARA 231	Cardiology I	2
PARA 232	Cardiology II	2
PARA 241	Pharmacology I	2
PARA 242	Pharmacology II	2
PARA 251	Skills I	2
PARA 252	Skills II	2
PARA 261	Clinical I	3
PARA 262	Clinical II	4
PARA 263	Paramedic Internship	3
PFHW 111	Emergency Services Fitness III	1
PFHW 112	Emergency Services Fitness IV	1
SPCH 110	Oral Communication in the Workplace	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 8 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	General Education Core Areas (See Note 1)	0 Credits
(See the GENERAL EDUCATION section above)		
	Writing Core Area	0
	Speech Communication Core Area	0
	Science/Technology Core Area	0
	Global Perspectives and Diversity Core Area	0

CHOICE 2:	EMS Requirements (See Note 2)	8 Credits
AHCC 110	Pharmacology-Allied Health	2
EMTA 105	Ambulance Driving	1
EMTA 108	Legal Issues in Emergency Medical Services	2
EMTA 114	Rescue, Extrication, and Dangerous Situations	3
EMTA 222	EMS Instructor Coordinator	6
EMTA 223	Advanced EMS I: Critical Care EMS	8
EMTA 224	Advanced EMS II: Hospital Paramedic	8
EMTA 225	Medical Hazardous Material	4
EMTA 226	Emergency Medical Services Management	5

MINIMUM TOTAL

70

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Students who have not already completed Basic EMT and Paramedic certificate programs must select AHCC 110, EMTA 105, 108, and 114 to satisfy Choice 2. Students who have already completed Basic EMT and Paramedic certificate programs may elect EMTA 222, 223, 224, 225 and/or 226 to complete the associate degree.
3. This curriculum includes PARA 221 through PARA 263 which are the Paramedic Certificate Program courses. The Paramedic Certificate Program is a selective admission program with admission requirements beyond those required for admission to the college. PARA 221 through PARA 263 are open only to students officially admitted to the program. Students should consult with an Emergency Medical Services program advisor regarding this segment of the program.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time or have prerequisites to fulfill) or who have already completed a Basic Emergency Medical Services course should contact the Human, Health and Public Service Careers Department (see "Information" above) for academic advising.

I	II	III	IV
ANAT 145	EMTA 103	CISB 200	PARA 222
EMTA 101	EMTA 104	PARA 221	PARA 232
EMTA 102	EMTA 112	PARA 231	PARA 242
WRIT 124	OADM 275	PARA 241	PARA 252
Lim.Ch.	SPCH 110	PARA 251	PARA 262
Lim.Ch.	Lim.Ch.	PARA 261	PARA 263
	Lim.Ch.	PFHW 111	PFHW 112

**BASIC EMERGENCY MEDICAL SERVICES
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10269 (Effective Fall 1998–Summer 2003)

This certificate program prepares an individual to be a basic emergency medical technician (EMT). Basic EMT's perform immediate basic emergency care in medical and traumatic emergencies. Basic EMT's staff ambulances and are employed in hospitals. State licensing is required.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS		TOTAL: 32 CREDITS
CODE	TITLE	CREDIT HOURS
AHCC 110	Pharmacology-Allied Health	2
ANAT 145	Introductory Anatomy and Physiology	4
CISB 200	Information Systems Technology and Problem Solving	3
EMTA 101	Basic EMT I	4
EMTA 102	Basic EMT II	2
EMTA 103	Basic EMT III	4
EMTA 104	Basic EMT IV	2
EMTA 105	Ambulance Driving	1
EMTA 108	Legal Issues in Emergency Medical Services	2
EMTA 112	Basic EMT Clinical	2
EMTA 114	Rescue, Extrication, and Dangerous Situations	3
WRIT 124	Technical Writing	3
MINIMUM TOTAL		32

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
ANAT 145	AHCC 110
CISB 200	EMTA 103
EMTA 101	EMTA 104
EMTA 102	EMTA 108
EMTA 105	EMTA 112
EMTA 114	WRIT 124

**MASSAGE THERAPY
CERTIFICATE OF COMPLETION**

Curriculum Code: 10180 (Effective Fall 1998–Summer 2003)

Program prepares an individual in the field of soft tissue massage. Massage therapists may be employed in private practice or in a variety of health care settings and health spas. Successful completion of this program prepares an individual for national certification testing through the National Certification Board for Therapeutic Massage and Body Work.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS		TOTAL: 25 CREDITS
CODE	TITLE	CREDIT HOURS
ANAT 145	Introductory Anatomy and Physiology	4
MASG 270	Massage Therapy—Beginning	2
MASG 271	Massage Therapy—Intermediate	2
MASG 273	Human Structural Dynamics for Massage Therapy	2
MASG 274	Massage Laboratory	2
MASG 275	Touch for Health I	1
MASG 277	Polarity Therapy I	2
MASG 279	Business Applications for Massage Therapists	2
MASG 280	Clinical Approaches to Therapeutic Massage	3
MASG 281	Sports Massage Techniques	2
PFWH 163	Healthy Lifestyles	2
PFWH 181	Stress Management	1

LIMITED CHOICE REQUIREMENTS

TOTAL: 2 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	2 Credits	
MASG 278	Polarity Therapy II	2
PFWH 161	Self-Awareness: Key to Wellness	2
PFWH 167	The Consumer and Health Issues	2
MINIMUM TOTAL		27

NOTES

- The Massage Lab Practicum consists of 96 hours of supervised massage work. Students must complete the lab practicum within one (1) year of enrolling in the course. A minimum of 32 supervised lab hours must be completed each semester of enrollment. Students must request an "I" grade (incomplete) from the instructor each semester until the total 96 required hours are completed. Only those students completing the minimum 32 supervised lab hours will be eligible for an "I" grade.
- The Massage Therapy Program does not fulfill Associate Degree requirements. Students must apply for a certificate which is granted through the Human, Health and Public Service Careers Department.
- The Certificate of Completion is not affiliated with any national certification organization.
- All courses must be completed with a 2.5 grade or better to receive the Certificate of Completion.
- All massage courses must be completed within five years of enrollment in the first massage course.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ANAT 145	MASG 271	MASG 274	MASG 279
MASG 270	MASG 273	MASG 277	MASG 281
	MASG 275	MASG 280	Lim.Ch.
	PFWH 163	PFWH 181	

**MEDICAL ASSISTANT
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10248 (Effective Fall 1998—Summer 1999)

Program prepares a person to assist the physician in patient care management. The role of the medical assistant is administrative and clinical. Duties include admitting patients, appointment scheduling, telephone and written communication, managing the patient records, obtaining patient histories, and assisting the physician in office procedures. Medical assistants work in clinics, medical offices, medical centers, medical insurance companies and various other health-related industries. The medical assistant may become certified through a national exam offered by the American Association of Medical Assistants.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Medical Assistant Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1998/99 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE MEDICAL ASSISTANT PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 36 CREDITS
CODE	TITLE	CREDIT HOURS
AHCC 110	Pharmacology-Allied Health (See Note 1)	2
AHCC 112	Health Law and Ethics (See Note 1)	2
ANAT 145	Introductory Anatomy and Physiology	4
CHSE 111	Medical Insurance Billing I (See Note 1)	3
CHSE 121	Medical Terminology for Allied Health I	2.5
CHSE 122	Medical Terminology for Allied Health II (See Note 1)	2.5
MEDA 100	MA Administrative/Communication Skills	3
MEDA 131	Clinical Skills I	3
MEDA 132	Clinical Skills II	3
MEDA 141	Basic Medical Laboratory Procedures	2
MEDA 142	Advanced Medical Laboratory Procedures	2
MEDA 181	Administrative Practicum	2
MEDA 182	Clinical Practicum	2
OADM 207	Medical Transcription (See Note 1)	3

LIMITED CHOICE REQUIREMENTS TOTAL: 2 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	Computer	2 Credits
CABS 102	Microcomputers for Non-majors	2
CABS 114	WordPerfect—Beginning for DOS	2
MINIMUM TOTAL		38

NOTES

- This course may be taken prior to admission to the program.
- Complete the courses required for program with a minimum 2.5 grade or better.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ANAT 145	AHCC 112	AHCC 110	MEDA 181
CHSE 121	CHSE 111	MEDA 132	MEDA 182
Lim.Ch.	CHSE 122	MEDA 142	
	MEDA 100	OADM 207	
	MEDA 131		
	MEDA 141		

**MULTI-SKILLED PATIENT CARE TECHNICIAN
CERTIFICATE OF COMPLETION**

Curriculum Code: 10788 (Effective Fall 1998—Summer 2003)

Students may enter this program from several health-care disciplines or with no health-care experience. Graduates are prepared to perform a variety of duties related to basic patient care at a level of trained, unlicensed personnel and are employed in the hospital setting. Clinical components will be provided in cooperation with various medical facilities.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 173, telephone (517) 483-1410.

REQUIREMENTS		TOTAL: 14 Credits
CODE	TITLE	CREDIT HOURS
AHCC 111	Applied Electrocardiography	1
AHCC 112	Health Law and Ethics	2
CHSE 101	Acute Care Nurse Assistant/Orderly	6.5
CHSE 121	Medical Terminology for Allied Health I	2.5
CHSE 143	Phlebotomy Technician	2
MINIMUM TOTAL		14

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
AHCC 112	AHCC 111
CHSE 101	CHSE 143
CHSE 121	

NURSING, LPN OPTION CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 10235 (Effective Fall 1998—Fall 1999)

The Nursing Program at Lansing Community College is a nationally accredited program and implements the ladder concept. There are specific prerequisites required for entry into the program. Building on these prerequisites, a student completing the first year receives a Certificate of Achievement and is eligible to take a national examination for Licensed Practical Nurse (LPN).

The Licensed Practical Nurse (LPN) Program prepares an individual to, with supervision from the Registered Nurse, implement a plan of care for clients in a variety of health care settings. The education and scope of practice of the LPN is determined by state law. Successful completion of the National Council Licensing Examination-Practical Nurse is required.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Nursing Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1998/99 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Room 232, Gannon Vocational-Technical Center, telephone (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE NURSING PROGRAM, LPN AND RN OPTIONS

For current information about admission requirements, students must contact the Admissions Office, Room 232, Gannon Vocational-Technical Center, telephone (517) 483-1254.

REQUIREMENTS

TOTAL: 45 CREDITS

CODE	TITLE	CREDIT HOURS
ANAT 201	Human Anatomy	4
NURS 150	Nursing Process I: Introduction to Nursing (<i>See Note 1</i>)	9
NURS 160	Nursing Process II: Common Acute Health Problems	6
NURS 165	Nursing Process III: Family Health I	5
NURS 180	Practical Nursing Role	1
NURS 200	Pharmacology (<i>See Note 1</i>)	3
PFHW 163	Healthy Lifestyles	2
PHGY 202	Human Physiology	4
PSYC 200	Introduction to Psychology	4
PSYC 205	Human Growth and Development	3
WRIT 121	Composition I	4
MINIMUM TOTAL		45

NOTES

1. NURS 200 may be taken two years prior to admission to the Nursing Program or concurrently with NURS 150.
2. Current Basic Cardiac Life Support Certification (BCLS) is required throughout the program. (EMSB 102 or American Red Cross "Provider C".)

SUGGESTED COURSE SEQUENCE

Courses listed in Semester I below must be completed prior to admission to the Nursing program as part of the Phase I requirements for admission. MATH 112—Intermediate Algebra is also required for admission and may be waived by successfully passing a proficiency exam. Although students are admitted to the program in June, they will be assigned to begin Semester II in either fall or spring semester. A student may not begin a new semester until she or he has successfully completed all of the courses listed in a previous sequenced semester. NURS 200 is the only NURS-prefix course that is offered summer semester.

I	II	III
ANAT 201	NURS 150	NURS 160
PFHW 163	NURS 200	NURS 165
PSYC 200	PHGY 202	NURS 180
WRIT 121		PSYC 205

**NURSING, RN OPTION
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10222 (Effective Fall 1998—Fall 2000)

The Nursing Program at Lansing Community College is a nationally accredited program and implements the ladder concept. There are specific prerequisites required for entry into the program. Building on these prerequisites, a student completing the first year receives a Certificate of Achievement and is eligible to take a national examination for Licensed Practical Nurse (LPN). A student continuing through the second year will receive an associate's degree and is eligible to take the national examination for Registered Nurse (RN).

The Registered Nurse (RN) Program prepares the individual to care for clients of all ages in a variety of health care settings. As an essential member of the health care team, the RN is responsible for developing, implementing and evaluating a plan of care for clients. The RN is required to assist clients in achieving their health goals through effective communication, decision making, problem-solving, management and technological skills. Registered nurses work in hospitals, clinics, offices, nursing homes, and home health care settings, in addition to schools, research facilities, and community agencies. The education and scope of practice of the RN is determined by state law. The student must successfully complete this program and the National Council Licensing Examination-Registered Nurse.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Nursing Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1998/99 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE NURSING PROGRAM, LPN AND RN OPTIONS

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 69 CREDITS
CODE	TITLE	CREDIT HOURS
ANAT 201	Human Anatomy	4
MICR 203	Microbiology	3
NURS 150	Nursing Process I: Introduction to Nursing (See Note 1)	9
NURS 160	Nursing Process II: Common Acute Health Problems	6
NURS 165	Nursing Process III: Family Health I	5
NURS 180	Practical Nursing Role	1
NURS 200	Pharmacology (See Note 1)	3
NURS 260	Nursing Process IV: Family Health II	5
NURS 265	Nursing Process V: Family Health III	5
NURS 280	Nursing Process VI: Chronic Health Problems	4
NURS 285	Nursing Process VII: Acute/Critical Health Problems	4
NURS 290	Nursing Process VIII: ADN as Provider and Manager of Care	3
PFHW 163	Healthy Lifestyles	2

PHGY 202	Human Physiology	4
PSYC 200	Introduction to Psychology	4
PSYC 205	Human Growth and Development	3
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS TOTAL: 6 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	6 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area (See Note 2)	0
Speech Communication Core Area	3
Science/Technology Core Area (See Note 2)	0
Global Perspectives and Diversity Core Area	3
MINIMUM TOTAL	75

NOTES

- NURS 200 may be taken up to two years prior to admission into the program or concurrently with NURS 150.
- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Although not required for the Associate degree, MICR 204 is strongly recommended to be taken concurrent with MICR 203. It will be required for nurses who continue on to a four-year university.
- Current Basic Cardiac Life Support Certification (BCLS) is required throughout the program. (EMSB 102 or American Red Cross "Provider C")
- Licensed Practical Nurses (LPN's) wishing to complete the second year of this curriculum should make an appointment with the nursing faculty to receive individual advising, telephone (517) 483-1410.

SUGGESTED COURSE SEQUENCE

Courses listed in Semester I below must be completed prior to admission to the Nursing program as part of the Phase I requirements for admission. MATH 112—Intermediate Algebra is also required for admission and may be waived by successfully passing a proficiency exam. Although students are admitted to the program in June, they will be assigned to begin Semester II in either fall or spring semester. A student may not begin a new semester until she or he has successfully completed all of the courses listed in a previous sequenced semester. NURS 200 is the only NURS-prefix course that is offered summer semester.

I	II	III	IV
ANAT 201	NURS 150	NURS 160	MICR 203
PFHW 163	NURS 200	NURS 165	NURS 260
PSYC 200	PHGY 202	NURS 180	NURS 265
WRIT 121		PSYC 205	Lim.Ch.

V

- NURS 280
- NURS 285
- NURS 290
- Lim.Ch.

PARAMEDIC CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 10272 (Effective Fall 1998—Summer 1999)

This certificate program prepares the Basic EMT in advanced techniques of administering care in life-threatening conditions. Paramedics are employed by advanced life support ambulances and in emergency departments and critical care units of hospitals. State licensing is required.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Paramedic Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1998/99 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE PARAMEDIC PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 32 CREDITS
CODE	TITLE	CREDIT HOURS
PARA 221	Medical Trauma I	4
PARA 222	Medical Trauma II	4
PARA 231	Cardiology I	2
PARA 232	Cardiology II	2
PARA 241	Pharmacology I	2
PARA 242	Pharmacology II	2
PARA 251	Skills I	2
PARA 252	Skills II	2
PARA 261	Clinical I	3
PARA 262	Clinical II	4
PARA 263	Paramedic Internship	3
PFHW 111	Emergency Services Fitness III	1
PFHW 112	Emergency Services Fitness IV	1
MINIMUM TOTAL		32

NOTES

1. Complete each course required with a minimum 3.0 grade or better in order to earn a Certificate of Achievement in the Paramedic Program.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
PARA 221	PARA 222
PARA 231	PARA 232
PARA 241	PARA 242
PARA 251	PARA 252
PARA 261	PARA 262
PFHW 111	PARA 263
	PFHW 112

**RADIOLOGIC TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10196 (Effective Fall 1998—Summer 2001)

Radiologic technologists, also called radiographers, operate X-ray equipment under the direction of a physician, taking radiographs of internal parts of the body. Most often radiologic technologists are employed in hospitals, clinics and physician offices. Graduates of the program will be eligible for examination by the American Registry of Radiologic Technologists (ARRT). **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Radiologic Technology Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1998/99 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE RADIOLOGIC TECHNOLOGY PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 67 CREDITS
CODE	TITLE	CREDIT HOURS
AHCC 104	Patient Care Principles	2
ANAT 201	Human Anatomy	4
CABS 102	Microcomputers for Non-Majors	2
IRXT 100	Introduction to Imaging	4
IRXT 111	Radiographic Positioning I	5
IRXT 112	Radiographic Positioning II	4
IRXT 113	Special Procedures	1
IRXT 114	Cross-Sectional Anatomy	3
IRXT 121	Radiographic Exposure I	3
IRXT 122	Radiographic Exposure II	2
IRXT 131	Radiologic Physics	3
IRXT 132	Radiobiology and Protection	2
IRXT 200	Introduction to Radiologic Pathology	2
IRXT 210	Radiographic Department Management	1
IRXT 212	Clinical Practice I	5
IRXT 214	Comprehensive Experience I	6
IRXT 215	Comprehensive Experience II	6
IRXT 219	Imaging Update	1
IRXT 233	Clinical Practice II-S	3
IRXT 236	Comprehensive Experience III-S	4
PHGY 202	Human Physiology	4

LIMITED CHOICE REQUIREMENTS TOTAL: 9 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 2)	0
Global Perspectives and Diversity Core Area	3
MINIMUM TOTAL	9

NOTES

1. These course codes are for students admitted for fall semester. Students admitted in the spring will take the same course content with different course codes.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Courses listed in Semester I and II below must be completed prior to admission to the Radiologic Technology Program as part of the requirements for admission. The program admits students in the fall and spring semesters. Students who for any reason are unable to follow the course sequence suggested below (for example, those who have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ANAT 201	PHGY 202	AHCC 104	CABS 102
		IRXT 100	IRXT 112
		IRXT 111	IRXT 122
		IRXT 121	IRXT 212
V	VI	VII	VIII
IRXT 113	IRXT 114	IRXT 132	IRXT 219
IRXT 233	IRXT 131	IRXT 200	IRXT 236
Lim.Ch.	IRXT 210	IRXT 215	
	IRXT 214	Lim.Ch.	
	Lim.Ch.		

**RESPIRATORY THERAPIST
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10244 (Effective Fall 1998—Summer 1999)

A respiratory therapist is a key member of the health care team working alongside physicians, nurses and other allied health professionals. They provide basic respiratory care services to patients with pulmonary disorders. The majority of therapists are employed by hospitals; however, other opportunities include sub-acute care, home care, and pulmonary and/or cardiac rehabilitation. Program graduates are eligible to complete a series of nationally recognized examinations leading to recognition as a Registered Respiratory Therapist.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Respiratory Therapist Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. The program requirements below apply only to those students who have been admitted to the program for the 1998/99 academic year. For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE RESPIRATORY THERAPIST PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS

TOTAL: 63.5 CREDITS

CODE	TITLE	CREDIT HOURS
ANAT 201	Human Anatomy	4
CHSE 121	Medical Terminology for Allied Health I	2.5
CHEM 120	Basic General, Organic and Biological Chemistry	4
PHGY 202	Human Physiology	4
RESP 123	Cardiopulmonary Applied Basic Sciences and Microbiology	2
RESP 125	Cardiopulmonary Anatomy and Physiology	3
RESP 126	Cardiopulmonary Physiology and Pathophysiology	3
RESP 128	Cardiopulmonary Pharmacology and Metrology	2
RESP 131	Respiratory Therapy Technology I	4
RESP 132	Respiratory Therapy Technology II	5
RESP 133	Respiratory Therapy Technology III	3
RESP 142	Respiratory Therapy Clinical Practice I	6
RESP 143	Respiratory Therapy Clinical Practice II	1
RESP 234	Respiratory Therapy Technology IV	2
RESP 235	Respiratory Therapy Technology V	2
RESP 244	Advanced Respiratory Clinical Practice III	6
RESP 245	Advanced Respiratory Clinical Practice IV	6
RESP 251	Practice of Pulmonary Medicine	2
RESP 252	Respiratory Professional Testing and Management	2

LIMITED CHOICE REQUIREMENTS

TOTAL: 9 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	General Education Core Areas (See Note 1)	9 Credits
(See the GENERAL EDUCATION section above)	Writing Core Area	3
	Speech Communication Core Area	3
	Science/Technology Core Area (See Note 2)	0
	Global Perspectives and Diversity Core Area	3
MINIMUM TOTAL		72.5

NOTES

1. It is strongly recommended that these courses be completed prior to admission to the program due to the heavy RESP credit load required once a student is accepted into the program.
2. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Courses listed in semesters I and II below must be completed prior to admission to the Respiratory Therapist Program as part of the requirements for admission. Once admitted to the program, students begin semester III courses during fall semester. Courses with a course code of RESP *must* be completed in the sequence indicated. Students who for any reason are unable to follow the course sequence suggested below (for example, those who have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ANAT 201	CHEM 120	RESP 123	RESP 126
CHSE 121	PHYG 202	RESP 125	RESP 132
		RESP 128	RESP 142
		RESP 131	Lim.Ch.
		Lim.Ch.	
V	VI	VII	
RESP 133	RESP 234	RESP 235	
RESP 143	RESP 244	RESP 245	
	RESP 251	RESP 252	
	Lim.Ch.		

SURGICAL TECHNOLOGY CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 10216 (Effective Fall 1998—Summer 1999)

A surgical technologist assists the surgeon in the operating room as a member of the surgical team. Some of the duties of the surgical technologist include preparing the operating room for the surgical procedure, preparing all sterile areas and instruments for use, assisting with sterile draping, gowning and gloving, and handing appropriate sterile instruments to the surgical assistant or surgeon. The surgical technologist may work in a hospital operating room, a surgeon's private office, a surgical outpatient clinic, and possibly in an emergency room and obstetrical delivery room. The surgical technologist may become certified through a national exam offered by the Association of Surgical Technologists.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Surgical Technology Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. The program requirements below apply only to those students who have been admitted to the program for the 1998/99 academic year. For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE SURGICAL TECHNOLOGY PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 36.5 CREDITS
CODE	TITLE	CREDIT HOURS
AHCC 106	Introduction to Pathology (<i>See Note 1</i>)	2
AHCC 110	Pharmacology-Allied Health (<i>See Note 1</i>)	2
AHCC 112	Health Law and Ethics (<i>See Note 1</i>)	2
ANAT 145	Introductory Anatomy and Physiology	4
CHSE 121	Medical Terminology for Allied Health I	2.5
SURG 100	Fundamental Surgical Technician	3
SURG 101	The Surgical Patient	2
SURG 103	Surgical Asepsis	2
SURG 104	Operative Procedures	6
SURG 121	Applied Surgical Techniques I	1
SURG 122	Applied Surgical Techniques II	3
SURG 123	Applied Surgical Techniques III	5
SURG 124	Applied Surgical Techniques IV	2
MINIMUM TOTAL		36.5

NOTES

- This course may be taken prior to admission to the program.
- Complete the courses required for program with a minimum 2.5 grade or better.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
ANAT 145	AHCC 106	AHCC 112
CHSE 121	AHCC 110	SURG 104
	SURG 100	SURG 123
	SURG 101	SURG 124
	SURG 103	
	SURG 121	
	SURG 122	

**HEATING, AIR CONDITIONING AND REFRIGERATION
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10161 (Effective Fall 1998–Summer 2003)

HVACR technicians work on systems that control temperature, humidity, and air quality of enclosed spaces. They are required to design, install, service, and maintain the various types of equipment used to control human comfort, preservation of food products, critical medical supplies, and computer and mechanical processes in residential, commercial, industrial, and institutional environments. HVACR technicians must have a strong mechanical aptitude, be self-motivated, willing to accept challenges, and have a structured approach to problem solving. They should also have good communication skills, the ability to work well with people, and understand all aspects of the construction trades. HVACR technicians are employed by HVACR contractors, hospitals, schools, manufacturers, housing and apartment complexes, restaurants, food stores, municipalities, and government organizations.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS TOTAL: 50 CREDITS

CODE	TITLE	CREDIT HOURS
HVAC 100	Fundamentals of Heating, Ventilating, and Air Conditioning	3
HVAC 105	Sheet Metal Fabrication and Installation	2
HVAC 110	Applied Electricity I	2
HVAC 111	Applied Electricity II	2
HVAC 120	Heating I	4
HVAC 130	Air Conditioning I	4
HVAC 201	Mechanical Code	4
HVAC 211	Schematics	3
HVAC 220	Heating II	4
HVAC 221	Introduction to Hydronics	3
HVAC 230	Air Conditioning II	4
HVAC 231	Heat Pump	4
HVAC 240	Refrigeration I	4
HVAC 241	Refrigeration II	4
HVAC 250	Pneumatic Control	3

LIMITED CHOICE REQUIREMENTS TOTAL: 15–16 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Technical Related 3–4 Credits

BLDT 103	Structural Blueprint Reading	4
BLDT 121	Residential Framing and Foundations	4
BLDT 281	BOCA/Uniform Code	3
CNCP 101	PC Applications for Technology	3
COOP 210	Cooperative Education (Technology)	3
WELD 100	Combination Welding	4

MINIMUM TOTAL 65

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
HVAC 100	HVAC 111	HVAC 211	HVAC 201
HVAC 105	HVAC 120	HVAC 220	HVAC 221
HVAC 110	HVAC 130	HVAC 230	HVAC 231
Lim.Ch.	Lim.Ch.	HVAC 240	HVAC 241
Lim.Ch.	Lim.Ch.	Lim.Ch.	HVAC 250

**HEATING AND AIR CONDITIONING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10143 (Effective Fall 1998–Summer 2003)

Students receive instruction on how to install, service, and maintain heating, air conditioning, and refrigeration systems, including the sheet metal and electrical, to prepare them for an entry-level position.

REQUIREMENTS TOTAL: 40 CREDITS

CODE	TITLE	CREDIT HOURS
HVAC 100	Fundamentals of Heating, Ventilating, and Air Conditioning	3
HVAC 105	Sheet Metal Fabrication and Installation	2
HVAC 110	Applied Electricity I	2
HVAC 111	Applied Electricity II	2
HVAC 120	Heating I	4
HVAC 130	Air Conditioning I	4
HVAC 201	Mechanical Code	4
HVAC 220	Heating II	4
HVAC 221	Introduction to Hydronics	3
HVAC 230	Air Conditioning II	4
HVAC 240	Refrigeration I	4
HVAC 241	Refrigeration II	4

MINIMUM TOTAL 40

SUGGESTED COURSE SEQUENCE

I	II	III	IV
HVAC 100	HVAC 111	HVAC 220	HVAC 201
HVAC 105	HVAC 120	HVAC 221	HVAC 241
HVAC 110	HVAC 130	HVAC 230	
		HVAC 240	

**HOTEL-MOTEL/FOOD MANAGEMENT SPECIALIST
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10711 (Effective Fall 1998–Summer 2003)

A hotel-motel or food service manager directs and coordinates operations such as housekeeping, food service, accounting, and guest room services in facilities. Graduates of this program are prepared to work in hotels, motels, and other lodging facilities in a variety of environments. A food management specialist serves the public's need for meals away from home through their particular establishment's food and service. Expansions of chains and franchises have opened opportunities for advancement. Graduates of this program are prepared to work in restaurants, clubs, resorts, institutional food service, and similar establishments. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS TOTAL: 34 CREDITS

CODE	TITLE	CREDIT HOURS
CABS 110	Microsoft Office	3
HMFS 101	Introduction to Hospitality and Food Service Operations	3
HMFS 110	Food Service Sanitation	2
HMFS 131	Food and Beverage Management	4
HMFS 190	Internship and Seminar	3
HMFS 203	Hotel-Restaurant Law	3
HMFS 204	Human Relations/Supervisory Development	3
HMFS 205	Hospitality Management	3
HMFS 207	Financial Control and Management I	4
HMFS 215	Hospitality Sales/Marketing	3
HMFS 232	Food and Labor Cost Control	3

LIMITED CHOICE REQUIREMENTS TOTAL: 28-30 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Specialization (Choose 1 Subchoice) 16-18 Credits

Subchoice 2A: Hotel-Motel Management Specialist

HMFS 206	Front Office Management	3
HMFS 208	Financial Control and Management II	2
HMFS 229	Convention and Meeting Management	3
MGMT 228	Organizational Behavior	3
MKTG 119	Marketing and Managing Your Professional Image	3
TRVL 150	Tourism/Travel Operations	3

Subchoice 2B: Food Management Specialist

HMFS 132	Food Production	4
HMFS 134	Nutrition	2
HMFS 135	Quantity Food Purchasing	3
HMFS 170	Menu Design and Layout	3
HMFS 254	Mixology	4

Subchoice 2C: Culinary Arts Specialist

HMFS 132	Food Production	4
HMFS 134	Nutrition	2
HMFS 137	Food Service Catering	4
HMFS 275	Bakery Products	2
HMFS 280	Food Decorating Garnishes	3
HMFS 281	Soups and Sauces	3

MINIMUM TOTAL 62

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CABS 110	HMFS 110	HMFS 190	HMFS 215
HMFS 101	HMFS 204	HMFS 203	HMFS 232
HMFS 131	HMFS 205	HMFS 207	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.		

**CHILD DEVELOPMENT
ASSOCIATE IN APPLIED SCIENCE**

Curriculum Code: 10108 (Effective Fall 1998-Summer 2003)

This degree program prepares individuals to work in child care as a teacher, teacher assistant or program director. Students learn to plan and implement high quality, developmentally appropriate programs for all ages of children, infants through school-age, in both centers and family child care homes. Graduates of the associate degree program meet the educational requirements for child care center program directors as specified by the State of Michigan Child Day Care Center Licensing Regulations. The program involves several semesters of day-time field work in child care settings. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS

TOTAL: 44 CREDITS

CODE	TITLE	CREDIT HOURS
CHDV 101	Child Growth and Development: 0-5 years	4
CHDV 111	Positive Guidance and Communication Skills with Children	4
CHDV 112	Building Relationships with Families in Child Care	2
CHDV 113	Health and Safety Issues in Child Care	2
CHDV 220	Curriculum and Learning Environments for Preschoolers	4
CHDV 221	Infant-Toddler Program Development	3
CHDV 222	School-age Child Care Program Development	2
CHDV 230	Child Care Center Administration	2
CHDV 284	Child Development Practicum (See Note 1)	5
ISCI 121	Integrated Science for Education I	4
SOCL 120	Introduction to Sociology	4
WRIT 121	Composition I	4
WRIT 122	Composition II	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 22 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	3 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area (See Note 2)	0
Speech/Communication Core Area	3
Science/Technology Core Area (See Note 2)	0
Global Perspectives and Diversity Core Area (See Note 2)	0
CHOICE 2: Social Science (See Note 3)	4 Credits
CHOICE 3: Science/Mathematics (See Note 3)	4 Credits
CHOICE 4: Humanities (See Note 3)	8 Credits

CHOICE 5: Professional Related Courses (See Note 4)	3 Credits	
EMSB 102	CPR for Health Care Professionals	5
EMSB 106	Infant/Child CPR	.25
HUSE 100	Introduction to Human Services: Resources and Interventions	3
HUSE 101	Personal Dimensions of Human Services	2
HUSE 110	Introduction to Child Abuse and Neglect	3
HUSE 120	Introduction to Domestic Violence	2

MINIMUM TOTAL

66

NOTES

1. CHDV 284 requires departmental approval. Applications must be submitted one semester in advance to be admitted to CHDV 284. Applications for departmental approval are available in the Human, Health and Public Services Careers Department, Gannon Vocational-Technical Center, Room 175.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
3. See the MACRAO Transfer Agreement in the "Transfer Information" section of this catalog for appropriate social science, science/mathematics, and humanities courses. ANAT 145 is strongly recommended as the science requirement.
4. Students may also choose from CHDV-prefix courses not already used to meet degree requirements.
5. Each required CHDV course must be completed with a minimum 2.0 grade or better.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHDV 101	CHDV 112	CHDV 113	CHDV 230
CHDV 111	CHDV 220	CHDV 221	CHDV 284
ISCI 121	CHDV 222	Lim.Ch.2	SOCL 120
WRIT 121	WRIT 122	Lim.Ch.3	Lim.Ch.1
Lim.Ch.5	Lim.Ch.4	Lim.Ch.4	Lim.Ch.5

**CHILD DEVELOPMENT
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10133 (Effective Fall 1998–Summer 2003)

The certificate program consists of child development course work. It prepares individuals for positions as assistant teachers or teachers in child care programs. Courses for the certificate can be applied toward the associate degree. This curriculum requires three semesters to complete, not including summer.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS		TOTAL: 32 CREDITS
CODE	TITLE	CREDIT HOURS
CHDV 101	Child Growth and Development: 0–5 years	4
CHDV 111	Positive Guidance and Communication Skills with Children	4
CHDV 112	Building Relationships with Families in Child Care	2
CHDV 113	Health and Safety Issues in Child Care	2
CHDV 220	Curriculum and Learning Environments for Preschoolers	4
CHDV 221	Infant-Toddler Program Development	3
CHDV 222	School-age Child Care Program Development	2
CHDV 230	Child Care Center Administration	2
CHDV 284	Child Development Practicum	5
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS TOTAL: 3 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	Professional Related Courses (See Note 2)	3 Credits
EMSB 102	CPR for Health Care Professionals	.5
EMSB 106	Infant/Child CPR	.25
HUSE 100	Introduction to Human Services: Resources and Interventions	3
HUSE 101	Personal Dimensions of Human Services	2
HUSE 110	Introduction to Child Abuse and Neglect	3
HUSE 120	Introduction to Domestic Violence	2
MINIMUM TOTAL		35

NOTES

- CHDV 284 requires departmental approval. Applications must be submitted one semester in advance to be admitted to CHDV 284. Applications for departmental approval are available in the Human, Health and Public Services Careers Department, Gannon Vocational-Technical Center, Room 175.
- Students may also choose from CHDV-prefix courses not already used to meet degree requirements.
- Each required CHDV course must be completed with a minimum 2.0 grade or better.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
CHDV 101	CHDV 112	CHDV 113
CHDV 111	CHDV 220	CHDV 284
CHDV 221	CHDV 230	Lim.Ch.
CHDV 222	WRIT 121	Lim. Ch.

**GERONTOLOGY
ASSOCIATE IN APPLIED SCIENCE**

Curriculum Code: 10171 (Effective Fall 1998–Summer 2003)

This curriculum focuses on the study of the process of aging and the older person's relationship with society. Individuals trained in gerontology help older adults cope with problems, identify the social services needs of older adults, assist older adults and their families to meet those needs, or assist with the health and wellness needs of older people. Completion of this program will assist in entry-level employment in related jobs, such as senior citizen activity leader, senior housing manager, senior services worker and outreach worker. Two consecutive semesters of field work in an agency serving older adults is completed during the final year of the program. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 45 CREDITS
ANAT 145	Introductory Anatomy and Physiology	4	
GERO 100	Introduction to Human Aging	3	
GERO 101	Programs and Services for the Aging	3	
GERO 202	Mental Health and Aging	2	
GERO 204	Aging and Health	2	
GERO 282	Gerontology Practicum I	4	
GERO 284	Gerontology Practicum II	4	
HUSE 100	Introduction to Human Services: Resources and Interventions	3	
HUSE 101	Personal Dimensions of Human Services	2	
SOCL 120	Introduction to Sociology	4	
SOWK 203	Social Work Interviewing: Concepts and Skill Practice	3	
SPCH 120	Dynamics of Communication	3	
WRIT 121	Composition I	4	
WRIT 122	Composition II	4	

LIMITED CHOICE REQUIREMENTS

TOTAL: 19 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	General Education Core Areas	4 Credits
	(See the GENERAL EDUCATION section above)	
	Writing Core Area (See Note 2)	0
	Speech Communication Core Area (See Note 2)	0
	Science/Technology Core Area (See Note 3)	4
	Global Perspectives and Diversity Core Area (See Note 2)	0
CHOICE 2:	Social Science	4 Credits
	POLS 120 American Political System	4
	POLS 121 State and Local Government	4
	PSYC 200 Introduction to Psychology	4
CHOICE 3:	Humanities (See Note 4)	8 Credits
CHOICE 4:	Professional Related Courses (See Note 5)	3 Credits
	MINIMUM TOTAL	64

NOTES

1. There is an application process and guidelines for admission into the field placement component. Applications are due by April 1 for admission to Fall field placement. Application packets with current requirements are available starting in January from the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175. Contact a program advisor for further information.
2. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
3. Students must select a 4 credit course that will also satisfy the Science/Mathematics transfer requirement for MACRAO in order to meet program requirements. See the MACRAO Transfer Agreement in the "Transfer Information" section of this catalog.
4. See the MACRAO Transfer Agreement in the "Transfer Information" section of this catalog for appropriate humanities courses.
5. Students may choose from any GERO-prefix courses numbered GERO 128-199.
6. Each required HUSE, SOWK and GERO course must be completed with a minimum 2.0 grade or better.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
GERO 100	GERO 101	ANAT 145	GERO 284
GERO 204	GERO 202	GERO 282	Lim.Ch.1
HUSE 100	SOWK 203	SOCL 120	Lim.Ch.2
HUSE 101	SPCH 120	Lim.Ch.3	Lim.Ch.3
WRIT 121	WRIT 122		
Lim.Ch.4	Lim.Ch.4		

**GERONTOLOGY
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10152 (Effective Fall 1998–Summer 2003)

The certificate program consists of courses in aging and human services. It is designed for persons who have achieved a degree and wish to focus their skills in gerontology. Two semesters of field placement are included. It takes four semesters to complete this curriculum, not including summers.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS		TOTAL: 30 CREDITS
CODE	TITLE	CREDIT HOURS
GERO 100	Introduction to Human Aging	3
GERO 101	Programs and Services for the Aging	3
GERO 202	Mental Health and Aging	2
GERO 204	Aging and Health	2
GERO 282	Gerontology Practicum I	4
GERO 284	Gerontology Practicum II	4
HUSE 100	Introduction to Human Services: Resources and Interventions	3
HUSE 101	Personal Dimensions of Human Services	2
SOWK 203	Social Work Interviewing: Concepts and Skill Practice	3
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS **TOTAL: 3 CREDITS**
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Professional Related Courses (See Note 2) **3 Credits**

MINIMUM TOTAL **33**

NOTES

1. There is an application process and guidelines for admission into field placement. Field placement applications are due by April 1 for admission to Fall field placement. Application packets with current requirements are available beginning in January from the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175. Contact a program advisor for further information.
2. Students may choose from any GERO-prefix courses numbered GERO 128-199.
3. Each required HUSE, SOWK and GERO course must be completed with a minimum 2.0 grade or better.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
GERO 100	GERO 101	GERO 282	GERO 284
GERO 204	GERO 202	WRIT 121	Lim.Ch.
HUSE 100	SOWK 203	Lim.Ch.	
HUSE 101			

**HUMAN SERVICES, GENERAL
ASSOCIATE IN APPLIED SCIENCE**

Curriculum Code: 10228 (Effective Fall 1998–Summer 2003)

Human services worker is a generic term for an individual who works in various social service agencies assisting professional staff, such as social workers and psychologists, to meet human needs, including helping clients obtain services, monitoring and keeping records, organizing or leading group activities, assisting clients in mastering everyday living skills, and overseeing adult group home residents. Job titles and duties vary according to the setting and type of clients served. Two semesters of field experience in a Human Services Agency is completed during the last year of the program. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 41 CREDITS
ANAT 145	Introductory Anatomy and Physiology	4	
HUSE 100	Introduction to Human Services: Resources and Interventions	3	
HUSE 101	Personal Dimensions of Human Services	2	
HUSE 282	Human Services Practicum I: Organizational Systems	4	
HUSE 284	Human Services Practicum II: Service Delivery Skills	4	
SOCL 120	Introduction to Sociology	4	
SOCL 254	Marriage and Family	3	
SOCL 260	Minority Groups	3	
SOWK 203	Social Work Interviewing: Concepts and Skill Practice	3	
SPCH 120	Dynamics of Communication	3	
WRIT 121	Composition I	4	
WRIT 122	Composition II	4	

LIMITED CHOICE REQUIREMENTS

TOTAL: 23 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 4 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 2)	0
Speech Communication Core Area (See Note 2)	0
Science/Technology Core Area (See Note 3)	4
Global Perspectives and Diversity Core Area (See Note 2)	0

CHOICE 2: Social Science 4 Credits

POLS 120	American Political System	4
POLS 121	State and Local Government	4
PSYC 200	Introduction to Psychology	4

CHOICE 3: Humanities (See Note 4) 8 Credits

CHOICE 4:	Professional Related Courses (See Note 5)	7 Credits
CHDV 101	Child Growth and Development: 0–5 years	4
CHDV 184	Children and Stress	1
CHDV 185	Preventing Child Sexual Abuse: Teaching Personal Safety	1
CHDV 186	Children's Self-Esteem and Positive Discipline	1
CHSE 213	Basic Psychiatric Technician	4
HUMS 225	Great Lakes Native Americans: History and Tradition	4
SOWK 205	Social Welfare	3
SOWK 209	Community Organization	3

MINIMUM TOTAL 64

NOTES

1. There is an application process and guidelines for admission into the field placement component. Applications are due by April 1 for admission to Fall field placement. Application packets with current requirements are available beginning in January from the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175. See a program advisor for further information.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
3. Students must select a 4 credit course that will also satisfy the Science/Mathematics transfer requirement for MACRAO in order to meet program requirements. See the MACRAO Transfer Agreement in the *Transfer Information* section of this catalog.
4. See the MACRAO Transfer Agreement in the *Transfer Information* section of this catalog for appropriate humanities courses.
5. Students may also choose from any GERO-prefix courses and/or any HUSE-prefix courses (except HUSE 286 and HUSE 288), not already used to meet degree requirements.
6. Each required HUSE and SOWK course must be completed with a minimum 2.0 grade or better.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
HUSE 100	SOWK 203	ANAT 145	HUSE 284
HUSE 101	WRIT 122	HUSE 282	Lim.Ch.2
SOCL 120	Lim.Ch.1	SOCL 254	Lim.Ch.3
SPCH 120	Lim.Ch.3	SOCL 260	Lim.Ch.4
WRIT 121		Lim.Ch.4	

**SUBSTANCE ABUSE
ASSOCIATE IN APPLIED SCIENCE**

Curriculum Code: 10220 (Effective Fall 1998–Summer 2003)

Substance abuse workers with an associate degree assist social workers or psychologists in agencies focusing on substance abuse. Graduates may be employed in private clinics, public or community agencies, or work-site programs specializing in substance abuse treatment and prevention. Additional education is needed for advanced positions. Individuals wishing to do counseling should be certified as a certified addictions counselor through the Michigan Office of Substance Abuse Services. Two semesters of field work in a substance abuse agency are included in the program. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS TOTAL: 50 CREDITS

CODE	TITLE	CREDIT HOURS
ANAT 145	Introductory Anatomy and Physiology	4
HUSE 100	Introduction to Human Services: Resources and Interventions	3
HUSE 101	Personal Dimensions of Human Services	2
HUSE 112	Introduction to Substance Abuse	3
HUSE 240	Substance Abuse: Special Populations and Adolescent Addiction	3
HUSE 241	Substance Abuse Prevention and Intervention	3
HUSE 242	The Chemically Dependent Family	3
HUSE 244	Substance Abuse Agencies, Treatment, Addiction Patterns	3
HUSE 286	Substance Abuse Practicum I: Organizational Systems	4
HUSE 288	Substance Abuse Practicum II: Service Delivery Skills	4
SOCL 120	Introduction to Sociology	4
SOWK 203	Social Work Interviewing: Concepts and Skill Practice	3
SPCH 120	Dynamics of Communication	3
WRIT 121	Composition I	4
WRIT 122	Composition II	4

LIMITED CHOICE REQUIREMENTS TOTAL: 16 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	4 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 2)</i>	0
Speech Communication Core Area <i>(See Note 2)</i>	0
Science/Technology Core Area <i>(See Note 3)</i>	4
Global Perspectives and Diversity Core Area <i>(See Note 2)</i>	0
CHOICE 2: Social Science	4 Credits
POLS 120 American Political System	4
POLS 121 State and Local Government	4
PSYC 200 Introduction to Psychology	4
CHOICE 3: Humanities <i>(See Note 4)</i>	8 Credits
MINIMUM TOTAL	66

NOTES

1. There is an application process and guidelines for admission into the field placement component. Applications are due by April 1 for admission to Fall field placement. Application packets with current requirements are available beginning in January from the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175. Contact a program advisor for further information.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
3. Students must select a 4 credit course that will also satisfy the Science/Mathematics transfer requirement for MACRAO in order to meet program requirements. See the MACRAO Transfer Agreement in the *Transfer Information* section of this catalog.
4. See the MACRAO Transfer Agreement for appropriate humanities courses.
5. Each required HUSE and SOWK course must be completed with a minimum 2.0 grade or better.
6. Students should plan to begin this curriculum summer semester.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
HUSE 100	ANAT 145	HUSE 101	HUSE 286
HUSE 112	HUSE 242	HUSE 240	SOCL 120
	HUSE 244	HUSE 241	SPCH 120
	WRIT 121	SOWK 203	Lim.Ch.3
		WRIT 122	
V			
HUSE 288			
Lim.Ch.1			
Lim.Ch.2			
Lim.Ch.3			

**SUBSTANCE ABUSE
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10239 (Effective Fall 1998–Summer 2003)

A substance abuse worker is an individual with specialized knowledge and skills in the area of substance abuse, including its causes, treatment, and prevention strategies. The certificate is designed for individuals who have achieved a degree and wish to focus their skills in the substance abuse area. Two semesters of field work are required. It takes five semesters to complete this curriculum.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS

TOTAL: 35 CREDITS

CODE	TITLE	CREDIT HOURS
HUSE 100	Introduction to Human Services: Resources and Interventions	3
HUSE 101	Personal Dimensions of Human Services	2
HUSE 112	Introduction to Substance Abuse	3
HUSE 240	Substance Abuse: Special Populations and Adolescent Addiction	3
HUSE 241	Substance Abuse Prevention and Intervention	3
HUSE 242	The Chemically Dependent Family	3
HUSE 244	Substance Abuse Agencies, Treatment, Addiction Patterns	3
HUSE 286	Substance Abuse Practicum I: Organizational Systems	4
HUSE 288	Substance Abuse Practicum II: Service Delivery Skills	4
SOWK 203	Social Work Interviewing: Concepts and Skill Practice	3
WRIT 121	Composition I	4
MINIMUM TOTAL		35

NOTES

1. There is an application process and guidelines for admission into the field placement component. Applications are due by April 1 for admission to Fall field placement. Application packets with current requirements are available beginning in January from the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175. Contact a program advisor for further information.
2. Each required HUSE and SOWK course must be completed with a minimum 2.0 grade or better.
3. Students should plan to begin this curriculum summer semester.

SUGGESTED COURSE SEQUENCE

I	II	III	IV
HUSE 112	HUSE 100	HUSE 240	HUSE 286
WRIT 121	HUSE 101	HUSE 241	
	HUSE 242	SOWK 203	
	HUSE 244		
V			
HUSE 288			

**COMPUTERIZED NUMERICAL CONTROL PROGRAMMER
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10266 (Effective Fall 1998–Summer 2003)

Computer numerical control programmers are responsible for writing programs that are used to control automated manufacturing systems and equipment. The programmer is primarily concerned with taking engineering specifications and developing procedures and programmed instructions to manufacture requested components. The CNC programmer must be knowledgeable in many areas such as computer systems, CAD, CAM, manufacturing processes, machine tools, and metallurgy. Strong math, communication, and problem-solving skills are needed in order to manage the large and diverse amount of information that must be brought together in order to successfully write programs. Because of their many skills, CNC programmers are employed in all industries, including aerospace, textile, agriculture, electronics, and manufacturing.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS TOTAL: 58 CREDITS

CODE	TITLE	CREDIT HOURS
CNCP 101	PC Applications for Technology	3
CNCP 110	Foundations of CNC Programming	4
CNCP 130	Machine Controls and Setup	4
CNCP 200	Unigraphics NC	4
CNCP 210	SMART-CAM	4
CNCP 215	CAMAND	4
DTDS 180	Unigraphics I	4
MACH 110	Machine Tool Technology I	4
MACH 111	Machine Tool Technology II	4
MACH 120	Effective Use of Machinery's Handbook	4
MACH 135	Metallurgy and Heat Treat	4
MACH 140	Tooling Theory and Practices	4
MATH 114	Technical Math I	4
MATH 115	Technical Math II	4
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS TOTAL: 12-13 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area (See Note 2)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Drafting Technology 3-4 Credits

DTDS 101	Drafting I	4
DTDS 104	Descriptive Geometry	4
DTDS 110	Industrial Blueprint Reading	3
DTDS 131	AutoCAD Basic 2-D	4

MINIMUM TOTAL 70

NOTES

1. If students have prior experience in machining, they should see an academic advisor in the Technology Careers Department to see if the preparation for MACH 105 can be waived.
2. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CNCP 101	CNCP 110	CNCP 130	CNCP 200
MACH 110	MACH 111	CNCP 210	CNCP 215
MATH 114	MACH 120	MACH 135	DTDS 180
WRIT 124	MACH 140	Lim.Ch.	Lim.Ch.
Lim.Ch.	MATH 115		Lim.Ch.

**INDUSTRIAL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10110 (Effective Fall 1998–Summer 2003)

Industrial technology is the study of a variety of technologies used in today's industry. Physical and mental skills are required including mechanical skills, problem-solving abilities, and dexterity. Employment opportunities are with industries that have a variety of work processes and/or trades.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 54 CREDITS
CNCP 110	Foundations of CNC Programming	4	
DTDS 101	Drafting I	4	
DTDS 110	Industrial Blueprint Reading	3	
EMTA 100	Medical First Responder	3	
HVAC 110	Applied Electricity I	2	
MACH 100	Manufacturing Processes	4	
MACH 105	Machine Tool Survey	3	
MACH 120	Effective Use of Machinery's Handbook	4	
MACH 135	Metallurgy and Heat Treat	4	
MATH 114	Technical Math I	4	
MATH 115	Technical Math II	4	
MFGM 101	Industrial Hydraulics	4	
PHYS 200	Applied Physics	4	
WELD 100	Combination Welding	4	
WRIT 124	Technical Writing	3	

LIMITED CHOICE REQUIREMENTS

TOTAL: 13 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 1)</i>	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
CHOICE 2: Technical Related	4 Credits
CNCP 101 PC Applications for Technology	3
MACH 140 Tooling Theory and Practices	4
MACH 210 Principles of Electric Discharge Machining (EDM)	4
QUAL 121 Introduction to Statistical Process Control	3
MINIMUM TOTAL	67

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
DTDS 101	DTDS 110	MACH 135	CNCP 110
HVAC 110	MACH 105	MFGM 101	EMTA 100
MACH 100	MACH 120	PHYS 200	Lim.Ch.
MATH 114	MATH 115	Lim.Ch.	Lim.Ch.
WELD 100	WRIT 124	Lim.Ch.	

**INDUSTRIAL TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10150 (Effective Fall 1998–Summer 2003)

This certificate provides students with a basic understanding of a variety of technologies to enhance the theory skills they already possess.

REQUIREMENTS

TOTAL: 33 CREDITS

CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	3
MACH 100	Manufacturing Processes	4
MACH 105	Machine Tool Survey	3
MACH 120	Effective Use of Machinery's Handbook	4
MACH 135	Metallurgy and Heat Treat	4
MATH 114	Technical Math I	4
MFGM 101	Industrial Hydraulics	4
MFGM 110	Machine Maintenance I	4

MINIMUM TOTAL

33

SUGGESTED COURSE SEQUENCE

I	II
DTDS 110	EMTA 100
MACH 100	MACH 105
MATH 114	MACH 120
MFGM 101	MACH 135
	MFGM 110

**MACHINE MAINTENANCE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10173 (Effective Fall 1998–Summer 2003)

Machine maintenance technicians are involved with the repair, maintenance, and installation of industrial equipment. They repair the machinery of industry, solving mechanical problems. The skills necessary for this type of work are many and varied: critical thinking, problem solving, mechanics, math, and physics are but a few. Maintenance technicians also need to know how to diagnose hydraulic problems, perform preventive maintenance procedures, and be able to work well with others. Every industrial plant will have one or more machine maintenance technicians. They may have different titles, but the work is the same.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 47 CREDITS
CODE	TITLE	CREDIT HOURS
DTDS 101	Drafting I	4
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	3
MACH 110	Machine Tool Technology I	4
MACH 111	Machine Tool Technology II	4
MACH 120	Effective Use of Machinery's Handbook	4
MACH 135	Metallurgy and Heat Treat	4
MFGM 101	Industrial Hydraulics	4
MFGM 110	Machine Maintenance I	4
MFGM 111	Machine Maintenance II	4
MFGM 120	Industrial Presses	4
MFGM 125	Rigging	2
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS TOTAL: 22-24 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 2)</i>	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
CHOICE 2: Electrical Technology	2-3 Credits
ELTE 110 Practical Electricity	3
HVAC 110 Applied Electricity I	2
CHOICE 3: Technical Related	3-4 Credits
MACH 100 Manufacturing Processes	4
MACH 140 Tooling Theory and Practices	4
MFGM 102 Industrial Pneumatics	3
WELD 100 Combination Welding	4
CHOICE 4: Mathematics & Physics	8 Credits
MATH 114 Technical Math I	4
MATH 115 Technical Math II	4
PHYS 200 Applied Physics	4
MINIMUM TOTAL	69

NOTES

- If students have prior experience in machining, they should see an academic advisor in the Technology Careers Department to see if the prerequisite for MACH 110 can be waived.
- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
MFGM 101	DTDS 101	DTDS 110	MFGM 111
WRIT 124	MACH 110	EMTA 100	MFGM 120
Lim.Ch.	MACH 120	MACH 111	MFGM 125
Lim.Ch.	MFGM 110	MACH 135	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**MACHINE REPAIR
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10147 (Effective Fall 1998–Summer 2003)

This program provides technical knowledge and skills in the adjustment, maintenance, part replacement, and repair of tools, equipment, and machines. It prepares an individual for an entry-level position.

REQUIREMENTS		TOTAL: 31 CREDITS
CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	3
MACH 105	Machine Tool Survey	3
MATH 114	Technical Math I	4
MFGM 101	Industrial Hydraulics	4
MFGM 110	Machine Maintenance I	4
MFGM 111	Machine Maintenance II	4
MFGM 125	Rigging	2
WELD 100	Combination Welding	4

MINIMUM TOTAL 31

SUGGESTED COURSE SEQUENCE

I	II
DTDS 110	EMTA 100
MACH 105	MFGM 101
MATH 114	MFGM 111
MFGM 110	WELD 100
MFGM 125	

**MILLWRIGHT
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10154 (Effective Fall 1998-Summer 2003)

A millwright installs, maintains and cares for mechanical equipment in a plant, factory, or mill. This program prepares an individual for an entry-level position.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 32 CREDITS
CODE	TITLE	CREDIT HOURS
BLDT 103	Structural Blueprint Reading	4
EMTA 100	Medical First Responder	3
MACH 105	Machine Tool Survey	3
MACH 135	Metallurgy and Heat Treat	4
MATH 114	Technical Math I	4
MFGM 101	Industrial Hydraulics	4
MFGM 110	Machine Maintenance I	4
MFGM 111	Machine Maintenance II	4
MFGM 125	Rigging	2

LIMITED CHOICE REQUIREMENTS TOTAL: 3-4 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	Building Related	3-4 Credits
BLDT 100	Introduction to Construction	3
BLDT 121	Residential Framing and Foundations	4
CIVL 120	Surveying	4

MINIMUM TOTAL 35

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
EMTA 100	BLDT 103	MFGM 111
MACH 105	MACH 135	Lim.Ch.
MATH 114	MFGM 110	
MFGM 101	MFGM 125	

**MACHINIST TOOLMAKER
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10199 (Effective Fall 1998--Summer 2003)

A machinist toolmaker is involved with the manufacture of machined components relating to various kinds of industry. There are no limits to the variety of projects a machinist toolmaker may be involved with: making prototypes, tools for production, engineering changes on parts, etc. This work involves critical thinking, decision making, math skills, and working cooperatively with others. Machinist toolmakers are capable of operating all the various machine tools in a machine shop. They also must be able to interpret mechanical drawings, calculate mathematical data, and work with others to solve the various problems related to projects going on in the shop at any given time. A machinist toolmaker may be employed in any manufacturing facility.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 52 CREDITS

CODE	TITLE	CREDIT HOURS
CNCP 101	PC Applications for Technology	3
CNCP 110	Foundations of CNC Programming	4
DTDS 101	Drafting I	4
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	3
MACH 110	Machine Tool Technology I	4
MACH 111	Machine Tool Technology II	4
MACH 112	Machine Tool Technology III	4
MACH 120	Effective Use of Machinery's Handbook	4
MACH 130	Die Construction	4
MACH 135	Metallurgy and Heat Treat	4
MACH 140	Tooling Theory and Practices	4
MACH 210	Principles of Electric Discharge Machining (EDM)	4
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 21 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area (See Note 2)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
CHOICE 2: Mathematics & Physics	12 Credits
MATH 114 Technical Math I	4
MATH 115 Technical Math II	4
MATH 116 Technical Math III	4
PHYS 200 Applied Physics	4
MINIMUM TOTAL	73

NOTES

- If students have prior experience in machining, they should see an academic advisor in the Technology Careers Department to see if the prerequisite for MACH 110 can be waived.
- Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
DTDS 101	DTDS 110	CNCP 101	CNCP 110
EMTA 100	MACH 110	MACH 111	MACH 112
MACH 120	MACH 135	MACH 140	MACH 130
Lim.Ch.	WRIT 124	Lim.Ch.	MACH 210
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**TOOL AND DIE MAKER
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10141 (Effective Fall 1998--Summer 2003)

This program provides technical knowledge and skills to operate machine tools used in the forming of metal components, as well as the fabrication of special tools, dies, jigs, and fixtures used in cutting, working, and finishing metal components. It prepares an individual for an entry-level position.

REQUIREMENTS

TOTAL: 34 CREDITS

CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	3
MACH 110	Machine Tool Technology I	4
MACH 111	Machine Tool Technology II	4
MACH 112	Machine Tool Technology III	4
MACH 120	Effective Use of Machinery's Handbook	4
MACH 135	Metallurgy and Heat Treat	4
MACH 140	Tooling Theory and Practices	4
MATH 114	Technical Math I	4

MINIMUM TOTAL

34

NOTES

- If students have prior experience in machining, they should see an academic advisor in the Technology Careers Department to see if the prerequisite for MACH 110 can be waived.

SUGGESTED COURSE SEQUENCE

I	II	III
DTDS 110	EMTA 100	MACH 112
MACH 110	MACH 111	MACH 140
MACH 120	MACH 135	
MATH 114		

**WELDING TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10186 (Effective Fall 1998–Summer 2003)

Welding is many processes of fusion, adhesion, and cutting to fabricate or repair products used in manufacturing, research, and application. A welding technician could also qualify for welding inspection where welding codes are applied. A welder is a skilled craftsperson with a basic knowledge of metals, applied mathematics, blueprint reading, good eyesight, self-discipline, and a respect for safety. A welder also needs to work well with his/her hands and have good manual coordination. Many hours of practice and proper training in the basics of MIG, TIG, shielded metal arc, brazing and oxy-fuel cutting, and plasma cutting are necessary. Welders can be found in tool and die industries, auto makers, construction, oil refineries, pipelines and pressure vessels, aircraft industries, and many more metal-related industries.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 45 CREDITS

CODE	TITLE	CREDIT HOURS
EMTA 100	Medical First Responder	3
MACH 105	Machine Tool Survey	3
MACH 135	Metallurgy and Heat Treat	4
MFGM 125	Rigging	2
WELD 100	Combination Welding	4
WELD 101	Advanced Arc Welding	4
WELD 110	Gas Metal Arc Welding	4
WELD 111	Gas Tungsten Arc Welding	4
WELD 120	Structural Fabrication and Inspection	4
WELD 125	Structural Blueprint Reading for Welders	2
WELD 201	Tool and Die Welding	4
WELD 205	Pipe Welding	4
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 15–16 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Technical Related 6–7 Credits

ELTE 110	Practical Electricity	3
MACH 100	Manufacturing Processes	4
MFGM 102	Industrial Pneumatics	3

MINIMUM TOTAL 60

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
MACH 105	MACH 135	WELD 111	EMTA 100
MFGM 125	WELD 101	WELD 120	WELD 201
WELD 100	WELD 110	WELD 125	WELD 205
Lim.Ch.	WRIT 124	Lim.Ch.	Lim.Ch.
		Lim.Ch.	Lim.Ch.

**WELDING TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10156 (Effective Fall 1998–Summer 2003)

Students receive hands-on instruction in the basics of MIG, TIG, shielded metal arc, brazing and oxy-fuel cutting, and plasma cutting to prepare them for entry level positions.

REQUIREMENTS

TOTAL: 31 CREDITS

CODE	TITLE	CREDIT HOURS
EMTA 100	Medical First Responder	3
MACH 135	Metallurgy and Heat Treat	4
MFGM 125	Rigging	2
WELD 100	Combination Welding	4
WELD 101	Advanced Arc Welding	4
WELD 110	Gas Metal Arc Welding	4
WELD 111	Gas Tungsten Arc Welding	4
WELD 120	Structural Fabrication and Inspection	4
WELD 125	Structural Blueprint Reading for Welders	2

MINIMUM TOTAL 31

SUGGESTED COURSE SEQUENCE

I	II	III
EMTA 100	MACH 135	WELD 111
MFGM 125	WELD 101	WELD 120
WELD 100	WELD 110	WELD 125

**INTERIOR DESIGN TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10267 (Effective Fall 1998–Summer 2003)

Interior design assistants work with professional interior designers to plan and create the overall design for interior spaces. They may be employed as estimators, retail sales persons, space planners, computer-aided drafting and design technicians, lighting and color consultants, or kitchen/bath designers. Depending on their specialty, interior design assistants work in retail or wholesale showrooms, design firms, building construction management offices, hospitality chains, interior furnishings manufacturers, or facilities departments. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS **TOTAL: 32 CREDITS**

CODE	TITLE	CREDIT HOURS
INTR 110	Applied Design, Two-Dimensional and Color	3
INTR 170	Introduction to Interiors	3
INTR 175	Space Planning and Design Process	3
INTR 190	Materials for Interiors	3
INTR 201	Cultural Diversity in the Built Environment	3
INTR 232	Twentieth Century Interior Design	3
INTR 240	Interior Lighting	4
INTR 246	Residential Interiors	4
INTR 248	Non-Residential Interiors, Systems Furniture	3
INTR 256	Interior Design Project Management	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 40 CREDITS**
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas **12 Credits**
(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Drafting **3–4 Credits**

ARCH 101	Architectural Drafting I	4
INTR 140	Interior Drafting and Detailing	3

CHOICE 3: Visual Communications **3 Credits**

ARCH 121	Visual Communication I	3
INTR 132	Design Presentation Techniques	3

CHOICE 4: Technology **9 Credits**

INTR 151	Computer-Aided Kitchen Design	3
INTR 222	Computer-Aided Drafting and Design for Interiors	3
INTR 225	Computer-Aided Design for Space Planning	3
INTR 260	Three-Dimensional CAD Design for Interiors	3

CHOICE 5: Three-Dimensional Spatial Development **2–3 Credits**

ARCH 122	Visual Communication II	3
ARCH 126	Model Building	2
INTR 244	Three-Dimensional Visual Display	3
INTR 270	Design Portfolio	2

CHOICE 6: History **3 Credits**

ARCH 141	Architectural History I	3
ARCH 142	Architectural History II	3
INTR 230	World Decorative Arts	3
INTR 231	Interior Design Period Research	3

CHOICE 7: Business Related **3–4 Credits**

ACCG 210	Principles of Accounting I	4
BUSN 118	Introduction to Business	3
ECON 201	Principles of Economics—Micro	3

CHOICE 8: Related Professional Courses **2–4 Credits**

ARCH 146	Preservation and Adaptive Reuse Architecture	3
ARCH 181	Barrier-Free Design	3
ARCH 273	Environmental Systems	4
ARCH 283	Materials of Construction	4
BLDT 281	BOCA/Uniform Code	3
INTR 252	Construction Documents and Specifications	2

CHOICE 9: Experiential Learning **3 Credits**

COOP 210	Cooperative Education (Technology)	3
INTR 263	Internship	3

MINIMUM TOTAL **72**

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
INTR 110	INTR 190	INTR 175	INTR 240
INTR 170	Lim.Ch.1	INTR 201	INTR 246
Lim.Ch.1	Lim.Ch.3	Lim.Ch.1	Lim.Ch.4
Lim.Ch.2	Lim.Ch.6	Lim.Ch.4	Lim.Ch.8
V	VI		
INTR 232	INTR 256		
INTR 248	Lim.Ch.1		
Lim.Ch.4	Lim.Ch.5		
Lim.Ch.7	Lim.Ch.9		

**HORTICULTURE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10189 (Effective Fall 1998 - Summer 2003)

A professional horticulturist deals with plant materials, their growth, development, propagation, marketing, and use. The horticulturist works with environmental conditions and pest problems of ornamental plants and their management. The two major specialty areas are landscape horticulture and floriculture. A background in plant maintenance, knowledge of growing environments and structures, as well as retail and marketing skills, is vital. Horticulturists are employed by florists, greenhouses and garden centers, nurseries, retail sales outlets, landscape contractors, design and construction firms, and lawn care companies. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 34 CREDITS

CODE	TITLE	CREDIT HOURS
HORT 102	Introduction to Ornamental Horticulture	2
HORT 105	Pests and Problems of Ornamental Plants	2
HORT 230	Plant Propagation and Nursery Operations	4
HORT 235	Greenhouse Structures and Environment	3
LAND 100	Introduction to Landscape Drafting	2
LAND 130	Interior Landscaping	3
LAND 140	Evergreen and Deciduous Trees	3
LAND 141	Flowering Trees, Shrubs, Ground Covers	3
LAND 142	Perennial and Annual Flowering Plants	3
LAND 163	Designing Ornamental Garden	3
LAND 282	Computer Drafting/Design in Landscape Architecture	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 28-30 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Specialization (Choose 1 Subchoice) 19-21 Credits

Subchoice 2A: Floriculture

HORT 107	Beginning Floral Design	2
HORT 109	Contemporary Floral Design	2
HORT 110	Wedding Floral Design	2
HORT 143	Cut Flower, Foliage and Potted Plant Identification	4
HORT 236	Greenhouse Ornamentals	3
HORT 237	Bedding Plant Production	3
HORT 238	Garden Center and Nursery Sales Management	3

Subchoice 2B: Landscape Horticulture

LAND 150	Principles of Landscape Architecture	3
LAND 160	Planting Design I	3
LAND 180	Landscape Ecology	3
LAND 185	Arboriculture (Urban/Forestry)	3
LAND 225	Landscape Cost Estimation	3
LAND 232	Professional Residential Landscape Design	3
LAND 233	Grounds Management	3

MINIMUM TOTAL

62

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
Floriculture Option			
HORT 102	HORT 105	HORT 110	HORT 230
HORT 107	HORT 109	HORT 237	HORT 238
HORT 143	HORT 236	LAND 130	LAND 163
HORT 235	LAND 141	LAND 142	LAND 282
LAND 100	WRIT 124	Lim.Ch.	Lim.Ch.
LAND 140	Lim.Ch.		

Landscape Horticulture Option

HORT 102	HORT 230	HORT 105	LAND 130
HORT 235	LAND 141	LAND 142	LAND 163
LAND 100	LAND 150	LAND 160	LAND 180
LAND 140	LAND 185	LAND 232	LAND 225
WRIT 124	Lim.Ch.	LAND 282	LAND 233
		Lim.Ch.	Lim.Ch.

**LANDSCAPE ARCHITECTURE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10203 (Effective Fall 1998–Summer 2003)

Landscape architects, designers, and planners deal with the ecological design and management of the land. Landscape architects and designers coordinate the analysis, planning, layout, design, and management of the exterior and interior landscape. Landscape architects and designers are employed by design and engineering firms, parks and recreation offices, landscape contractors, design and build firms, nurseries and garden centers, arboreta and botanic gardens, and grounds management firms. A supporting background in computer design graphics and G.I.S. is helpful. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 61 CREDITS

CODE	TITLE	CREDIT HOURS
LAND 100	Introduction to Landscape Drafting	2
LAND 140	Evergreen and Deciduous Trees	3
LAND 141	Flowering Trees, Shrubs, Ground Covers	3
LAND 150	Principles of Landscape Architecture	3
LAND 152	Landscape Graphics Communications-Beginning	3
LAND 153	Landscape Graphics Communications-Advanced	3
LAND 160	Planting Design I	3
LAND 161	Planting Design II	3
LAND 164	Site Design	3
LAND 170	Site Grading I	3
LAND 171	Site Grading II	3
LAND 172	Site Layout	3
LAND 225	Landscape Cost Estimation	3
LAND 232	Professional Residential Landscape Design	3
LAND 233	Grounds Management	3
LAND 250	Landscape Construction Methods	3
LAND 252	Landscape Construction Details	3
LAND 276	Landscape Documents and Specifications	2
LAND 282	Computer Drafting/Design in Landscape Architecture	3
LAND 283	Beginning LandCADD	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 9 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area (See Note 2)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
MINIMUM TOTAL	70

NOTES

1. If students have prior experience in drafting, they should see an academic advisor in the Technology Careers Department to see if LAND 100 can be waived.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
LAND 100	LAND 141	LAND 161	LAND 171
LAND 140	LAND 153	LAND 170	LAND 172
LAND 150	LAND 160	LAND 232	LAND 225
LAND 152	LAND 164	LAND 250	LAND 233
WRIT 124	LAND 282	LAND 283	LAND 252
Lim.Ch.	Lim.Ch.	Lim.Ch.	LAND 276

**LEGAL ASSISTANT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10101 (Effective Fall 1998–Summer 2003)

Legal assistants, also known as paralegals, assist lawyers by performing many of the same tasks, except for those considered to be the practice of law. To help lawyers prepare cases for trial, they may investigate the facts; perform legal research to identify relevant laws, legal articles, judicial decisions and other documents/materials related to the case; and prepare written reports after organizing and analyzing all the information. Other duties may include drafting briefs and pleadings, obtaining affidavits, assisting the lawyer during trial, and organizing and maintaining document and correspondence files. Some legal assistants may help with completing forms, tax returns, and drafting contracts.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 35 CREDITS

CODE	TITLE	CREDIT HOURS
LEGL 115	Legal Assistant Career and Ethics	3
LEGL 120	Legal Research I	3
LEGL 121	Legal Writing I	3
LEGL 160	Critical Thinking in Law	3
LEGL 210	Litigation Procedures	4
LEGL 211	Tort Law	2
LEGL 215	Business Law I, Basic Principles	3
LEGL 225	Legal Research and Writing II	3
LEGL 228	Computer Technology for Legal Assistants	3
WRIT 121	Composition I	4
WRIT 122	Composition II	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 29 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Business Law 3 Credits

LEGL 216	Business Law II, Commercial Law	3
LEGL 217	Business Law III, Business Organizations	3
LEGL 220	International Legal Issues and Organizations	3

CHOICE 3: General Law 9 Credits

CJUS 103	Criminal Law	3
LEGL 218	Litigation Specialties	3
LEGL 221	Real Estate Transaction	3
LEGL 222	Probate Law and Procedure	3
LEGL 223	Domestic Relations	3
LEGL 224	Administrative Law	3
LEGL 226	Legal Interviewing and Investigation	3
LEGL 227	Bankruptcy and Collections	3
LEGL 280	Legal Assistant Internship	3

CHOICE 4: Government 4 Credits	
POLS 120	American Political System 4
POLS 121	State and Local Government 4

CHOICE 5: Computer Proficiency 4 Credits	
CABS 105	WordPerfect for the Office/Intermediate Keyboarding 4
CABS 113	Microsoft Word for the Office/Intermediate Keyboarding 4

MINIMUM TOTAL 64

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
LEGL 115	LEGL 120	LEGL 121	LEGL 225
LEGL 160	LEGL 211	LEGL 210	LEGL 228
LEGL 215	WRIT 122	Lim.Ch.1	Lim.Ch.3
WRIT 121	Lim.Ch.1	Lim.Ch.2	Lim.Ch.3
Lim.Ch.5	Lim.Ch.1	Lim.Ch.3	Lim.Ch.4

**LEGAL ASSISTANT POST-BACCALAUREATE
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10744 (Effective Fall 1998–Summer 2003)

The legal assistant career is an excellent choice for students possessing a bachelor's degree, especially students with strong analytical and writing skills. These students may select the following certificate curriculum which requires only legal assistant courses.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 21 CREDITS
CODE	TITLE	CREDIT HOURS
LEGL 115	Legal Assistant Career and Ethics	3
LEGL 120	Legal Research I (See Note 1)	3
LEGL 121	Legal Writing I (See Note 1)	3
LEGL 210	Litigation Procedures (See Note 1)	4
LEGL 211	Tort Law (See Note 1)	2
LEGL 215	Business Law I, Basic Principles	3
LEGL 225	Legal Research and Writing II	3

LIMITED CHOICE REQUIREMENTS TOTAL: 12 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	Business Law	3 Credits
LEGL 216	Business Law II, Commercial Law	3
LEGL 217	Business Law III, Business Organizations	3
LEGL 220	International Legal Issues and Organizations	3

CHOICE 2:	General Law	9 Credits
CJUS 103	Criminal Law	3
LEGL 218	Litigation Specialties	3
LEGL 221	Real Estate Transaction	3
LEGL 222	Probate Law and Procedure	3
LEGL 223	Domestic Relations	3
LEGL 224	Administrative Law	3
LEGL 226	Legal Interviewing and Investigation	3
LEGL 227	Bankruptcy and Collections	3
LEGL 228	Computer Technology for Legal Assistants	3
LEGL 280	Legal Assistant Internship	3

MINIMUM TOTAL 33

NOTES

- Students in this curriculum will be granted department approval to take these courses concurrently with LEGL 115 and LEGL 215. Contact the Business Careers Department, telephone number (517) 483-1522.
- Students following this curriculum must have proof of a bachelor's degree entered on their official Lansing Community College transcript before a certificate of achievement may be granted. Students who do not possess a bachelor's degree should follow the Legal Assistant, Associate in Business Degree curriculum #10101.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
LEGL 115	LEGL 211
LEGL 120	LEGL 225
LEGL 121	Lim.Ch.
LEGL 210	Lim.Ch.
LEGL 215	Lim.Ch.
	Lim.Ch.

**HUMAN RESOURCE MANAGEMENT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10712 (Effective Fall 1998–Summer 2003)

Human resource managers serve as a link between management and employees. They help management make effective use of employees' skills, and help employees find satisfaction in their jobs and working conditions. Graduates of this program are involved with recording and evaluating information, such as job experience, education, skills, qualifications, and job performance; providing information about policies, job duties, working conditions, wages, opportunities for promotion, and employee benefits; maintaining job files on employees; administering various employee benefits; collecting and analyzing labor market data; and employee selection and training. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, room 210, telephone number (517) 483-1522.

REQUIREMENTS TOTAL: 44 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CISB 200	Information Systems Technology and Problem Solving	3
LABR 204	Employment Law for Managers	3
MGMT 200	Creative Thinking for Business	3
MGMT 223	Supervision	3
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 227	Training and Development for Business	2
MGMT 228	Organizational Behavior	3
MGMT 229	Compensation Management	3
MGMT 231	Team Development	3
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3
MGMT 237	Managing for Continual Improvement	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS TOTAL: 16–20 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits

(See the <i>GENERAL EDUCATION</i> section above)		
Writing Core Area		0
Speech Communication Core Area		0
Science/Technology Core Area		0
Global Perspectives and Diversity Core Area		0

CHOICE 2: Specialty Related (See Note 2) 9–11 Credits

BUSN 229	Public Relations	2
LABR 200	Introduction to Labor Relations	3
LABR 201	Collective Bargaining	3
LABR 203	Labor Law	3
LEGL 215	Business Law I, Basic Principles	3
MGMT 239	Time and Stress Management	3
MGMT 280	Management Internship	3
MGMT 300	Managerial Leadership	3
MGMT 304	Organizational Development	3

MGMT 329	Advanced Management Communication Skills	3
MGMT 337	Human Resource Management Skills	3
MKTG 100	Current Issues in Business	3
MKTG 119	Marketing and Managing Your Professional Image	3
PSYC 200	Introduction to Psychology	4

CHOICE 3: Computer Related (See Note 3) 4–5 Credits

CHOICE 4: Quantitative Related 3–4 Credits

ACCG 100	Practical Accounting for Non-Majors	3
ACCG 101	Accounting Information for Management	3
ACCG 210	Principles of Accounting I	4
MATH 117	Math for Business	4
MGMT 335	Managerial Statistics	3
MGMT 346	Managerial Finance	3

MINIMUM TOTAL 60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Students may also choose from BUSN 191 through BUSN 193—Independent Studies, and/or a maximum of 2 credits total from the T.I.M.E. Series (course codes MGMT 240 through MGMT 278).
3. Choose CABS-prefix courses of 110 or above and/or CISB-prefix courses above 100.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	MGMT 224	LABR 204	MGMT 227
CISB 200	MGMT 228	MGMT 200	MGMT 229
MGMT 223	SPCH 110	MGMT 225	MGMT 237
MGMT 234	WRIT 127	MGMT 231	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.		

**LABOR RELATIONS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10105 (Effective Fall 1998–Summer 2003)

Specialists in both employee services and problem solving, personnel/labor relations managers are involved in implementing an organization's personnel policies, procedures, and staffing. LCC graduates of this program are prepared to work in a variety of larger businesses and organizations, including labor unions and government agencies. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS **TOTAL: 45 CREDITS**
CODE TITLE CREDIT HOURS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CISB 200	Information Systems Technology and Problem Solving	3
LABR 200	Introduction to Labor Relations	3
LABR 201	Collective Bargaining	3
LABR 202	Grievances and Arbitration	3
LABR 203	Labor Law	3
LABR 204	Employment Law for Managers	3
LEGL 215	Business Law I. Basic Principles	3
MGMT 223	Supervision	3
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 15–16 CREDITS**

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	General Education Core Areas (See Note 1)	0 Credits
	(See the <i>GENERAL EDUCATION</i> section above)	
	Writing Core Area	0
	Speech Communication Core Area	0
	Science/Technology Core Area	0
	Global Perspectives and Diversity Core Area	0
CHOICE 2:	Accounting	3–4 Credits
	ACCG 101 Accounting Information for Management	3
	ACCG 210 Principles of Accounting I	4
CHOICE 3:	Labor Relations Related (See Note 2)	12 Credits
	ACCG 211 Principles of Accounting II	4
	BUSN 229 Public Relations	2
	ECON 201 Principles of Economics—Micro	3
	ECON 202 Principles of Economics—Macro	3
	MGMT 200 Creative Thinking for Business	3
	MGMT 227 Training and Development for Business	2
	MGMT 231 Team Development	3
	MGMT 237 Managing for Continual Improvement	3
	MGMT 280 Management Internship	3

MGMT 300	Managerial Leadership	3
MGMT 304	Organizational Development	3
MKTG 100	Current Issues in Business	3
MKTG 119	Marketing and Managing Your Professional Image	3
PSYC 200	Introduction to Psychology	4

MINIMUM TOTAL

60

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
- Students may also choose a maximum of 4 credits total from the T.I.M.E. Series (course codes MGMT 240–MGMT 278).

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	LABR 204	LABR 201	LABR 202
CISB 200	LEGL 215	MGMT 225	LABR 203
LABR 200	MGMT 224	SPCH 110	MGMT 228
MGMT 223	WRIT 127	Lim.Ch.	MGMT 234
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**LABOR RELATIONS
CERTIFICATE OF COMPLETION**

Curriculum Code: 10256 (Effective Fall 1998–Summer 2003)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances the individual's employment opportunities.

REQUIREMENTS **TOTAL: 15 CREDITS**
CODE TITLE CREDIT HOURS

CODE	TITLE	CREDIT HOURS
LABR 200	Introduction to Labor Relations	3
LABR 201	Collective Bargaining	3
LABR 202	Grievances and Arbitration	3
LABR 203	Labor Law	3
LABR 204	Employment Law for Managers	3

MINIMUM TOTAL

15

SUGGESTED COURSE SEQUENCE

I	II
LABR 200	LABR 201
LABR 204	LABR 202
	LABR 203

**MANAGEMENT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10245 (Effective Fall 1998–Summer 2003)

A manager plans, organizes, delegates, and controls entire projects from start to finish. The role cuts across all areas of business and organizational life and has as its central purpose the increase of resources: personnel, money, machines, and materials. Managers supply the encouragement, coordination, and leadership to achieve company goals. Graduates of this program may qualify for entry-level positions. Addition of a technical or business specialty increases one's employability. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 48 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
BUSN 201	International Business	3
CISB 200	Information Systems Technology and Problem Solving	3
LABR 200	Introduction to Labor Relations	3
LABR 204	Employment Law for Managers	3
MGMT 200	Creative Thinking for Business	3
MGMT 223	Supervision	3
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 231	Team Development	3
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3
MGMT 237	Managing for Continual Improvement	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 12–15 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Accounting 3–4 Credits

ACCG 101	Accounting Information for Management	3
ACCG 210	Principles of Accounting I	4

CHOICE 3: Management Related (See Note 2) 9–11 Credits

ACCG 211	Principles of Accounting II	4
BUSN 191	Independent Study in Management	1
BUSN 192	Independent Study in Management	2
BUSN 193	Independent Study in Management	3
BUSN 229	Public Relations	2
BUSN 295	Small Business Management	3

ECON 201	Principles of Economics—Micro	3
ECON 202	Principles of Economics—Macro	3
LEGL 215	Business Law I, Basic Principles	3
MGMT 227	Training and Development for Business	2
MGMT 239	Time and Stress Management	3
MGMT 280	Management Internship	3
MGMT 300	Managerial Leadership	3
MKTG 119	Marketing and Managing Your Professional Image	3
MKTG 202	Managerial Marketing	3

MINIMUM TOTAL 50

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Students may also choose a maximum of 2 credits total from the T.I.M.E. Series (course codes MGMT 240 through MGMT 278) and/or a maximum of 2 credits of CABS-prefix courses of 110 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	BUSN 201	MGMT 225	LABR 204
CISB 200	MGMT 223	MGMT 228	MGMT 200
LABR 200	MGMT 224	MKTG 200	MGMT 237
MGMT 234	MGMT 231	SPCH 110	Lim.Ch.
Lim.Ch.	WRIT 127	Lim.Ch.	Lim.Ch.

**MANAGEMENT
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10249 (Effective Fall 1998–Summer 2003)

Certificate holders may improve their opportunities for advancement in this or a related area. The Certificate of Achievement is often useful in conjunction with another degree in professions such as health careers or computers. Additional education enhances an individual's employment opportunities. Courses in this certificate may also be applied directly toward an Associate Degree in Management.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS**TOTAL: 24 CREDITS**

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CISB 200	Information Systems Technology and Problem Solving	3
LABR 204	Employment Law for Managers	3
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 231	Team Development	3
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3

LIMITED CHOICE REQUIREMENTS**TOTAL: 6-7 CREDITS**

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	Accounting	3-4 Credits
ACCG 101	Accounting Information for Management	3
ACCG 210	Principles of Accounting I	4
CHOICE 2:	Communication Skills	3 Credits
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3
MINIMUM TOTAL		30

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
BUSN 118	LABR 204
CISB 200	MGMT 228
MGMT 224	MGMT 231
MGMT 225	MGMT 234
Lim.Ch.	Lim.Ch.

**MANAGEMENT, ADVANCED
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10280 (Effective Fall 1998–Summer 2003)

This is an advanced certificate program that may be taken after obtaining an associate or bachelors degree in order to enhance an individual's employment and advancement opportunities. Courses in this certificate may be used as the third year in the Northwood University Bachelor of Business Administration degree. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522 or the Advanced Management Coordinator at (517) 483-1544.

REQUIREMENTS		TOTAL: 21 CREDITS
CODE	TITLE	CREDIT HOURS
MGMT 304	Organizational Development	3
MGMT 329	Advanced Management Communication Skills	3
MGMT 332	Managerial Ethics	3
MGMT 335	Managerial Statistics	3
MGMT 337	Human Resource Management Skills	3
MGMT 338	Current Topics in Management	3
MGMT 348	Strategic Management and Policy	3

LIMITED CHOICE REQUIREMENTS TOTAL: 9–10 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Management	3 Credits
MGMT 225 Principles of Management	3
MGMT 300 Managerial Leadership	3
CHOICE 2: Finance	3 Credits
ACCG 271 Principles of Finance	3
MGMT 346 Managerial Finance	3
CHOICE 3: Business Related (See Note 2)	3–4 Credits
ACCG 210 Principles of Accounting I	4
ACCG 211 Principles of Accounting II	4
BUSN 118 Introduction to Business	3
BUSN 201 International Business	3
CISB 100 Introduction to Computer Information Systems	3
ECON 201 Principles of Economics—Micro	3
ECON 202 Principles of Economics—Macro	3
LEGL 215 Business Law I, Basic Principles	3
MKTG 200 Principles of Marketing	3
MKTG 235 Marketing Internship	3
WRIT 127 Business Communications	3
MINIMUM TOTAL	30

NOTES

- It is recommended that MGMT 348 be taken near the end of this Certificate program.
- Students may also choose a maximum of 2 credits total from the T.I.M.E. Series (course codes MGMT 240-MGMT 278) and/or a maximum of 2 credits from CABS-prefix courses of 110 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

MGMT 304	MGMT 332
MGMT 329	MGMT 337
MGMT 335	MGMT 348
MGMT 338	Lim.Ch.
Lim.Ch.	Lim.Ch.

**COMPUTER SALES SPECIALIST
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10179 (Effective Fall 1998–Summer 2003)

Computer sales representatives sell computers and network hardware and software systems. They analyze a customer's needs and recommend the computer system that best meets the customer's requirements. They emphasize salable features, such as flexibility, cost, capacity, and economy of operation. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS TOTAL: 49 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CABS 110	Microsoft Office	3
CABS 195	Microsoft Windows	2
CISB 100	Introduction to Computer Information Systems	3
CISB 104	Introduction to DOS	1
CISB 107	DOS Management	1
CISB 119	Introduction to Windows Programming With Visual BASIC	4
CISB 130	Data Communications	3
CISB 200	Information Systems Technology and Problem Solving	3
CISB 235	Microcomputer Hardware Support	3
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3
MKTG 119	Marketing and Managing Your Professional Image	3
MKTG 120	Sales	3
MKTG 123	Computer Field Sales Internship	3
MKTG 200	Principles of Marketing	3
MKTG 221	Consumer Behavior	2
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS TOTAL: 11–12 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Computer Related (See Note 2) 3–4 Credits

CHOICE 3: Business Related 8 Credits

ACCG 210	Principles of Accounting I	4
BUSN 229	Public Relations	2
BUSN 295	Small Business Management	3
ECON 201	Principles of Economics—Micro	3
MGMT 225	Principles of Management	3

MGMT 239	Time and Stress Management	3
MKTG 130	Retailing	3
MKTG 140	Introduction to Advertising	3
MKTG 202	Managerial Marketing	3
MKTG 204	Marketing Research	3

MINIMUM TOTAL 60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Choose from CABS-prefix courses of 111 or above and/or CISB-prefix courses not already used to meet degree requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	CISB 107	CABS 110	CISB 235
CABS 195	CISB 119	CISB 130	MGMT 234
CISB 100	MKTG 119	CISB 200	MKTG 123
CISB 104	MKTG 200	MKTG 120	Lim.Ch.
WRIT 127	SPCH 110	MKTG 221	Lim.Ch.
Lim.Ch.		Lim.Ch.	

**FIELD SALES AND MARKETING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10190 (Effective Fall 1998–Summer 2003)

Sales/marketing specialists, or sales representatives, sell products to wholesalers, retailers, or consumers, usually on a commission basis. They call on customers, demonstrate products, point out salable features, answer questions, and forward orders. Some sales representatives sell services, rather than products. Graduates of this program are prepared to work in a variety of manufacturing, wholesaling, and retailing environments, as well as in the service sector of our economy. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210; telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 41 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CISB 200	Information Systems Technology and Problem Solving	3
LEGL 215	Business Law I, Basic Principles	3
MGMT 200	Creative Thinking for Business	3
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3
MKTG 100	Current Issues in Business	3
MKTG 119	Marketing and Managing Your Professional Image	3
MKTG 120	Sales	3
MKTG 122	Field Sales Internship	3
MKTG 200	Principles of Marketing	3
MKTG 202	Managerial Marketing	3
MKTG 221	Consumer Behavior	2
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 19 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Sales/Marketing Related (See Note 2) 19 Credits

ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
BUSN 201	International Business	3
BUSN 229	Public Relations	2
BUSN 295	Small Business Management	3
CABS 110	Microsoft Office	3
ECON 201	Principles of Economics—Micro	3
ECON 202	Principles of Economics—Macro	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 239	Time and Stress Management	3
MKTG 131	Merchandising	2

MKTG 140	Introduction to Advertising	3
MKTG 204	Marketing Research	3
MKTG 235	Marketing Internship	3

MINIMUM TOTAL

60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Students may also choose up to 4 credits of T.I.M.E. Series courses (MGMT 240 through MGMT 278).

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	MGMT 200	CISB 200	MKTG 122
MKTG 100	MGMT 234	LEGL 215	MKTG 202
SPCH 110	MKTG 119	MKTG 120	Lim.Ch.
WRIT 127	MKTG 200	MKTG 221	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**FIELD SALES AND MARKETING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10242 (Effective Fall 1998–Summer 2003)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

REQUIREMENTS

TOTAL: 24 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CABS 110	Microsoft Office	3
MKTG 119	Marketing and Managing Your Professional Image	3
MKTG 120	Sales	3
MKTG 122	Field Sales Internship	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 6 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Marketing Related (See Note 1) 6 Credits

MINIMUM TOTAL

30

NOTES

1. Choose any course with a MKTG prefix not already used to meet certificate requirements.

SUGGESTED COURSE SEQUENCE

I	II
BUSN 118	CABS 110
MKTG 119	MKTG 122
MKTG 120	MKTG 200
WRIT 127	SPCH 110
Lim.Ch.	Lim.Ch.

**MARKETING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10204 (Effective Fall 1998–Summer 2003)

Marketing is the set of activities that aims to satisfy the customer while making a profit. It is concerned with determining need and meeting demand by making goods and services known, available, and affordable. Entry-level personnel may require time in sales before internal promotion into marketing management positions. Graduates of this program are prepared to work in nearly every type of business and organization today. Traditional product marketing management is giving way to areas like nonprofit organization marketing, leading to a diverse job opportunity picture. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 493-1522.

REQUIREMENTS		TOTAL: 46 CREDITS
CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
BUSN 229	Public Relations	2
CABS 110	Microsoft Office	3
CISB 200	Information Systems Technology and Problem Solving	3
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3
MKTG 100	Current Issues in Business	3
MKTG 119	Marketing and Managing Your Professional Image	3
MKTG 120	Sales	3
MKTG 130	Retailing	3
MKTG 140	Introduction to Advertising	3
MKTG 200	Principles of Marketing	3
MKTG 202	Managerial Marketing	3
MKTG 204	Marketing Research	3
MKTG 221	Consumer Behavior	2
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS TOTAL: 14 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits
(See the *GENERAL EDUCATION* section above)

- Writing Core Area 0
- Speech Communication Core Area 0
- Science/Technology Core Area 0
- Global Perspectives and Diversity Core Area 0

CHOICE 2: Field Experience 3 Credits

- MKTG 122 Field Sales Internship 3
- MKTG 235 Marketing Internship 3

CHOICE 3: Marketing Related (See Note 2) 11 Credits

- ACCG 210 Principles of Accounting I 4
- BUSN 201 International Business 3
- BUSN 254 Introduction to Investments 2
- BUSN 295 Small Business Management 3
- ECON 201 Principles of Economics—Micro 3

ECON 202	Principles of Economics—Macro	3
LEGL 215	Business Law I. Basic Principles	3
MGMT 200	Creative Thinking for Business	3
MGMT 223	Supervision	3
MGMT 225	Principles of Management	3
MGMT 231	Team Development	3
MKTG 131	Merchandising	2
MKTG 231	Independent Study in Marketing	1
MKTG 232	Independent Study in Marketing	2
MKTG 233	Independent Study in Marketing	3

MINIMUM TOTAL 60

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
- Students may also choose up to 4 credits of T.I.M.E. Series courses (MGMT 240 through MGMT 278).

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	MGMT 234	BUSN 229	CISB 200
CABS 110	MKTG 119	MKTG 120	MKTG 130
MKTG 100	MKTG 200	MKTG 140	MKTG 202
WRIT 127	SPCH 110	MKTG 204	Lim.Ch.
Lim.Ch.	Lim.Ch.	MKTG 221	Lim.Ch.
		Lim.Ch.	

**MARKETING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10225 (Effective Fall 1998–Summer 2003)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

REQUIREMENTS		TOTAL: 24 CREDITS
CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
MKTG 119	Marketing and Managing Your Professional Image	3
MKTG 120	Sales	3
MKTG 130	Retailing	3
MKTG 200	Principles of Marketing	3
MKTG 202	Managerial Marketing	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS TOTAL: 6 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Marketing Related (See Note 1) 6 Credits
MINIMUM TOTAL 30

NOTES

- Choose any course with a MKTG prefix not already used to meet certificate requirements.

SUGGESTED COURSE SEQUENCE

I	II
BUSN 118	MKTG 120
MKTG 119	MKTG 130
MKTG 200	MKTG 202
WRIT 127	SPCH 110
Lim.Ch.	Lim.Ch.

**MEDIA TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10184 (Effective Fall 1998–Summer 2003)

Media Technology is an integrated program that prepares students for professional careers in audio, radio and television/video. Audio professionals work in audio production, audio post-production for video and sound reinforcement positions, as well as in a variety of audio-related jobs. Radio professionals work in radio production, programming, promotion, on-air/news/sports announcing, and station operations. Television/video professionals work in producing, directing, technical operations, videography, and videotape editing in broadcast and non-broadcast settings. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Media Technology Program, Academic and Office Facility, Room 102, telephone number (517) 483-1670.

REQUIREMENTS		TOTAL: 35 CREDITS
CODE	TITLE	CREDIT HOURS
CISB 100	Introduction to Computer Information Systems (See Note 1)	3
MTEC 110	An Introduction to the Broadcast and Electronic Media	4
MTEC 120	Audio Production I	4
MTEC 130	Radio Production I	4
MTEC 150	TV Production I	4
MTEC 240	Script and Copywriting for the Media	3
MTEC 243	The Ethics and Social Impact of the Media	3
MTEC 296	Media Internship (See Note 2)	3
SPCH 120	Dynamics of Communication	3
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS TOTAL: 27–30 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 6 Credits
(See the GENERAL EDUCATION section above)

Writing Core Area (See Note 3)	0
Speech Communication Core Area (See Note 3)	0
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Media Specialty (Choose one Subchoice) 17–20 Credits

Subchoice 2A: Audio

MTEC 121	Audio Recording I	4
MTEC 122	Sound Reinforcement	4
MTEC 220	Audio Production II	4
MTEC 221	Audio Recording II	4
MTEC 223	Sound Reinforcement Practicum	2

Subchoice 2B: Radio

MTEC 230	Radio Production II	4
MTEC 231	Radio Programming and Promotions	3
MTEC 232	Radio Workshop (See Note 4)	2
MTEC 241	Radio News Reporting	3
MTEC 242	Radio Sales and Marketing	3

Subchoice 2C: Video/Television

MTEC 151	Electronic Field Production I	4
MTEC 250	Television Studio Production	4
MTEC 251	Electronic Field Production II	4
MTEC 252	Lighting for Television and Video	3
MTEC 254	Electronic Presentational Graphics	3
MTEC 255	Video Workshop (See Note 5)	2

Subchoice 2D: General Media Occupations (See Note 6)

CHOICE 3: Media-Related (See Note 7) 4 Credits

MINIMUM TOTAL 62

NOTES

1. Students having demonstrated computer proficiency should consult their program advisor for alternatives to CISB 100.
2. Enrollment in MTEC 296 will be limited to Media Technology majors who have successfully completed 75 percent of their MTEC course work.
3. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
4. MTEC 232 must be taken two times for a total of 4 credits. A Media Technology major may not apply more than four credits in MTEC 232 toward this degree.
5. A Media Technology major may not apply more than four credits in MTEC 255 toward this degree.
6. Credits must be taken from Subchoices 2A, 2B, 2C, and/or departmentally approved MTEC electives or other departmentally approved electives. Students following Subchoice 2D must consult with a Media Technology Program Advisor regarding course selection.
7. Students must select courses with the approval of a Media Program advisor. This Choice allows students to select from additional Media courses (MTEC prefix) or from other courses that will augment their Media training.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
MTEC 110	MTEC 240	CISB 100	MTEC 296
MTEC 120	WRIT 121	MTEC 243	SPCH 120
MTEC 130	Lim.Ch.	Lim.Ch.	Lim.Ch.
MTEC 150	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.	Lim.Ch.	Lim.Ch.

ADMINISTRATIVE ASSISTANT ASSOCIATE IN BUSINESS DEGREE

Curriculum Code: 10114 (Effective Fall 1998-Summer 2003)

The administrative assistant is generally responsible for coordinating and expediting office functions under the direction of the business executive. Specific duties may include activities related to communications, personnel, budget, records control, and computers. The administrative assistant is characterized by varied skills and flexibility and frequently develops a close and confidential relationship with the executive. The administrative assistant becomes the primary information source for the chief administrator and is consulted on a regular basis on matters of policy and procedure for the institutions human, physical and monetary resources. Sample job titles include office manager, administrative secretary and administrative assistant.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 48 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 100	Practical Accounting for Non-Majors	3
CISB 200	Information Systems Technology and Problem Solving	3
LEGL 215	Business Law I, Basic Principles	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 195	Human Behavior in the Work Place	3
OADM 200	Critical Thinking	3
OADM 203	Professional Office Procedures	1
OADM 215	Records and Information Management I	3
OADM 216	Records and Information Management II	4
OADM 220	Administrative Office Management	4
OADM 240	Office Internship	3
OADM 275	Cultural Differences in Business	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 114	Business English	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 13 CREDITS**
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 1)	0 Credits
(See the GENERAL EDUCATION section above)	
Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Word Processing (Choose 1 Subchoice)	8 Credits
Subchoice 2A: WordPerfect	
CABS 105 WordPerfect for the Office/Intermediate Keyboarding	4
CABS 112 Advanced WordPerfect for the Office	4
Subchoice 2B: Microsoft Word	
CABS 113 Microsoft Word for the Office/Intermediate Keyboarding	4
CABS 118 Advanced Microsoft Word for the Office	4

CHOICE 3: Spreadsheet	2 Credits
CABS 126 Excel	2
CABS 128 Lotus 123 for Windows	2
CHOICE 4: Management	3 Credits
BUSN 118 Introduction to Business	3
MGMT 223 Supervision	3
MGMT 225 Principles of Management	3
MINIMUM TOTAL	61

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 100	LEGL 215	CISB 200	OADM 203
OADM 195	OADM 102	MATH 117	OADM 216
OADM 215	SPCH 110	OADM 200	OADM 220
WRIT 114	WRIT 127	OADM 275	OADM 240
Lim.Ch.2	Lim.Ch.2	Lim.Ch.3	Lim.Ch.4

**EXECUTIVE SECRETARY
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10104 (Effective Fall 1998–Summer 2003)

An executive secretary coordinates the office functions of a particular executive's office within an organization. This person organizes tasks such as data entry, correspondence, client contact, and other operations; develops office procedures; and prepares reports of office activities. Graduates of this program are prepared to work in a variety of businesses and organizations in both the private and public sectors.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS TOTAL: 48 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 100	Practical Accounting for Non-Majors	3
CISB 200	Information Systems Technology and Problem Solving	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 110	Machine Transcription	3
OADM 114	College Speedwriting	4
OADM 195	Human Behavior in the Work Place	3
OADM 200	Critical Thinking	3
OADM 203	Professional Office Procedures	1
OADM 215	Records and Information Management I	3
OADM 220	Administrative Office Management	4
OADM 240	Office Internship	3
OADM 275	Cultural Differences in Business	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 114	Business English	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS TOTAL: 10 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits
(See the GENERAL EDUCATION section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Word Processing (Choose 1 Subchoice) 8 Credits

Subchoice 2A: WordPerfect

CABS 105	WordPerfect for the Office/Intermediate Keyboarding	4
CABS 112	Advanced WordPerfect for the Office	4

Subchoice 2B: Microsoft Word

CABS 113	Microsoft Word for the Office/Intermediate Keyboarding	4
CABS 118	Advanced Microsoft Word for the Office	4

CHOICE 3: Spreadsheet	2 Credits
CABS 126	Excel 2
CABS 128	Lotus 123 for Windows 2

ELECTIVES TOTAL: 4 CREDITS

Complete the indicated number of credits in courses of your choice.

MINIMUM TOTAL 62

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 100	OADM 110	CISB 200	MATH 117
OADM 195	OADM 114	OADM 200	OADM 102
OADM 215	OADM 203	OADM 275	OADM 220
WRIT 114	WRIT 127	Lim.Ch.3	OADM 240
Lim.Ch.2	Lim.Ch.2	Elac.	SPCH 110

**INFORMATION/WORD PROCESSING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10106 (Effective Fall 1998–Summer 2003)

Word processors operate computers and/or terminals to enter, store, revise, and reproduce business documents and to help facilitate the flow of related office work. Information may be submitted as typed copy, handwritten copy, or a recording. When personal computers are used, information may be received electronically via a wide- or local-area network.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS TOTAL: 48 CREDITS

CODE	TITLE	CREDIT HOURS
CABS 133	Microsoft Access Database	2
CABS 182	Microsoft Powerpoint/Windows	2
CABS 195	Microsoft Windows	2
CISB 102	Introduction to the Internet in Business	2
CISB 200	Information Systems Technology and Problem Solving	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 110	Machine Transcription	3
OADM 195	Human Behavior in the Work Place	3
OADM 200	Critical Thinking	3
OADM 215	Records and Information Management I	3
OADM 220	Administrative Office Management	4
OADM 240	Office Internship	3
OADM 275	Cultural Differences in Business	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 114	Business English	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS TOTAL: 10 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1)	0 Credits
(See the <i>GENERAL EDUCATION</i> section above)	
Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0
CHOICE 2: Word Processing (Choose 1 Subchoice)	8 Credits
Subchoice 2A: WordPerfect	
CABS 105 WordPerfect for the Office/Intermediate Keyboarding	4
CABS 112 Advanced WordPerfect for the Office	4
Subchoice 2B: Microsoft Word	
CABS 113 Microsoft Word for the Office/Intermediate Keyboarding	4
CABS 118 Advanced Microsoft Word for the Office	4
CHOICE 3: Spreadsheet	2 Credits
CABS 126 Excel	2
CABS 128 Lotus 123 for Windows	2

ELECTIVES

TOTAL: 3 CREDITS

Complete the indicated number of credits in courses of your choice.

MINIMUM TOTAL

61

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CABS 195	CISB 200	CABS 133	CABS 182
OADM 195	OADM 102	OADM 110	CISB 102
OADM 215	WRIT 127	OADM 200	MATH 117
WRIT 114	Lim.Ch.2	OADM 275	OADM 220
Lim.Ch.2	Lim.Ch.3	SPCH 110	OADM 240
			Elec.

**INFORMATION/WORD PROCESSING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10149 (Effective Fall 1998--Summer 2003)

Certificate holders may qualify for entry-level/hands-on positions in this or a related area. Additional training will enhance an individual's employment and advancement opportunities.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS
CABS 133	Microsoft Access Database	2
CABS 182	Microsoft Powerpoint/Windows	2
CABS 195	Microsoft Windows	2
CISB 102	Introduction to the Internet in Business	2
OADM 102	Editing Business Documents	2
OADM 110	Machine Transcription	3
OADM 215	Records and Information Management I	3
WRIT 114	Business English	3

TOTAL: 19 CREDITS

LIMITED CHOICE REQUIREMENTS

TOTAL: 10 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Word Processing (Choose 1 Subchoice) 8 Credits

Subchoice 1A: WordPerfect

CABS 105	WordPerfect for the Office/Intermediate Keyboarding	4
CABS 112	Advanced WordPerfect for the Office	4

Subchoice 1B: Microsoft Word

CABS 113	Microsoft Word for the Office/Intermediate Keyboarding	4
CABS 118	Advanced Microsoft Word for the Office	4

CHOICE 2: Spreadsheet 2 Credits

CABS 126	Excel	2
CABS 128	Lotus 123 for Windows	2

ELECTIVES

TOTAL: 1 CREDIT

Complete the indicated number of credits in courses of your choice.

MINIMUM TOTAL 30

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CABS 182	CABS 133
OADM 215	CABS 195
WRIT 114	CISB 102
Lim.Ch.1	OADM 102
Lim.Ch.2	OADM 110
Elec.	Lim.Ch.1

**AUTOMATED OFFICE SPECIALIST
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10164 (Effective Fall 1998--Summer 2003)

This program is designed for the individual who may have previous secretarial or office education and experience, and who desires to update training and skills for the new automated office environment. Special emphasis is given to computer usage for word processing and other applications that will provide information for the decision-making process within an administrative office position. Writing skills are also developed to improve communication.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS
CABS 133	Microsoft Access Database	2
CABS 182	Microsoft PowerPoint/Windows	2
CABS 195	Microsoft Windows	2
CISB 102	Introduction to the Internet in Business	2
CISB 200	Information Systems Technology and Problem Solving	3
OADM 102	Editing Business Documents	2
OADM 110	Machine Transcription	3
WRIT 114	Business English	3

TOTAL: 19 CREDITS

LIMITED CHOICE REQUIREMENTS

TOTAL: 10 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Word Processing (Choose 1 Subchoice) 8 Credits

Subchoice 1A: WordPerfect

CABS 105	WordPerfect for the Office/Intermediate Keyboarding	4
CABS 112	Advanced WordPerfect for the Office	4

Subchoice 1B: Microsoft Word

CABS 113	Microsoft Word for the Office/Intermediate Keyboarding	4
CABS 118	Advanced Microsoft Word for the Office	4

CHOICE 2: Spreadsheet 2 Credits

CABS 126	Excel	2
CABS 128	Lotus 123 for Windows	2

ELECTIVES

TOTAL: 2 CREDITS

Complete the indicated number of credits in courses of your choice.

MINIMUM TOTAL 31

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CABS 182	CABS 133
CABS 195	CISB 102
CISB 200	OADM 102
WRIT 114	OADM 110
Lim.Ch.1	Lim.Ch.1
Lim.Ch.2	Elec.

**LEGAL SECRETARY
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10207 (Effective Fall 1998–Summer 2003)

Legal secretaries are part of a law office team and report to one or more attorneys. Legal secretaries take dictation and are skilled in the use of computers and transcription equipment. They prepare legal papers and correspondence of a legal nature, such as summonses, complaints, motions, and subpoenas. Graduates of this program are prepared to work in law offices, courts, public agencies, and in legal departments of larger businesses and organizations.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS TOTAL: 54 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 100	Practical Accounting for Non-Majors	3
CISB 200	Information Systems Technology and Problem Solving	3
LEGL 215	Business Law I, Basic Principles	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 110	Machine Transcription	3
OADM 114	College Speedwriting	4
OADM 195	Human Behavior in the Work Place	3
OADM 200	Critical Thinking	3
OADM 203	Professional Office Procedures	1
OADM 206	Legal Vocabulary and Forms Preparation	3
OADM 215	Records and Information Management I	3
OADM 220	Administrative Office Management	4
OADM 240	Office Internship	3
OADM 275	Cultural Differences in Business	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 114	Business English	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS TOTAL: 8 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Word Processing (Choose 1 Subchoice) 8 Credits

Subchoice 2A: WordPerfect

CABS 105	WordPerfect for the Office/Intermediate Keyboarding	4
CABS 112	Advanced WordPerfect for the Office	4

Subchoice 2B: Microsoft Word

CABS 113	Microsoft Word for the Office/Intermediate Keyboarding	4
CABS 118	Advanced Microsoft Word for the Office	4

MINIMUM TOTAL 62

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 100	CISB 200	OADM 114	MATH 117
OADM 195	LEGL 215	OADM 200	OADM 203
OADM 206	OADM 102	OADM 215	OADM 220
WRIT 114	OADM 110	OADM 275	OADM 240
Lim.Ch.2	Lim.Ch.2	WRIT 127	SPCH 110

MEDICAL ADMINISTRATIVE ASSISTANT ASSOCIATE IN BUSINESS DEGREE

Curriculum Code: 10185 (Effective Fall 1998–Summer 2003)

Medical administrative assistants may transcribe dictation, prepare correspondence, and assist physicians or medical scientists with reports, speeches, articles, and conference proceedings. They may take patient case histories, arrange for patients to be hospitalized, order supplies, prepare and send bills to patients, record appointments, and prepare medical charts and reports along with regular secretarial tasks. Graduates of this program may work in hospitals, HMOs, private practices, insurance companies, public health departments, and other health care settings.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 54 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 100	Practical Accounting for Non-Majors	3
ANAT 145	Introductory Anatomy and Physiology	4
CHSE 111	Medical Insurance Billing I	3
CHSE 112	Medical Insurance Billing II	3
CISB 200	Information Systems Technology and Problem Solving	3
HUMS 265	Seminar: Ethical Issues in Medicine	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 197	Medical Vocabulary	3
OADM 198	Medical Record Management	3
OADM 207	Medical Transcription	3
OADM 220	Administrative Office Management	4
OADM 222	Advanced Medical Transcription	4
OADM 275	Cultural Differences in Business	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 114	Business English	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 8 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Word Processing (Choose 1 Subchoice) 8 Credits

Subchoice 2A: WordPerfect

CABS 105	WordPerfect for the Office/Intermediate Keyboarding	4
CABS 112	Advanced WordPerfect for the Office	4

Subchoice 2B: Microsoft Word

CABS 113	Microsoft Word for the Office/Intermediate Keyboarding	4
CABS 118	Advanced Microsoft Word for the Office	4

MINIMUM TOTAL 62

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 100	CISB 200	CHSE 111	CHSE 112
ANAT 145	OADM 198	HUMS 265	MATH 117
OADM 197	OADM 220	OADM 207	OADM 102
OADM 275	WRIT 114	WRIT 127	OADM 222
Lim.Ch.	Lim.Ch.		SPCH 110

**MEDICAL TRANSCRIPTIONIST
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10756 (Effective Fall 1998–Summer 2003)

Medical transcriptionists listen to doctors' audio recordings and use word processors to transcribe what they hear into the proper printed format. Transcriptionists must be medical language specialists and be familiar with patient assessment, therapeutic procedures, diagnoses, and prognoses. In addition to transcribing letters, reports, and the like, they may have other clerical duties.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 45 CREDITS

CODE	TITLE	CREDIT HOURS
ANAT 151	Anatomy and Physiology I	3
ANAT 152	Anatomy and Physiology II	3
CISB 200	Information Systems Technology and Problem Solving	3
HUMS 265	Seminar: Ethical Issues in Medicine	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 197	Medical Vocabulary	3
OADM 198	Medical Record Management	3
OADM 201	General Pharmacology for Business	2
OADM 207	Medical Transcription	3
OADM 222	Advanced Medical Transcription	4
OADM 275	Cultural Differences in Business	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 114	Business English	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 11 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1) **0 Credits**
(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Word Processing (Choose 1 Subchoice) **8 Credits**

Subchoice 2A: WordPerfect

CABS 105	WordPerfect for the Office/Intermediate Keyboarding	4
CABS 112	Advanced WordPerfect for the Office	4

Subchoice 2B: Microsoft Word

CABS 113	Microsoft Word for the Office/Intermediate Keyboarding	4
CABS 118	Advanced Microsoft Word for the Office	4

CHOICE 3: Medical Transcriptionist Related **3 Credits**

CHSE 111	Medical Insurance Billing I	3
OADM 240	Office Internship	3

ELECTIVES

TOTAL: 4 CREDITS

Complete the indicated number of credits in courses of your choice.

MINIMUM TOTAL

60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ANAT 151	ANAT 152	OADM 207	HUMS 265
CISB 200	OADM 102	OADM 275	MATH 117
OADM 197	OADM 198	WRIT 127	OADM 222
WRIT 114	OADM 201	Lim.Ch.3	SPCH 110
Lim.Ch.2	Lim.Ch.2	Elec.	

**OFFICE SKILLS TRAINING
CERTIFICATE OF COMPLETION**

Curriculum Code: 10789 (Effective Fall 1998--Summer 2003)

Students completing this program are prepared for entry-level positions in an office. Training is focused on basic computer skills, editing documents, filing records, and general office procedures. Additional training will enhance an individual's employment and advancement opportunities.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 11 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 133	Microsoft Access Database	2
OADM 102	Editing Business Documents	2
OADM 203	Professional Office Procedures	1
OADM 215	Records and Information Management I	3
WRIT 114	Business English	3

LIMITED CHOICE REQUIREMENTS TOTAL: 4 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	Word Processing	4 Credits
CABS 105	WordPerfect for the Office/Intermediate Keyboarding	4
CABS 113	Microsoft Word for the Office/Intermediate Keyboarding	4

MINIMUM TOTAL 15

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

- CABS 133
- OADM 102
- OADM 203
- OADM 215
- WRIT 114
- Lim.Ch.1
- Lim.Ch.2

**OFFICE SUPPORT
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10172 (Effective Fall 1998--Summer 2003)

An office support specialist is assigned various clerical duties in accordance with the office procedures of individual organizations and work units. Duties may include a combination of office machine operation, data entry, data retrieval, communication, and dealing with clients. Graduates of this program are prepared to work in a variety of businesses and organizations in a support capacity.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 28 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 100	Practical Accounting for Non-Majors	3
CABS 133	Microsoft Access Database	2
CABS 182	Microsoft Powerpoint/Windows	2
OADM 102	Editing Business Documents	2
OADM 195	Human Behavior in the Work Place	3
OADM 200	Critical Thinking	3
OADM 203	Professional Office Procedures	1
OADM 215	Records and Information Management I	3
OADM 240	Office Internship	3
WRIT 114	Business English	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS TOTAL: 4 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	Word Processing	4 Credits
CABS 105	WordPerfect for the Office/Intermediate Keyboarding	4
CABS 113	Microsoft Word for the Office/Intermediate Keyboarding	4

MINIMUM TOTAL 32

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
ACCG 100	CABS 133
CABS 182	OADM 102
OADM 195	OADM 200
OADM 203	OADM 215
WRIT 114	OADM 240
Lim.Ch.1	WRIT 127

**RECORDS MANAGEMENT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10195 (Effective Fall 1998--Summer 2003)

Records and information management specialists account for and control all of an organization's information records. They record, store, and retrieve information and data such as correspondence, invoices, receipts, and other database files using various manual and computerized data storage, retrieval, and filing systems. Graduates of this program are prepared to work in both government and business sectors.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS **TOTAL: 51 CREDITS**

CODE	TITLE	CREDIT HOURS
ACCG 100	Practical Accounting for Non-Majors	3
CABS 133	Microsoft Access Database	2
CABS 182	Microsoft Powerpoint/Windows	2
CISB 200	Information Systems Technology and Problem Solving	3
LEGL 215	Business Law I, Basic Principles	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 195	Human Behavior in the Work Place	3
OADM 200	Critical Thinking	3
OADM 215	Records and Information Management I	3
OADM 216	Records and Information Management II	4
OADM 220	Administrative Office Management	4
OADM 240	Office Internship	3
OADM 275	Cultural Differences in Business	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 114	Business English	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 6 CREDITS**

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 1)	0 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0
CHOICE 2: Word Processing 4 Credits	
CABS 105 WordPerfect for the Office/Intermediate Keyboarding	4
CABS 113 Microsoft Word for the Office/Intermediate Keyboarding	4
CHOICE 3: Spreadsheet 2 Credits	
CABS 126 Excel	2
CABS 128 Lotus 123 for Windows	2

ELECTIVES **TOTAL: 3 CREDITS**

Complete the indicated number of credits in courses of your choice.

MINIMUM TOTAL **60**

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 100	CABS 133	LEGL 215	CABS 182
OADM 195	OADM 102	OADM 200	CISB 200
OADM 215	OADM 216	OADM 275	MATH 117
WRIT 114	OADM 220	WRIT 127	OADM 240
Lim.Ch.2	Lim.Ch.3	Elec.	SPCH 110

DANCE TRANSFER AND DANCE CAREER ASSOCIATE IN APPLIED ARTS DEGREE

Curriculum Code: 10118 (Effective Fall 1998–Summer 2003)

This degree program provides solid technique and performance training for both the transfer and the career student. Because public performance is a critical element of a dancer's training, the program provides a wide variety of performance opportunities for its students including fully produced formal concerts, video dance production, lecture demonstrations, and informal performances. The Dance Career option prepares students to work in such jobs as performer, teacher, and dance studio owner. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Humanities and Performing Arts Department, Arts and Sciences Building, Room 225, telephone number (517) 483-1018.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS
DANC 123	Choreography	3
DANC 124	Dance improvisation	2
DANC 191	Dance History	3
DANC 193	Dance Anatomy	3
HUMS 120	Western Art and Music History	4
ISCI 121	Integrated Science for Education I	4
MJUSC 199	Music Appreciation	2
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	3
THEA 110	Introduction to Theatre	3
WRIT 121	Composition I	4

TOTAL: 35 CREDITS

LIMITED CHOICE REQUIREMENTS (See Notes 1 and 2) TOTAL: 34–34.5 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 3) 0 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Career or Transfer (Choose 1 Subchoice) 34–34.5 Credits

Subchoice 2A: Career Requirements 34.5 Credits

Ballet Technique Classes (See Note 4)	10
Modern Technique Classes (See Note 5)	10
Related Professional Technique Classes (See Note 6)	10
Repertory/Performance Classes (See Notes 7 and 8)	4.5

Subchoice 2B: Transfer Requirements 34 Credits

Ballet Technique Classes (See Note 4)	8
Modern Technique Classes (See Note 5)	8
Related Professional Technique Classes (See Note 6)	6
Repertory/Performance Classes (See Notes 7 and 8)	4
English Composition (See Note 9)	4
Social Science (See Note 9)	4

MINIMUM TOTAL 69

NOTES

- Specific dance technique courses must be selected with the guidance of a dance program advisor. Technique courses can be repeated for credit until proficiency is achieved.
- Those students who plan on attending a school in Michigan should include an additional four-credit course in: 1) Science or Mathematics and 2) Social Science to complete all general education requirements.
- Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
- Choose from DANC courses numbered 101, 111, 201, 211, or 244.
- Choose from DANC courses numbered 102, 112, 202, or 212.
- Choose from DANC courses numbered 103, 104, 113, 114, 132, 134, 203, or 204.
- Repertory/Performance courses may be repeated for credit. Video Dance Repertory may be repeated a maximum of two (2) times for credit.
- Choose from DANC courses numbered 161 through 165.
- See the MACRAO Transfer Agreement in the *Transfer Information* section of this catalog for appropriate English Composition and Social Science courses.
- Student must pass jury proficiency exam prior to graduation. For information regarding the jury, please contact Dance Lead Faculty at 483-1018.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
DANC 124	HUMS 120	DANC 123	ISCI 121
DANC 193	MJUSC 199	DANC 191	Lim. Ch.
THEA 110	SOCL 120	SPCH 120	
WRIT 121	Lim. Ch.	Lim. Ch.	
Lim. Ch.			

**MUSIC COMMERCIAL PERFORMANCE
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10274 (Effective Fall 1998—Summer 1999)

The Music Commercial Performance Program has been designed to focus on today's music in pop and jazz idioms. It is a first step toward a professional career in commercial music, such as studio engineer, band manager or performer. In addition to academic music classes, the curriculum includes training in a private instrument, performances with fine ensembles, and introduction to computers and music. Emphasis is placed on integrating skills acquisition with performance opportunities. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

The admission requirements for this program may change each academic year. For the most recent application information, contact the Humanities and Performing Arts Department, Arts and Sciences Building, Room 255, telephone number (517) 483-1018 or the LCC Admissions Office, Room 232, Gannon Vocational-Technical Center, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE MUSIC COMMERCIAL PERFORMANCE PROGRAM

Curriculum Code: 10272

In order to be considered as a candidate for this program, students must complete the following requirements:

- a. Submit high school transcript or GED and all college transcripts.
- b. Interview with Performing Arts advisor to discuss curriculum requirements. Repertoire requirements for the audition pertaining to their specific instrument will be described in detail.
- c. Audition. The actual audition day will consist of a live performance on instrument or voice in front of a faculty panel. A theory test covering written and aural theory will also be administered on the audition day. Names of students passing this phase of the Selective Admissions will be forwarded to the Admissions Office for processing.

MUSIC COMMERCIAL PERFORMANCE PROGRAM REQUIREMENTS

Curriculum Code: 10274

REQUIREMENTS		TOTAL: 55 CREDITS
CODE	TITLE	CREDIT HOURS
HUMS 213	World Civilizations I	4
ISCI 121	Integrated Science for Education I	4
MTEC 120	Audio Production I	4
MTEC 121	Audio Recording I	4
MTEC 220	Audio Production II	4
MUSC 138	Class Piano Major I	2
MUSC 155	Class Voice Commercial I	2
MUSC 156	Class Voice Commercial II	2
MUSC 173	Basic Musicianship I	4
MUSC 174	Basic Musicianship II	4
MUSC 244	Studio Production Commercial	2
MUSC 253	Business of Music	3
MUSC 254	Band Management	2

MUSC 276	Lyric Writing	2
MUSC 280	Private Songwriting	1
MUSC 297	Synthesizers and Computer Music	2
SPCH 120	Dynamics of Communication	3
THEA 120	Introduction to Acting	2
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS TOTAL: 17-18 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits
(See the GENERAL EDUCATION section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: History 4 Credits

MUSC 245	Jazz History	2
MUSC 248	Rock History I—Blues to the British Invasion	2
MUSC 249	Rock History II—From 1963 to Present	2
MUSC 251	Blues History	2

CHOICE 3: Piano or Guitar Class 1-2 Credits

MUSC 139	Class Piano Major II	2
MUSC 270	Rock Guitar I	1

CHOICE 4: Private Lessons Commercial (See Note 2) 8 Credits

MUSC 157	Applied Lesson I	2
MUSC 158	Applied Lesson II	2
MUSC 257	Applied Lesson III	2
MUSC 258	Applied Lesson IV	2

CHOICE 5: Ensembles and Voice (Choose 1 Subchoice) 4 Credits

Subchoice 5A: Voice Requirements (See Note 2)

MUSC 108	Concert Choir	1
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Subchoice 5B: Instrumental Requirements (See Note 2)

MUSC 119	Lansing Concert Band	1
MUSC 121	Percussion Ensemble	1
MUSC 123	Jazz Ensemble	1

MINIMUM TOTAL 72

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Courses may be repeated and must be taken each semester student is enrolled as a major for a total of four credits.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
MTEC 120	MTEC 121	HUMS 213	ISCI 121
MUSC 138	MUSC 156	MUSC 244	MTEC 220
MUSC 155	MUSC 174	MUSC 253	MUSC 254
MUSC 173	MUSC 297	MUSC 276	MUSC 280
WRIT 121	Lim. Ch. 2	THEA 120	SPCH 120
Lim. Ch. 4	Lim. Ch. 3	Lim. Ch. 2	Lim. Ch. 4
Lim. Ch. 5	Lim. Ch. 4	Lim. Ch. 4	Lim. Ch. 5
	Lim. Ch. 5	Lim. Ch. 5	

**MUSIC MANAGEMENT
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10861 (Effective Fall 1998—Summer 1999)

The Music Management Program has been designed to focus on today's music industry. It is a first step toward a business career in the music industry: such as, studio engineer, band manager, or music retailing. In addition to academic music classes, the curriculum includes training in a private instrument, performances with fine ensembles, an introduction to computers and music, and business and management courses. Emphasis is placed on integrating musicianship and business skills. Not all courses in this program transfer to all colleges. Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission requirements for this program may change each academic year. For the most recent application information, contact the Humanities and Performing Arts Department, Arts and Sciences Building, Room 255, telephone number (517) 483-1018 or the LCC Admissions Office, Room 232, Gannon Vocational-Technical Center, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE MUSIC MANAGEMENT PROGRAM

Curriculum Code: 10862

In order to be considered as a candidate for this program, students must complete the following requirements:

- Submit high school transcript or GED and all college transcripts.
- Interview with Performing Arts advisor to discuss curriculum requirements. Repertoire requirements for the audition pertaining to their specific instrument will be described in detail.
- Audition. The actual audition day will consist of a live performance on instrument or voice in front of a faculty panel. A theory test covering written and aural theory will also be administered on the audition day. Names of students passing this phase of the Selective Admissions will be forwarded to the Admissions Office for processing.

MUSIC MANAGEMENT PROGRAM REQUIREMENTS

Curriculum Code: 10861

REQUIREMENTS		TOTAL: 52 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
BUSN 118	Introduction to Business	3
MATH 112	Intermediate Algebra	4
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3
MTEC 120	Audio Production I	4
MTEC 121	Audio Recording I	4
MUSC 173	Basic Musicianship I	4
MUSC 174	Basic Musicianship II	4
MUSC 240	World Music History I	4
MUSC 241	World Music History II	4
MUSC 253	Business of Music	3
MUSC 254	Band Management	2
MUSC 297	Synthesizers and Computer Music	2
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 18-19 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	General Education Core Areas	6-7 Credits
	Writing Core Area (See Note 1)	0
	Speech Communication Core Area	3
	Science/Technology Core Area	3-4
	Global Perspectives and Diversity Core Area (See Note 1)	0

CHOICE 2:	Private Lessons Commercial (See Note 2)	8 Credits
MUSC 157	Applied Lesson I	2
MUSC 158	Applied Lesson II	2
MUSC 257	Applied Lesson III	2
MUSC 258	Applied Lesson IV	2

CHOICE 3:	Ensembles and Voice (Choose 1 Subchoice)	4 Credits
Subchoice 3A: Vocal Requirements (See Note 2)		
MUSC 101	Lanswingers Vocal Ensemble	1
MUSC 102	Women's Chorus	1
MUSC 103	Men's Ensemble	1
MUSC 108	Concert Choir	1

Subchoice 3B: Instrumental Requirements (See Note 2)		
MUSC 119	Lansing Concert Band	1
MUSC 123	Jazz Ensemble	1
MUSC 121	Percussion Ensemble	1

MINIMUM TOTAL 70

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Courses may be repeated and must be taken each semester student is enrolled as a major for the credit total indicated for this CHOICE.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	MUSC 174	ACCG 210	ACCG 211
MATH 112	MUSC 253	MGMT 234	MTEC 121
MUSC 173	Lim. Ch. 1	MTEC 120	MUSC 241
WRIT 127	Lim. Ch. 1	MUSC 240	MUSC 254
Lim. Ch. 2	Lim. Ch. 2	Lim. Ch. 2	MUSC 297
Lim. Ch. 3	Lim. Ch. 3	Lim. Ch. 3	Lim. Ch. 2
			Lim. Ch. 3

**MUSIC TRANSFER
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10270 (Effective Fall 1998—Summer 1999)

The Music Transfer Program enables students to transfer to a four-year institution after completing studies in music theory, piano and applied lessons. In addition to academic music classes, the curriculum includes training in a private instrument, performances with fine ensembles, and introduction to computers and music. Emphasis is placed on integrating skills acquisition with performing opportunities. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

The admission requirements for this program may change each academic year. For the most recent application information, contact the Humanities and Performing Arts Department, Arts and Sciences Building, Room 255, telephone number (517) 483-1018 or the LCC Admissions Office, Room 232, Gannon Vocational-Technical Center, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE MUSIC TRANSFER PROGRAM

Curriculum Code: 10271

In order to be considered as a candidate for this program, students must complete the following requirements:

- a. Submit high school transcript or GED and all college transcripts.
- b. Interview with Performing Arts advisor to discuss curriculum requirements. Repertoire requirements for the audition pertaining to their specific instrument will be described in detail.
- c. Audition. The actual audition day will consist of a live performance on instrument or voice in front of a faculty panel. A theory test covering written and aural theory will also be administered on the audition day. Names of students passing this phase of the Selective Admissions will be forwarded to the Admissions Office for processing.

MUSIC TRANSFER PROGRAM REQUIREMENTS

Curriculum Code: 10270

REQUIREMENTS		TOTAL: 55 CREDITS
CODE	TITLE	CREDIT HOURS
ENGL 122	Writing about Literature and Ideas	4
HUMS 213	World Civilizations I	4
HUMS 214	World Civilizations II	4
ISCI 121	Integrated Science for Education I	4
ISCI 122	Integrated Science for Education II	4
MUSC 138	Class Piano Major I	2
MUSC 139	Class Piano Major II	2
MUSC 173	Basic Musicianship I	4
MUSC 174	Basic Musicianship II	4
MUSC 273	Advanced Musicianship I	4
MUSC 274	Advanced Musicianship II	4
POLS 120	American Political System	4
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	3
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 12-14 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 1)	0 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0
CHOICE 2: Private Lessons (See Note 2)	8 Credits
MUSC 157 Applied Lesson I	2
MUSC 158 Applied Lesson II	2
MUSC 257 Applied Lesson III	2
MUSC 258 Applied Lesson IV	2
CHOICE 3: Ensembles and Voice (Choose 1 Subchoice)	4-6 Credits
Subchoice 3A: Voice Requirements (See Note 2)	
MUSC 108 Concert Choir	1
MUSC 179 Class Voice Major I	1
MUSC 180 Class Voice Major II	1
Subchoice 3B: Instrumental Requirements (See Note 2)	
MUSC 119 Lansing Concert Band	1
MUSC 121 Percussion Ensemble	1
MUSC 123 Jazz Ensemble	1
MINIMUM TOTAL	67

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Course may be repeated and must be taken each semester student is enrolled as a major.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ISCI 121	ENGL 122	HUMS 213	HUMS 214
MUSC 138	ISCI 122	MUSC 273	MUSC 274
MUSC 173	MUSC 139	POLS 120	SOCL 120
WRIT 121	MUSC 174	Lim. Ch. 2	SPCH 120
Lim. Ch. 2	Lim. Ch. 2	Lim. Ch. 3	Lim. Ch. 2
Lim. Ch. 3	Lim. Ch. 3		Lim. Ch. 3

**THEATRE—ACTING TRANSFER
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10278 (Effective Fall 1998—Summer 2003)

Theatre at LCC is designed to provide students as many opportunities to perform as possible and to focus students towards transfer to a four-year institution. A theatre major is part of a learning community: students take classes concurrently and work with the same group of students for two years. The theatre program concentrates on improvisation; Stanislavski method of script analysis and motivation, analysis of Shakespearean text, and individual and collaborative creativity. Graduation is dependent on successful participation in a minimum of four productions. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Humanities and Performing Arts Department, Arts and Sciences Building, Room 255, telephone number (517) 483-1018.

REQUIREMENTS (See Note 1)

TOTAL: 53.5 CREDITS

CODE	TITLE	CREDIT HOURS
ENGL 122	Writing about Literature and Ideas	4
ISCI 121	Integrated Science for Education I	4
POLS 120	American Political System	4
SPCH 120	Dynamics of Communication	3
THEA 110	Introduction to Theatre	3
THEA 111	Production Practicum	2
THEA 116	Design Practicum I	3
THEA 120	Introduction to Acting	2
THEA 131	Studio Theatre Performance I	1
THEA 132	Studio Theatre Performance II	1
THEA 141	Acting I—Contemporary	2.5
THEA 142	Acting II—Classics	2.5
THEA 171	Dramatic Form and Function I	3
THEA 172	Dramatic Form and Function II	3
THEA 181	Improvisation	2.5
THEA 210	Theatre History	3
THEA 233	Studio Theatre Performance III	1
THEA 251	Stage Voice for the Actor	3
THEA 261	Movement for the Actor	2
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS (See Note 2) TOTAL: 15–15.5 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 3 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area (See Note 3)	0
Speech Communication Core Area (See Note 3)	0
Science/Technology Core Area (See Note 3)	0
Global Perspectives and Diversity Core Area	3

CHOICE 2: Theatre (Choose 1 Subchoice) 8–8.5 Credits

Subchoice 2A

THEA 235	Studio Theatre Performance V	2
THEA 241	Acting III—Creating Theatre	2.5
THEA 271	Dramatic Form and Function III	3
THEA 281	Advanced Improvisation II	1

Subchoice 2B (See Note 4)

	Repertory/Performance Class (See Note 5)	1
MUSC 182	Class Voice I	1
THEA 237	Theatre Special Projects	2
THEA 295	Acting Styles I	2
THEA 296	Acting Styles Performance	2

CHOICE 3: Humanities 4 Credits

HUMS 211	History of Art I	4
HUMS 212	History of Art II	4
HUMS 213	World Civilizations I	4
HUMS 214	World Civilizations II	4

MINIMUM TOTAL 68.5

NOTES

1. Students must consult a Theatre Program advisor prior to declaring a theatre major. Most required theatre courses are offered in a sequenced studio format, and students must obtain program approval to enroll.
2. Those students who plan on attending a four-year school in Michigan should include an additional 4-credit course in: 1) Science or Mathematics and 2) Social Science or Humanities to complete all general education requirements.
3. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
4. Subchoice 2B can only be selected through an audition process for a musical production.
5. Choose from DANC courses numbered 161 through 164.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
THEA 110	ENGL 122	ISCI 121	SPCH 120
THEA 120	POLS 120	THEA 181	Lim. Ch. 2
THEA 131	THEA 111	THEA 210	Lim. Ch. 3
THEA 141	THEA 116	THEA 233	
THEA 171	THEA 132	THEA 251	
WRIT 121	THEA 142	THEA 261	
	THEA 172	Lim. Ch. 1	

**PHOTOGRAPHIC IMAGING
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10277 (Effective Fall 1998–Summer 2003)

The field of photography is vast and diverse with employment opportunities in "still," "moving," and combinations of both types of image-making. Professionals include everyone from the traditional person with a camera, to a lab or service bureau employee, to someone working at a high-end computer station. Skill requirements fall into two categories, visual and technical. Visual skills include idea development, composition, lighting, and other problem-solving concepts related to the communication standards of the chosen field. Technical skills include practical and theoretical knowledge of cameras and other photographic-related equipment, light sensitive materials, processes, and digital-based imaging equipment and software. A "photographer" may be self-employed, be a member of a small team, or be employed by a large company.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Photographic Imaging Technology Program, Photography Center, Room 117, telephone number (517) 483-1673.

REQUIREMENTS TOTAL: 30 CREDITS

CODE	TITLE	CREDIT HOURS
ARTS 171	Computer Graphics/Photography	3
IMAG 111	Introduction to Photographic Technology I	4
IMAG 112	Design Fundamentals for Imaging Technologies	3
IMAG 113	Lighting Concepts and Applications	3
IMAG 114	Introduction to Photographic Color Technology	3
IMAG 121	Imaging Technology	2
IMAG 224	Emerging Image Technologies I	2
IMAG 230	Imaging Technology Major I	3
IMAG 231	Imaging Technology Major II	3
IMAG 234	Portfolio Assembly/Degree Completion Activities (See Note 1)	3
SDEV 130	Job Search Skills	1

LIMITED CHOICE REQUIREMENTS TOTAL: 32–36 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the <i>GENERAL EDUCATION</i> section above)	
Writing Core Area (See Note 2)	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 3)	0
Global Perspectives and Diversity Core Area	3

CHOICE 2: Specialization (Choose 1 Subchoice) 23–27 Credits

Subchoice 2A: Still Image Emphasis	
IMAG 115	Color Directed Study
IMAG 117	Introduction to Photographic Technology II
IMAG 220	Intermediate Still Imaging Technology
IMAG 221	Advanced Still Imaging Technology
IMAG 222	Intermediate Color Applications and Technology
IMAG 223	Advanced Color Applications and Technology
IMAG 233	The Business of Photography: Practices and Directions

Subchoice 2B: Moving Image Emphasis

ENGL 240	The Film as Art (See Note 2)	4
IMAG 118	Film Production I	4
IMAG 203	Topics in Film/Multimedia	3
IMAG 226	Film Production II	4
IMAG 227	Film Production III	4
MTEC 120	Audio Production I	4
MTEC 151	Electronic Field Production I	4

ELECTIVES (See Note 4)

TOTAL: 5–9 CREDITS

Complete the indicated number of credits in courses of your choice.

MINIMUM TOTAL

71

NOTES

- The Portfolio is considered to be the final course in this curriculum. All imaging and non-photo courses must be completed or be taken concurrently with IMAG 234.
- Moving Image Emphasis students should take WRIT 121 for their Writing Core Area requirement because it is the prerequisite for ENGL 240.
- For students completing all requirements for this program (including IMAG 114), the Science/Technology Core Area requirement is waived.
- Still Image majors must select 9 credits of electives. Moving Image majors must select 5 credits of electives. It is recommended that students consult with an advisor in the Photo Program to select the electives which will best support their major emphasis.
- Students completing this curriculum have the option of doing so through a three-year, full-time sequence of courses or through part-time enrollment over a longer period. The full-time sequence begins Fall Semester only. Part-time students may begin their studies any semester.
- For graduation, a student must have earned a minimum actual grade of 2.0 in all courses taken to satisfy the course credits required in this curriculum.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

Still Image Emphasis

I	II	III	IV
IMAG 111	IMAG 114	ARTS 171	IMAG 221
IMAG 112	IMAG 115	IMAG 121	IMAG 223
IMAG 113	IMAG 117	IMAG 220	IMAG 224
Lim.Ch.	Lim.Ch.	IMAG 222	Elec.

Moving Image Emphasis

V	VI
IMAG 230	IMAG 231
IMAG 233	IMAG 234
Lim.Ch.	SDEV 130
Elec.	Elec.

Moving Image Emphasis

I	II	III	IV
IMAG 111	IMAG 114	ARTS 171	IMAG 203
IMAG 112	IMAG 226	ENGL 240	IMAG 224
IMAG 113	Lim.Ch.	IMAG 121	MTEC 151
IMAG 118		IMAG 227	Lim.Ch.

Moving Image Emphasis

V	VI
IMAG 230	IMAG 231
MTEC 120	IMAG 234
Lim.Ch.	SDEV 130
Elec.	Elec.

**QUALITY ASSURANCE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10206 (Effective Fall 1998–Summer 2003)

Quality assurance is an established field utilizing the application of management principles, problem solving, planning, and statistical techniques to produce high quality products or services. The quality assurance program offers students the opportunity to develop skills required for a career in quality with an emphasis in technical quality areas. Students will study areas such as probability and statistics, control charts, problem solving, metrology, quality improvement teams, quality planning and systems management, cost of quality, sampling, reliability, applied statistics and experimental design. This program provides excellent preparation for students to pursue certification through the American Society for Quality Control (ASQC) as a Certified Quality Technician, Certified Quality Engineer, Certified Quality Manager, Certified Quality Auditor, or Certified Reliability Engineer.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1318.

REQUIREMENTS

TOTAL: 39 CREDITS

CODE	TITLE	CREDIT HOURS
QUAL 100	Introduction to Quality Assurance	3
QUAL 103	Probability and Statistics for Quality Assurance	4
QUAL 104	Process Control Charting	3
QUAL 107	Problem-Solving Techniques	3
QUAL 115	Metrology	4
QUAL 200	Quality Improvement Teams	4
QUAL 203	Quality Planning and Systems Management	4
QUAL 205	Cost of Quality	3
QUAL 209	Reliability	3
QUAL 212	Applied Statistics for Quality Assurance	4
QUAL 215	Experimental Design in Quality Assurance	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 26 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Additional Quality Assurance Courses 6 Credits

QUAL 121	Introduction to Statistical Process Control	3
QUAL 124	Quality Service and Customer Satisfaction	3
QUAL 224	Supervisory Skills for Quality	3
QUAL 239	Project Management	3

CHOICE 3: Mathematics 8 Credits

MATH 112	Intermediate Algebra	4
MATH 121	College Algebra I	4
MATH 122	College Algebra II and Trigonometry	3
MATH 126	College Algebra and Trigonometry	5

MINIMUM TOTAL 65

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
QUAL 100	QUAL 104	QUAL 200	QUAL 209
QUAL 103	QUAL 107	QUAL 203	QUAL 215
QUAL 115	Lim.Ch.	QUAL 205	Lim.Ch.
Lim.Ch.	Lim.Ch.	QUAL 212	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	

**QUALITY MANAGEMENT
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10246 (Effective Fall 1998-Summer 2003)

Quality management is an area of study which focuses on the managerial principles and statistical techniques that are necessary to continuously improve organizational effectiveness and ensure the delivery of high quality products and services. The quality management program offers students the opportunity to develop skills required for a career in quality with an emphasis in management areas. Students will study areas such as accounting, general business, international business, organizational development, probability and statistics, control charts, problem solving, quality improvement teams, quality planning and systems management, cost of quality, applied statistics, and experimental design. This program provides excellent preparation for students to pursue certification through the American Society for Quality Control (ASQC) as a Certified Quality Technician or Manager.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 44 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 101	Accounting Information for Management	3
BUSN 118	Introduction to Business	3
BUSN 201	International Business	3
MGMT 304	Organizational Development	3
QUAL 100	Introduction to Quality Assurance	3
QUAL 103	Probability and Statistics for Quality Assurance	4
QUAL 104	Process Control Charting	3
QUAL 107	Problem-Solving Techniques	3
QUAL 200	Quality Improvement Teams	4
QUAL 203	Quality Planning and Systems Management	4
QUAL 205	Cost of Quality	3
QUAL 212	Applied Statistics for Quality Assurance	4
QUAL 215	Experimental Design in Quality Assurance	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 21 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Additional Related Courses 5 Credits

MGMT 223	Supervision	3
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
QUAL 115	Metrology	4
QUAL 121	Introduction to Statistical Process Control	3
QUAL 124	Quality Service and Customer Satisfaction	3
QUAL 209	Reliability	3
QUAL 224	Supervisory Skills for Quality	3
QUAL 239	Project Management	3

CHOICE 3: Mathematics	4 Credits	
MATH 112	Intermediate Algebra	4
MATH 121	College Algebra I	4
MATH 122	College Algebra II and Trigonometry	3
MATH 126	College Algebra and Trigonometry	5

MINIMUM TOTAL 65

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 101	BUSN 201	QUAL 200	MGMT 304
BUSN 118	QUAL 104	QUAL 203	QUAL 205
QUAL 100	QUAL 107	QUAL 212	QUAL 215
QUAL 103	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**PROPERTY VALUATION AND ASSESSMENT ADMINISTRATION
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10125 (Effective Fall 1998–Summer 2003)

Property valuation/assessment administrators are specialists trained to ascertain the value and proper use of real property for taxation purposes. They may also do appraisals of buildings and property values for private and public parties. LCC graduates of this program are prepared to work in an assessor's office, an equalization department, or a private appraisal firm.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 41 CREDITS

CODE	TITLE	CREDIT HOURS
ARCH 100	Introduction to Architecture	3
BUSN 118	Introduction to Business	3
BUSN 229	Public Relations	2
CISB 200	Information Systems Technology and Problem Solving	3
ECON 201	Principles of Economics—Micro	3
GRET 205	Principles of Geographic Information Systems	3
MGMT 225	Principles of Management	3
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3
PVAA 281	Property Valuation and Assessment Administration I	3
PVAA 282	Property Valuation and Assessment Administration II	3
PVAA 283	Property Valuation and Assessment Administration III	3
PVAA 284	Property Valuation and Assessment Administration IV	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 19–22 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Accounting 3–4 Credits

ACCG 101	Accounting Information for Management	3
ACCG 210	Principles of Accounting I	4

CHOICE 3: Real Estate 2–3 Credits

REAL 271	Introduction to Real Estate	2
REAL 274	Real Estate License Exam	3

CHOICE 4: Valuation/Assessment Related 10 Credits

ACCG 211	Principles of Accounting II	4
CIVL 120	Surveying	4
ECON 202	Principles of Economics—Macro	3
GEOG 121	Physical Geography	3
MATH 117	Math for Business	4
MKTG 200	Principles of Marketing	3
PVAA 286	Applied Appraisal Concepts I	1
PVAA 287	Applied Appraisal Concepts II	1

PVAA 288	Income Approach to Value I	2
PVAA 289	Income Approach to Value II	2
REAL 273	Real Estate Investment	3
REAL 275	Real Estate Financing	3
REAL 277	Property Management	3
REAL 279	Residential Appraisal	3
REAL 280	Real Estate Law	3

CHOICE 5: Computer Related (See Note 2) 4–5 Credits

MINIMUM TOTAL 60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Choose CABS-prefix courses of 110 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARCH 100	ECON 201	CISB 200	BUSN 229
BUSN 118	MGMT 225	GRET 205	MGMT 234
PVAA 281	PVAA 282	PVAA 283	PVAA 284
SPCH 110	Lim.Ch.	Lim.Ch.	Lim.Ch.
WRIT 127	Lim.Ch.	Lim.Ch.	Lim.Ch.

**PROPERTY VALUATION AND ASSESSMENT ADMINISTRATION
CERTIFICATE OF COMPLETION**

Curriculum Code: 10144 (Effective Fall 1998–Summer 2003)

Certificate holders qualify for certification testing and entry-level positions, or may improve opportunities for advancement in this or a related area.

REQUIREMENTS

TOTAL: 12 CREDITS

CODE	TITLE	CREDIT HOURS
PVAA 281	Property Valuation and Assessment Administration I	3
PVAA 282	Property Valuation and Assessment Administration II	3
PVAA 283	Property Valuation and Assessment Administration III	3
PVAA 284	Property Valuation and Assessment Administration IV	3

MINIMUM TOTAL 12

SUGGESTED COURSE SEQUENCE

I	II
PVAA 281	PVAA 282
PVAA 283	PVAA 284

**REAL ESTATE
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10130 (Effective Fall 1998–Summer 2003)

Real estate agents rent, buy, and sell property for clients on a commission basis. Agents may study property listings to learn about what is for sale; keep informed of property values, market conditions and mortgage options; find prospects and develop leads and referrals; interview prospective clients to solicit listings; show property sites; draw up listings and contracts; negotiate loans on property; prepare marketing plans using advertising strategies such as open houses; and assist clients with available mortgage options.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS **TOTAL: 39 CREDITS**

CODE	TITLE	CREDIT HOURS
CISB 200	Information Systems Technology and Problem Solving	3
MGMT 234	Diversity in the Workplace—A Domestic and Global Perspective	3
MKTG 119	Marketing and Managing Your Professional Image	3
MKTG 120	Sales	3
MKTG 200	Principles of Marketing	3
REAL 273	Real Estate Investment	3
REAL 274	Real Estate License Exam	3
REAL 275	Real Estate Financing	3
REAL 277	Property Management	3
REAL 279	Residential Appraisal	3
REAL 280	Real Estate Law	3
SPCH 110	Oral Communication in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 21–23 CREDITS**
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 1) **0 Credits**
(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Accounting **3–4 Credits**

ACCG 100	Practical Accounting for Non-Majors	3
ACCG 101	Accounting Information for Management	3
ACCG 210	Principles of Accounting I	4

CHOICE 3: Real Estate Related (See Note 2) **14 Credits**

ARCH 100	Introduction to Architecture	3
BLDT 100	Introduction to Construction	3
BUSN 118	Introduction to Business	3
BUSN 229	Public Relations	2
BUSN 295	Small Business Management	3
CIVL 120	Surveying	4
ECON 201	Principles of Economics—Micro	3
ECON 202	Principles of Economics—Macro	3
LEGL 217	Business Law III. Business Organizations	3
LEGL 221	Real Estate Transaction	3

MATH 117	Math for Business	4
MGMT 223	Supervision	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 239	Time and Stress Management	3
MKTG 140	Introduction to Advertising	3
REAL 271	Introduction to Real Estate	2

CHOICE 4: Computer Related (See Note 3) **4–5 Credits**

MINIMUM TOTAL **60**

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Students may also choose Property Valuation and Assessment Administration courses PVAA 281 through PVAA 284.
3. Choose CABS-prefix courses of 110 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
MKTG 119	MKTG 120	MKTG 200	CISB 200
REAL 274	REAL 273	REAL 275	MGMT 234
SPCH 110	REAL 280	REAL 279	REAL 277
WRIT 127	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**REAL ESTATE
CERTIFICATE OF COMPLETION**

Curriculum Code: 10148 (Effective Fall 1998–Summer 2003)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

REQUIREMENTS **TOTAL: 15 CREDITS**

CODE	TITLE	CREDIT HOURS
MKTG 120	Sales	3
REAL 273	Real Estate Investment	3
REAL 275	Real Estate Financing	3
REAL 279	Residential Appraisal	3
REAL 280	Real Estate Law	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 5–6 CREDITS**
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Real Estate Basics **5–6 Credits**

MKTG 119	Marketing and Managing Your Professional Image	3
REAL 271	Introduction to Real Estate	2
REAL 274	Real Estate License Exam	3
REAL 277	Property Management	3

MINIMUM TOTAL **20**

SUGGESTED COURSE SEQUENCE

I	II
MKTG 120	REAL 273
REAL 275	REAL 280
REAL 279	Lim.Ch.
Lim.Ch.	

CHEMICAL PROCESS TECHNOLOGY ASSOCIATE IN APPLIED SCIENCE DEGREE

Curriculum Code: 10859 (Effective Fall 1998–Summer 2003)

Chemical Process Technologists are trained for employment as process operators in the chemical and related industries. Process operators are required to maintain safety, health and environmental standards in the plant; handle, store and transport chemicals; operate, monitor and control continuous batch materials; and participate in routine and preventative maintenance of equipment and instrumentation.

Not all courses in this program transfer to all colleges. Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 37 CREDITS
CHEM 151	General Chemistry Lecture I	4	
CHEM 152	General Chemistry Lecture II	3	
CHEM 161	General Chemistry Laboratory I	1	
CHEM 162	General Chemistry Laboratory II	1	
CHEM 192	Introductory Organic Chemistry	3	
CHEM 192	Introductory Organic chemistry Laboratory	1	
CNCP 101	PC Applications for Technology	3	
FIRE 120	Chemistry of Hazardous Materials	3	
MICR 203	Microbiology	3	
MICR 204	Microbiology Laboratory	1	
PHYS 200	Applied Physics	4	
SOCL 120	Introduction to Sociology	4	
SPCH 110	Oral Communication in the Workplace	3	
WRIT 124	Technical Writing	3	

LIMITED CHOICE REQUIREMENTS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	General Education Core Areas (See Note 1)	0 Credits
	(See the GENERAL EDUCATION section above)	
	Writing Core Area	0
	Speech Communication Core Area	0
	Science/Technology Core Area	0
	Global Perspectives and Diversity Core Area	0

CHOICE 2: Mathematics (Choose 1 Subchoice)

Subchoice 2A	7–8 Credits
MATH 112	Intermediate Algebra 4
QUAL 103	Probability and Statistics for Quality 4
Subchoice 2B	
MATH 121	College Algebra I 4
STAT 170	Introduction to Statistics 3

ELECTIVES

TOTAL: 16 Credits

Students must take at least 16 credits of electives. The following are recommended:

SCIN 287	Internship in Science Technology	4
QUAL 121	Introduction to Statistical Process Control	3
QUAL 200	Quality Improvement Teams	4

MINIMUM TOTAL

60 CREDITS

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.

COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	CHEM 152	FIRE 120	CHEM 182
CHEM 161	CHEM 162	MICR 203	CHEM 192
CNCP 101	SOCL 120	MICR 204	PHYS 200
MATH 121/112	SPCH 110	STAT 170/QUAL 103	Elective
WRIT 124	Elective	Elective	Elective

CHEMICAL PROCESS TECHNOLOGY CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 10860 (Effective Fall 1998–Summer 2003)

This program will qualify students for immediate employment in the chemical or chemical-related industries as chemical process technicians. In this capacity, employees are involved in the direct manufacture of products—monitoring, calibrating and maintaining equipment used in the production process. Additionally, they would practice quality assurance standards, environmental regulations, and safety procedures. Students may also elect to apply their certificate credits toward a two-year associates degree in this area.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 32 CREDITS
CHEM 125	Basic Chemistry	4	
CHEM 161	General Chemistry Laboratory I	1	
CHEM 182	Introductory Organic Chemistry	3	
CHEM 192	Introductory Organic Chemistry Laboratory	1	
CNCP 101	PC Applications for Technology	3	
MATH 112	Intermediate Algebra	4	
PHYS 200	Applied Physics	4	
QUAL 100	Introduction to Quality Assurance	3	
QUAL 121	Introduction to Statistical Process Control	3	
SPCH 110	Oral Communication in the Workplace	3	
WRIT 124	Technical Writing	3	

MINIMUM TOTAL

32 CREDITS

COURSE SEQUENCE

I	II
CHEM 125/161	CHEM 182/192
CNCP 101	PHYS 200
MATH 112	QUAL 121
QUAL 100	SPCH 110
	WRIT 124

NOTES

- A minimum grade of 2.0 is required in MATH 112, PHYS 200, and in either CHEM 125 or CHEM 182.
- In addition to the required course work, a required team building workshop will be scheduled in an eight hour block and conducted by a representative from industry.

**CHEMICAL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10163 (Effective Fall 1998–Summer 2003)

Graduates with associate degrees in Chemical Technology are much in demand by the chemical industry. This program prepares students to work with chemists and chemical engineers in many settings. Research, development, and production of pharmaceuticals, agricultural chemicals, and plastics as well as related functions such as sales and technical writing are some of the opportunities that are available to persons with this type of training. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092.

REQUIREMENTS

TOTAL: 56 CREDITS

CODE	TITLE	CREDIT HOURS
BIOL 127	Cell Biology	4
CHEM 151	General Chemistry Lecture I	4
CHEM 152	General Chemistry Lecture II	3
CHEM 161	General Chemistry Laboratory I	1
CHEM 162	General Chemistry Laboratory II	1
CHEM 251	Organic Chemistry Lecture I	4
CHEM 252	Organic Chemistry Lecture II	4
CHEM 272	Organic Chemistry Laboratory	2
CNCP 101	PC Applications for Technology	3
FIRE 120	Chemistry of Hazardous Materials	3
MATH 126	College Algebra and Trigonometry	5
PHYS 201	Introductory Physics I	4
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	3
STAT 170	Introduction to Statistics	3
WRIT 121	Composition I	4
WRIT 122	Composition II	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 15-16 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	General Education Core Areas (See Note 1)	0 Credits
	(See the <i>GENERAL EDUCATION</i> section above)	
	Writing Core Area	0
	Speech Communication Core Area	0
	Science/Technology Core Area	0
	Global Perspectives and Diversity Core Area	0
CHOICE 2:	Humanities (See Note 2)	8 Credits
CHOICE 3:	Social Science (See Note 2)	4 Credits
CHOICE 4:	Science Elective	3-4 Credits
	MICR 203 Microbiology	3
	SCIN 287 Internship in Science Technology	4

MINIMUM TOTAL 71

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. See the MACRAO Transfer Agreement in the *Transfer Information* section of this catalog for appropriate Social Science and Humanities courses.

COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BIOL 127	CHEM 152	CHEM 251	CHEM 252
CHEM 151	CHEM 162	PHYS 201	CHEM 272
CHEM 161	CNCP 101	SOCL 120	FIRE 120
MATH 126	STAT 170	WRIT 122	Lim. Ch. 3
SPCH 120	WRIT 121	Lim. Ch. 2	Lim. Ch. 4

**MOLECULAR BIOTECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10212 (Effective Fall 1998–Summer 2003)

Graduates of this program will be able to work in areas that improve the quality of human life, such as the problems of human genetic defects and cancer, increased crop production, and cleanup of environmental pollution. This is a laboratory-intensive curriculum which focuses on the wide-ranging applications of recombinant DNA technology. Near the end of the program the Science Department will make every effort to arrange for summer internships in industrial or university research laboratories for students who wish to gain additional experience. If you plan to transfer to a four-year school, see an academic advisor or counselor before enrolling.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092.

REQUIREMENTS
TOTAL: 50 CREDITS

CODE	TITLE	CREDIT HOURS
BIOL 127	Cell Biology	4
BIOL 275	Molecular Biology I	4
BIOL 276	Molecular Biology II	4
CHEM 151	General Chemistry Lecture I	4
CHEM 152	General Chemistry Lecture II	3
CHEM 161	General Chemistry Laboratory I	1
CHEM 162	General Chemistry Laboratory II	1
CHEM 251	Organic Chemistry Lecture I	4
CHEM 252	Organic Chemistry Lecture II	4
CHEM 272	Organic Chemistry Laboratory	2
MICR 203	Microbiology	3
MICR 204	Microbiology Laboratory	1
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	3
WRIT 121	Composition I	4
WRIT 122	Composition II	4

LIMITED CHOICE REQUIREMENTS
TOTAL: 20–21 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0

CHOICE 2: Humanities (See Note 2) 8 Credits

CHOICE 3: Social Science (See Note 2) 4 Credits

CHOICE 4: Mathematics 4–5 Credits

MATH 121	College Algebra I	4
MATH 126	College Algebra and Trigonometry	5

CHOICE 5: Science Elective	4 Credits	
BIOL 128	Organismal Biology	4
SCIN 287	Internship in Science Technology	4

MINIMUM TOTAL 70

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. See the MACRAO Transfer Agreement in the "Transfer Information" section of this catalog for appropriate Social Science and Humanities courses.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BIOL 127	CHEM 152	BIOL 275	BIOL 276
CHEM 151	CHEM 162	CHEM 251	CHEM 252
CHEM 161	WRIT 121	MICR 203	CHEM 272
SPCH 120	Lim. Ch. 2	MICR 204	SOCL 120
Lim. Ch. 4	Lim. Ch. 3	WRIT 122	Lim. Ch. 5

**VETERINARY TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10287 (Effective Fall 1998–Summer 2003)

Veterinary technicians are professionals dedicated to animal health care. They are vital members of the veterinary medical team and are trusted with diverse medical responsibilities, including animal nursing care, life support, laboratory specimen analysis, physical therapy, surgical assistance, anesthesia, dental hygiene, x-ray imaging, nutritional management, and client education. The variety in veterinary technology makes it a challenging medical career for those who enjoy working with animals and people. Career opportunities exist with veterinary hospitals, biomedical research institutions, zoological parks, and other animal care facilities. This curriculum is intended for students who have been admitted to the joint LCC/MSU Veterinary Technology Program. Admission is by application only.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092 or the MSU Department of Veterinary Technology at (517) 353-7267.

REQUIREMENTS **TOTAL: 16 CREDITS**

CODE	TITLE	CREDIT HOURS
CHEM 151	General Chemistry Lecture I	4
CHEM 161	General Chemistry Laboratory I	1
MICR 203	Microbiology	3
MICR 204	Microbiology Laboratory	1
SPCH 120	Dynamics of Communication	3
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS **TOTAL: 46-48 CREDITS**
 Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	General Education Core Areas	3-4 Credits
	(See the <i>GENERAL EDUCATION</i> section above)	
	Writing Core Area (See Note 1)	0
	Speech Communication Core Area (See Note 1)	0
	Science/Technology Core Area (See Note 1)	0
	Global Perspectives and Diversity Core Area	3

CHOICE 2:	Math Requirement	4-5 Credits
MATH 121	College Algebra I	4
MATH 126	College Algebra and Trigonometry	5

CHOICE 3:	MSU Veterinary Medicine Courses	39 Credits
	Required Veterinary Medicine courses taken at Michigan State University (See Note 2)	

MINIMUM TOTAL **62**

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- The specific Veterinary Medicine courses necessary to fulfill this requirement are: VM 200, VM 201, VM 300, VM 301, VM 302, VM 303, VM 304. These courses must be taken at Michigan State University.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CHEM 151	MICR 203
CHEM 161	MICR 204
SPCH 120	
WRIT 121	
Lim. Ch. 2	

**SIGN LANGUAGE INTERPRETER
ASSOCIATE IN APPLIED ARTS**

Curriculum Code: 10282 (Effective Fall 1998–Summer 2003)

The Sign Language Interpreter is a person specially trained to facilitate communication between the deaf, hard of hearing and hearing communities. Employment opportunities may be in educational settings, freelance, or contracted with agencies to provide interpreter services for deaf persons. State certification for interpreters is required by taking the Quality Assurance Examination as issued through the Division on Deafness in the Department of Labor for the State of Michigan. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics.** For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS
TOTAL: 67 CREDITS

CODE	TITLE	CREDIT HOURS
ISCI 121	Integrated Science for Education I	4
PSYC 200	Introduction to Psychology	4
PSYC 205	Human Growth and Development	3
SIGN 160	Orientation to Deafness	2
SIGN 161	American Sign Language I	3
SIGN 162	American Sign Language II	3
SIGN 163	American Sign Language III	3
SIGN 164	American Sign Language IV	3
SIGN 166	Fingerspelling	2
SIGN 167	Beginning Sign to Voice	3
SIGN 250	Deaf Culture and History	3
SIGN 261	Principles of Interpreting	3
SIGN 262	Mock Quality Assurance (QA)	3
SIGN 263	Intermediate Sign to Voice	3
SIGN 264	Advanced Sign to Voice	3
SIGN 267	Sign Internship I	3
SIGN 268	Sign Internship II	3
SIGN 295	Independent Study in Sign Language I	1
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	3
WRIT 121	Composition I	4
WRIT 122	Composition II	4

LIMITED CHOICE REQUIREMENTS
TOTAL: 2-3 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	General Education Core Areas (See Note 2)	0 Credits
	(See the <i>GENERAL EDUCATION</i> section above)	
	Writing Core Area	0
	Speech Communication Core Area	0
	Science/Technology Core Area	0
	Global Perspectives and Diversity Core Area	0
CHOICE 2:	Related Professional Courses	2-3 Credits
SIGN 176	Credits	
SIGN 260	Linguistic Principles of American Sign Language	3
SIGN 265	Advanced Interpreting and Transliterating Techniques	3
	MINIMUM TOTAL	69

NOTES

1. An interpreter screening is required after the successful completion of SIGN 163 and SIGN 167.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
SIGN 160	SIGN 162	ISCI 121	PSYC 200
SIGN 161	SIGN 166	SIGN 163	SIGN 164
SOCL 120	SPCH 120	SIGN 167	SIGN 261
WRIT 121	WRIT 122		Lim.Ch.
V	VI		
PSYC 205	SIGN 262		
SIGN 250	SIGN 264		
SIGN 263	SIGN 268		
SIGN 267	SIGN 295		

**SIGN LANGUAGE INTERPRETER
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10187 (Effective Fall 1998–Summer 2003)

A Sign Language Interpreter is a person specially trained to facilitate communication between the deaf, and hearing communities. State certification for interpreters is required by taking the Quality Assurance Examination as issued through the Division on Deafness for the State of Michigan.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS		TOTAL: 34 CREDITS
CODE	TITLE	CREDIT HOURS
SIGN 160	Orientation to Deafness	2
SIGN 161	American Sign Language I	3
SIGN 162	American Sign Language II	3
SIGN 163	American Sign Language III	3
SIGN 164	American Sign Language IV	3
SIGN 166	Fingerspelling	2
SIGN 167	Beginning Sign to Voice	3
SIGN 261	Principles of Interpreting	3
SIGN 262	Mock Quality Assurance (QA)	3
SIGN 263	Intermediate Sign to Voice	3
SIGN 267	Sign Internship I	3
SIGN 268	Sign Internship II	3

LIMITED CHOICE REQUIREMENTS TOTAL: 2-3 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	Related Professional Courses	2-3 Credits
SIGN 168	Expressive Manual Communication	2
SIGN 170	Creative Arts Signing	2
SIGN 176	Advanced Fingerspelling	2
SIGN 250	Deaf Culture and History	3
SIGN 260	Linguistic Principles of American Sign Language	3
SIGN 264	Advanced Sign to Voice	3
SIGN 265	Advanced Interpreting and Transliterating Techniques	3
SPCH 130	Fundamentals of Public Speaking	3
SPEL 110	Spelling Development II	3
MINIMUM TOTAL		36

NOTES

1. An interpreter screening is required after the successful completion of SIGN 163 and SIGN 167.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
SIGN 160	SIGN 162	SIGN 163	SIGN 164
SIGN 161	SIGN 166	SIGN 167	SIGN 261
	Lim.Ch.		
V	VI		
SIGN 263	SIGN 262		
SIGN 267	SIGN 268		

**STAGE TECHNOLOGY
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10853 (Effective Fall 1998–Summer 2003)

The Stage Technology Program provides training in technical skills associated with the stage technology industry, as well as general education classes that are part of most liberal studies degrees. Students who eventually plan to study scenic design or lighting design; media technology or communications, including television and film studies; electrical or mechanical engineering; or other related fields may find the unique blend of theory and practice in the Stage Technology Program particularly helpful. Upon completion of this degree, students may choose to enter the stage technology field; or with appropriate course planning, a student may transfer to a four-year institution. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General Education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some student may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Humanities and Performing Arts Department, Arts and Sciences Building, Room 255, telephone number (517) 483-1018.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 42 CREDITS
ELTE 100	Electrical Safety Practices	1	
ELTE 110	Practical Electricity	3	
INAU 100	Introduction to Industrial Automation	4	
ISCI 121	Integrated Science for Education I	4	
MFGM 125	Rigging	2	
MTEC 120	Audio Production I	4	
SOCL 120	Introduction to Sociology	4	
SPCH 110	Oral Communication in the Workplace	3	
THEA 109	Introduction to the Stage Technology Industry	2	
THEA 110	Introduction to Theatre	3	
THEA 111	Production Practicum	2	
THEA 116	Design Practicum I	3	
THEA 210	Theatre History	3	
WRIT 121	Composition I	4	

LIMITED CHOICE REQUIREMENTS

TOTAL: 29 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	General Education Core Areas (See Note 1)	0 Credits
	(See the <i>GENERAL EDUCATION</i> section above)	
	Writing Core Area	0
	Speech Communication Core Area	0
	Science/Technology Core Area	0
	Global Perspectives and Diversity Core Area	0
CHOICE 2:	Humanities	8 Credits
HUMS 211	History of Art I	4
HUMS 212	History of Art II	4
HUMS 213	World Civilizations I	4
HUMS 214	World Civilizations II	4
CHOICE 3:	English Composition (See Note 2)	4 Credits
CHOICE 4:	Science/Mathematics (See Note 2)	4 Credits
CHOICE 5:	Social Science (See Note 2)	4 Credits

CHOICE 6: Stage Technology (See Note 3)

9 Credits

MINIMUM TOTAL

71

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. See the MACRAO Transfer Agreement in the *Transfer Information* section of this catalog for appropriate english composition, science/mathematics, and social science courses.
3. Students must take a minimum of 9 credits from one of the following areas: stage technology, electrical, media technology, welding, or theatre. Students must consult with the Stage Technology Program Advisor regarding course selection.
4. Students planning to transfer to a four-year school in Michigan should be aware that general education and subject area requirements vary from one college or university to another. Prior to beginning this curriculum, students should see an academic advisor or counselor in the Counseling and Advising Center (Room 103 of the Arts and Sciences Building, telephone number (517) 483-1904), obtain an appropriate transfer guide (also in the Counseling and Advising Center), and/or contact the school to which they will transfer for specific transfer institution requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ELTE 100	MTEC 120	INAU 100	MFGM 125
ELTE 110	THEA 111	THEA 210	SOCL 120
ISCI 121	THEA 116	Lim.Ch.	SPCH 110
THEA 109	Lim.Ch.	Lim.Ch.	Lim.Ch.
THEA 110	Lim.Ch.	Lim.Ch.	Lim.Ch.
WRIT 121			Lim.Ch.

**STAGE TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10849 (Effective Fall 1998–Summer 2003)

This program consists of practical, hands-on courses that provide students with the necessary technical knowledge and skills needed for an entry-level position in the stage technology industry. Upon completion of this program, students may opt to enter the workforce, apply for the **Michigan Stage Technician Apprenticeship Program**, continue coursework toward the Associate in Applied Arts Degree in Stage Technology, or use their skills in community service at schools, theatres, and churches.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Humanities and Performing Arts Department, Arts and Sciences Building, Room 255, telephone number (517) 483-1018.

REQUIREMENTS		TOTAL: 27 CREDITS
CODE	TITLE	CREDIT HOURS
ELCT 161	Soldering/Desoldering	1
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
INAU 100	Introduction to Industrial Automation	4
MFGM 125	Rigging	2
MTEC 120	Audio Production I	4
MTEC 122	Sound Reinforcement	4
THEA 109	Introduction to the Stage Technology Industry	2
THEA 111	Production Practicum	2
WELD 100	Combination Welding	4

LIMITED CHOICE REQUIREMENTS **TOTAL: 10 CREDITS**
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Stage Technology (See Note 1)	10 Credits
MINIMUM TOTAL	37

NOTES

1. Students must take a minimum of 10 credits from one of the following areas: electrical, media technology, welding, or theatre. Students must consult with the Stage Technology Program advisor regarding course selection.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
ELCT 161	INAU 100	MFGM 125
ELTE 100	MTEC 120	MTEC 122
ELTE 110	THEA 111	WELD 100
THEA 109	Lim.Ch.	Lim.Ch.
		Lim.Ch.

**GENERAL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10213 (Effective Fall 1998–Summer 2003)

This curriculum is designed to provide an individual with a multi-discipline technical background. The technical courses and supporting courses that comprise this degree provide the flexibility to match the student's interest with the skills necessary for job entry. For example, this curriculum is often pursued by apprentices who complete most of the requirements for this degree through their related training requirements and who also wish to earn an associate degree. Students interested in pursuing careers in a specific technical area should see a faculty advisor in their career choice.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 220, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 20 CREDITS

CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	3
MACH 100	Manufacturing Processes	4
MACH 135	Metallurgy and Heat Treat	4
QUAL 100	Introduction to Quality Assurance	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 40 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Mathematics 8 Credits

MATH 112 Intermediate Algebra	4
MATH 114 Technical Math I	4
MATH 115 Technical Math II	4

CHOICE 3: Applied Technology Related (See Note 2) 23 Credits

MINIMUM TOTAL 60

NOTES

1. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
2. Contact an advisor in GVT 220 or call (517) 483-1336 for a listing of additional courses that may be applied toward this degree.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
EMTA 100	MACH 135	DTDS 110	Lim.Ch.
MACH 100	Lim.Ch.	WRIT 124	Lim.Ch.
QUAL 100	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**TOURISM: AIRLINE AND TRAVEL AGENCY OPERATIONS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10229 (Effective Fall 1998-Summer 2003)

Travel agents, tour escorts, cruise line and airline personnel plan trips and arrange lodging, modes of travel, and travel services for customers. They may specialize in foreign or domestic service, individual or group travel, or a specific geographical area. Travel customer service representatives are employed by airlines, cruise lines, tour companies, railroads, and tourism bureaus to provide travel information and arrange accommodations for tourists. They answer questions, offer suggestions, verify arrival/departure times, and provide literature on trips, excursions, sports events, concerts, and plays. Travel, tour, cruise and airline personnel may confer with customers by phone or in person, or plan trips for them in response to mail requests.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, some students may find it necessary to complete specific coursework in mathematics. For information on how to fulfill all general education requirements, see page 23.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS TOTAL: 43 CREDITS

CODE	TITLE	CREDIT HOURS
CABS 110	Microsoft Office	3
TRVL 100	Introduction to Travel Agency Operations	3
TRVL 110	Travel Agency Ticketing Domestic/International	3
TRVL 120	North American Travel I	3
TRVL 125	Foreign Country Travel II	3
TRVL 130	Foreign Country Travel III	3
TRVL 131	Foreign Country Travel IV	3
TRVL 140	Computer Reservation Training	3
TRVL 150	Tourism/Travel Operations	3
TRVL 200	Profitable Travel Sales, Marketing, and Counseling	3
TRVL 210	Group Travel/Escorting Operations	4
TRVL 230	Travel and Tourism Law and Current Events	3
TRVL 250	Advanced Computer Ticketing	3
TRVL 255	Advanced Sabre Training	3

LIMITED CHOICE REQUIREMENTS TOTAL: 23-24 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3

CHOICE 2: Specific Travel Occupations (Choose 1 Subchoice) 11-12 Credits

Subchoice 2A: Tour Guide

MKTG 119	Marketing and Managing Your Professional Image	3
TRVL 145	Introduction to Cruise Sales and Ground Transportation	3
TRVL 190	Internship and Seminar	3
TRVL 220	International Relations	3

Subchoice 2B: Airline/Cruise Operations

TRVL 135	Airline/Airport Operations	3
TRVL 145	Introduction to Cruise Sales and Ground Transportation	3
TRVL 146	Seminar at Sea	2
TRVL 180	Your Career/Flight Attendant	3

Subchoice 2C: Travel Agent

TRVL 170	Opening/Operating/Franchising a Travel Agency	3
TRVL 190	Internship and Seminar	3
TRVL 220	International Relations	3
TRVL 260	Travel Agency Accounting	2

MINIMUM TOTAL

66

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
TRVL 100	CABS 110	TRVL 130	TRVL 131
TRVL 120	TRVL 110	TRVL 230	TRVL 210
TRVL 150	TRVL 125	TRVL 250	TRVL 255
TRVL 200	TRVL 140	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.		

**TRUCK DRIVER TRAINING
CERTIFICATE OF COMPLETION**

Curriculum Code: 10262 (Effective Fall 1998--Summer 1999)

A truck driver operates a commercial vehicle which weighs over 10,000 pounds and is used in either intrastate or interstate travel. A person must be able to safely operate a large displacement vehicle in all traffic conditions. Truck drivers also need to maintain records which are required by state and federal regulations and employers. Before beginning the program, students must pass a physical and eye exam as well as have a good driving record. Students are subject to drug and alcohol testing as required by the Department of Transportation. There is limited enrollment, so there may be a short waiting period before starting the program. Upon successfully completing the program, a student will receive a certificate of completion from the college and be qualified for a class "A" Commercial Drivers License (CDL).

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. The courses for this program are open only to students officially admitted to the Truck Driver Training Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1997/98 academic year.** For the most recent and complete information, interested students should contact Lansing Community College, Truck Driver Training Program, 2416 25Street, Augusta, MI 49012, Program Director, John Theroux, telephone number (616) 731-4125.

REQUIREMENTS FOR ADMISSION TO THE TRUCK DRIVER TRAINING PROGRAM

Curriculum Code: 10718

In order to be considered as a candidate for this program, an applicant must meet the following admission requirements:

- a. Submit to the Truck Driver Training Program a completed Selective Admissions Application, a completed Truck Driver Training Application, and a \$100 deposit or letter from a sponsoring agency or approved company indicating financial responsibility for applicable tuition and fees. (This deposit is refunded upon cancellation if the College is notified at least 18 days prior to the class starting date.)
- b. Have a valid driver's license. A Commercial License is not necessary while attending school, but will be required prior to being hired for work. Have an acceptable driving record. All driving records are checked through the Secretary of State and reviewed individually. The school will apply for each applicant's Motor Vehicle Record which takes 10-14 days to receive.
- c. Must be eligible for a "Temporary Instruction Permit" (T.I.P.). The State of Michigan requires all truck drivers to have a Commercial Driver's License. Any person learning to drive a tractor-trailer unit (such as those operated by Lansing Community College) must be in possession of a T.I.P. or "Temporary Instruction Permit". **WE WILL PREPARE STUDENTS TO OBTAIN THEIR "T.I.P." DURING THE FIRST WEEK OF CLASS.** Written tests will be administered by Secretary of State personnel in the L.C.C. classroom. Persons shall be considered *ineligible* for a T.I.P. if they:
 - Fail to pass the written examination.
 - Have been charged in the 24 months immediately preceding application with a total of 12 or more points.
 - Have had their license suspended or revoked in the 36 months immediately preceding application unless that suspension or revocation was due to a revocation by temporary medical condition, failure to appear for re-exam or failure to appear in court for a traffic violation, an unsatisfied judgment or a no-fault insurance violation.

- Have been convicted of a 6-point violation or an impaired driving charge (4 points) in the 24 months immediately preceding application. Applicants residing outside the State of Michigan *must* supply a copy of their own driving record from the State in which they are licensed and *must* possess a T.I.P. from their licensing State.
- d. Be able to read, write and speak the English language. A high school diploma is not required, but students must be able to compute simple fractions and know general math for correct log book tabulation.
- e. Be able to pass the Department of Transportation (D.O.T.) physical examination. The physical form and card can be obtained from the LCC Truck Driver Training Program. **PLEASE NOTE: THE TDT PROGRAM MUST RECEIVE THE APPLICANT'S COMPLETED D.O.T. PHYSICAL FORM SIGNED BY A PHYSICIAN BEFORE ACCEPTANCE INTO THE PROGRAM.** The fee for the physical exam is the applicant's responsibility.
- f. Be at least 18 years old. Those persons between the ages of 18 and 21 should realize job opportunities are limited for persons in this age bracket, and they will more than likely experience difficulty in obtaining employment. Graduates must be 21 years of age to drive outside the State of Michigan.
- g. Be able to appear for 200 hours of instruction during the five weeks of training. Classes begin at 8:00 A.M. (Monday through Friday) and students are expected to be on time. Any student missing more than two days of class will be dismissed.
- h. Students are subject to drug and alcohol testing as required by D.O.T. regulations.
- i. The Truck Driver Training Program is a short streamlined program. Any previous driving experience along with some mechanical aptitude is beneficial to a student. **APPLICANTS SHOULD KNOW HOW TO SHIFT A STRAIGHT STICK TRANSMISSION AND USE A CLUTCH PRIOR TO ATTENDING.**

TRUCK DRIVER TRAINING PROGRAM REQUIREMENTS

Curriculum Code : 10262

REQUIREMENTS		TOTAL: 9 Credits
CODE	TITLE	CREDIT HOURS
TDTP 110	Truck Train I	3
TDTP 111	Truck Train II	3
TDTP 112	Truck Train III	3
MINIMUM TOTAL		9

NOTES

- 1. The Program provides 140 hours in range and highway driving and 60 hours in classroom instruction situations. Range training includes an over-the-road trip of over 1,000 miles, permitting the students to gain over-the-road experience.

TRANSFER INFORMATION

Students planning on transferring to a four-year institution should be aware that universities and colleges differ widely in the courses they accept for transfer. In order to achieve maximum transferability of courses, students should consult an academic advisor or counselor at the Counseling and Advising Center, Room 103 of the Arts and Sciences Building.

In addition, students intending to transfer should follow the transfer curriculum guide designed specifically for the major and the institution in which they intend to enroll. Students should understand that transfer guides are not LCC degree guides. Students intending to earn an LCC degree prior to transferring should consult an academic advisor or counselor.

Curricular guides are available for many, but not all, possible transfer programs. If there is not a curriculum guide available for a preferred major or institution, students are encouraged to contact the Admissions Office at the transfer institution of interest. It is the student's responsibility when transferring from LCC to be aware of the transfer institution's policies and program requirements.

Curriculum guides and additional transfer information may be obtained by returning the information request card attached to the back cover of this publication or by contacting:

LCC Counseling and Advising Center
 Room 103, Arts and Sciences Building
 Telephone: (517) 483-1191
 FAX: (517) 483-9649
 E-MAIL: jm1154@lansing.cc.mi.us

When requesting information, please indicate area(s) of study and transfer college/university choice(s).

Areas of study (majors) for which transfer curriculum guides are available are as follows:

- | | |
|------------------------------------|-------------------------------------|
| Accountancy | Hospitality Services Administration |
| Accounting | Human Resources Management |
| Actuarial Science and Economics | Industrial Management |
| Administrative Assistant | Information Systems |
| Advertising | Insurance Studies |
| Agriculture and Natural Resources | Integrated Supply Management |
| Communication | Language and World Business |
| Agriscience | Logistics |
| Animal Science | Management |
| Apparel Design | Marketing |
| Applied Liberal Studies | Materials Management |
| Architecture | Operations Management |
| Art | Organizational Sciences |
| Art History | Public Administration |
| Athletic Training | Purchasing Management |
| Atmospheric, Oceanic, and Space | Quality Management Leadership |
| Sciences | Small Business |
| Audiology and Speech Sciences | Statistics |
| Automotive and Heavy Equipment | Chemistry |
| Management | Child Development |
| Aviation Flight Science | Chiropractic, Pre-Professional |
| Aviation Maintenance Technology | Clinical Laboratory Science |
| Aviation Technology and Operations | Communication |
| Behavioral Science | Interpersonal and Public |
| Biochemistry | Scientific and Technical |
| Biology | Studies |
| Biotechnology | Technical and Professional |
| Broadcasting | Communication Arts |
| Building Construction Management | Computational Mathematics |
| Business | Computer and Information Science |
| Accounting | Computer and Mathematical Sciences |
| Accounting Information Systems | Computer Information/Management |
| Administration | Computer Information Systems |
| Banking | Computer Science |
| Computer Management/Systems | Conservation |
| Economics | Construction Management |
| Finance | Court and Conference Reporting |
| Food Industry Management | Criminal Justice |
| Food Marketing | Criminology |
| General Business Administration | Crop and Soil Science |
| Health Services Administration | Dental Hygiene |

- Dentistry, Pre-Professional
- Dietetics
- Earth Science
- Ecology
- Economics
- Education
 - Elementary
 - Physical
 - Secondary
 - Allied Health
 - Biology
 - Business
 - Chemistry
 - Home Economics
 - Industrial
 - Mathematics
 - Music
 - Physical
 - Technology
 - Vocation Technology
 - Special
- Engineering
 - Administration
 - Arts
 - Aeronautical
 - Aerospace
 - Biosystems
 - Chemical
 - Civil
 - Computer
 - Construction and Management
 - Electrical
 - Environmental Geological
 - Heating, Ventilation, Air
 - Condition and Refrigeration
 - Industrial
 - Material Science
 - Marine and Naval Arch
 - Mechanical
 - Metallurgical
 - Mining
 - Nuclear
 - Paper
 - Physics
 - Surveying
- Engineering Technology
 - Automotive
 - Electrical/Electronics
 - Manufacturing
 - Product Design
 - Welding
- English
- Environmental and Natural
 - Resources Policy Studies
- Environmental Chemistry
- Environmental Geology
- Environmental Science
- Exercise and Sport Science
- Facilities Management
- Family and Consumer Resources
- Family Community Services
- Family Life Education
- Family Studies
- Fire Science General Emphasis
- Fisheries and Wildlife
- Foods
 - Science
 - Service Administration
 - System Economics and
 - Management
 - Technology and Management
- Forestry

- Geography
- Geological Sciences
- Geology
- Health Care Administration
- Health Fitness in Prevent and
- Rehab Program
- Health Information Management
- History
- Home Economics
- Horticulture
- Hospitality
- Human Resources Administration
- Industrial
 - Environmental Health
 - Health and Safety
 - Management
 - Technology
- Information Systems
- Insurance
- Interdisciplinary Studies
- Interior Architecture
- Interior Design
- International Studies
- James Madison
- Journalism
- Land Use Planning and Management
- Landscape Architecture
- Law
 - Pre-Professional
 - Legal Assistant
- Liberal Arts
- Management
 - Health and Fitness
 - Health Services
 - Organizational Development
- Marketing
- Mathematics
- Mechanics
- Medical Laboratory Sciences
- Medical, Pre-Professional
- Medical Technology
- Merchandising Management
- Mortuary Science, Pre-Professional
- Music
- Natural Resources
- Nursing
- Nutritional Sciences
- Occupational Therapy
- Optometry, Pre-Professional
- Packaging
- Park and Recreation Resources
- Pharmacy, Pre-Professional
- Philosophy
- Photography
- Physical Therapy
- Physician Assistant
- Physics
- Podiatry, Pre-Professional
- Political Science
- Polymers and Coatings Technology
- Printing Management/Marketing
- Psychology
- Public Administration
- Public Relations
- Public Resource Management
- Quality Management
- Radiation Therapy Technology
- Recreation
- Recreational Management
- Retail
- Social Science
- Social Work

- Sociology
- Speech Pathology and Audiology
- Sports Medicine/Science
- Surveying
- Systems Analysis and Application Development
- Telecommunication
- Television Production
- Textile and Apparel Studies
- Theater
- Tourism Management
- Urban and Regional Planning
- Veterinary Medicine
- Water Purification Tech
- Wood Science

Colleges/universities for which transfer curricular guides are available are as follows (not all majors listed above are available at all transfer institutions).

- | | |
|--|--|
| Alma College | Michigan Technological University |
| Andrews University | Morehouse University |
| Aquinas College | Morris Brown College |
| Baker College | Northern Michigan University |
| Bay de Noc Community College | Northwood University |
| Brooks Institute | Oakland University |
| Calvin College | Olivet College |
| Clark Atlanta University | Palmer College of Chiropractic |
| Center for Creative Studies | Rochester Institute of Technology |
| Central Michigan University | Saginaw Valley State University |
| Clarey College | School of the Art Institute of Chicago |
| Concordia College | Sherman College of Stragm Chiropractic |
| Cooley Law School | Siena Heights College |
| Davenport College/Lansing | Spelman University |
| Eastern Michigan University | Spring Arbor College |
| Ferris State University | Tn-State University |
| Grand Valley State University | University of Detroit Mercy |
| Johnson and Wales University | University of Michigan/Ann Arbor |
| Kendall College of Art and Design | University of Michigan/Dearborn |
| Kettering University (formerly GMI Engineering and Management Institute) | University of Michigan/Flint |
| Lake Superior State University | Walsh College |
| Lawrence Technological University | Wayne State University |
| Life Chiropractic College | Western Michigan University |
| Michigan State University | |

MACRAO TRANSFER AGREEMENT

In 1973 the Michigan Association of Collegiate Registrars and Admissions Officers proposed the MACRAO Transfer Agreement. The MACRAO Transfer Agreement was created to simplify the transfer of students from one institution to another. The agreement stipulates that 30 semester credit hours of 100-level and above, compatible, general course work will be granted to smooth transferability to participating universities. These credits will be applied toward a student's general education requirements. Completion of requirements for the MACRAO Transfer Agreement does not necessarily mean that a student has completed the requirements for a specific Lansing Community College associate degree.

The basic two-year requirements are:

- English Composition 6 semester hours minimum
- Science and Mathematics 8 semester hours minimum
- Social Science 8 semester hours minimum
- Humanities 8 semester hours minimum

The following establishes the approved list of LCC courses under the four major distribution requirements for the MACRAO Transfer Agreement. A course can be used to satisfy only one category even though it may appear in more than one category. Only courses in which at least a 2.0 is received may be applied to this agreement.

- I. **English Composition** (minimum of six (6) semester credit hours)
 - Any one from each group
 - 1. WRIT 121 or WRIT 131
 - 2. WRIT 122 or ENGL 122 or WRIT 132 or ENGL 132

A student with waiver of WRIT 121 indicated on the transcript must elect a second course from the 200-level offerings in WRIT or ENGL. Waiver of WRIT 121 should be printed on the student's transcript.
- II. **Science and Mathematics** (minimum of eight (8) semester credit hours)
 - ISCI 121 and 122 or ISCI 131 and 132

OR

- Courses in at least two (2) subject areas, with a minimum of one laboratory science course. *Underlined courses indicate a laboratory course.*
- Biology:** ANAT 145, 151, 152, 201; BIOL 121, 127, 128, 210, 260, 265; ISCI 122, 132; MICR 203 AND 204; PPHW 123; PHGY 202
- Chemistry:** CHEM 120, 125, 135, 151 and 161
- Environmental and Earth Systems Science:** GEOL 200, 221, 222, 230; ISCI 121, 131; METR 229; OCNL 225
- Mathematics and Statistics:** MATH 121, 122, 126, 130, 141, 151, 152, 201, 202; STAT 170, 215
- Physics:** ASTR 201; PHYS 201 and 225, 215 and 225

III. Social Science (minimum of eight (8) semester credit hours)

- Courses must be taken in more than one subject area.*
- Economics:** ECON 120, 140, 201, 202, 213
- Geography:** GEOG 120, 200, 202
- Political Science:** POLS 120, 121, 260, 270
- Psychology:** CHDV 101; CJUS 255; PSYC 175, 200, 202, 203, 205, 240, 250
- Sociology/Anthropology:** ANTH 270; CJUS 101, 102, 106; GERO 100, SOCL 120, 254, 255, 260, SOWK 101

IV. Humanities (minimum of eight (8) semester credit hours)

- This requirement may be fulfilled by taking one of the following combinations:*
- HIST 211 and 212 or 214; HUMS 211 and 212; HUMS 213 and 214; ENGL 211 and 212; PHIL 211 and 212; RELG 211 and 212

OR

- By taking courses in at least two of the following areas
- Art History:** HUMS 120, 211, 212
- Foreign Language:** CHIN 121, 122; FREN 121, 122, 201, 202; GRMN 121, 122, 201, 202; JAPN 121, 122, 201, 202; SPAN 121, 122, 201, 202
- History:** ECON 213; HIST 150, 210, 211, 212, 214, 220, 230, 260
- Humanities:** HUMS 213, 214, 215
- Literature:** ENGL 201, 202, 203, 211, 212, 255, 256, 260, 266, 267, 270, 290; HUMS 160
- Performing Arts:** MUSC 199, 240, 241; THEA 210
- Philosophy:** PHIL 161, 152, 153, 211, 212, 260
- Religion:** RELG 211, 212, 241, 242, 250

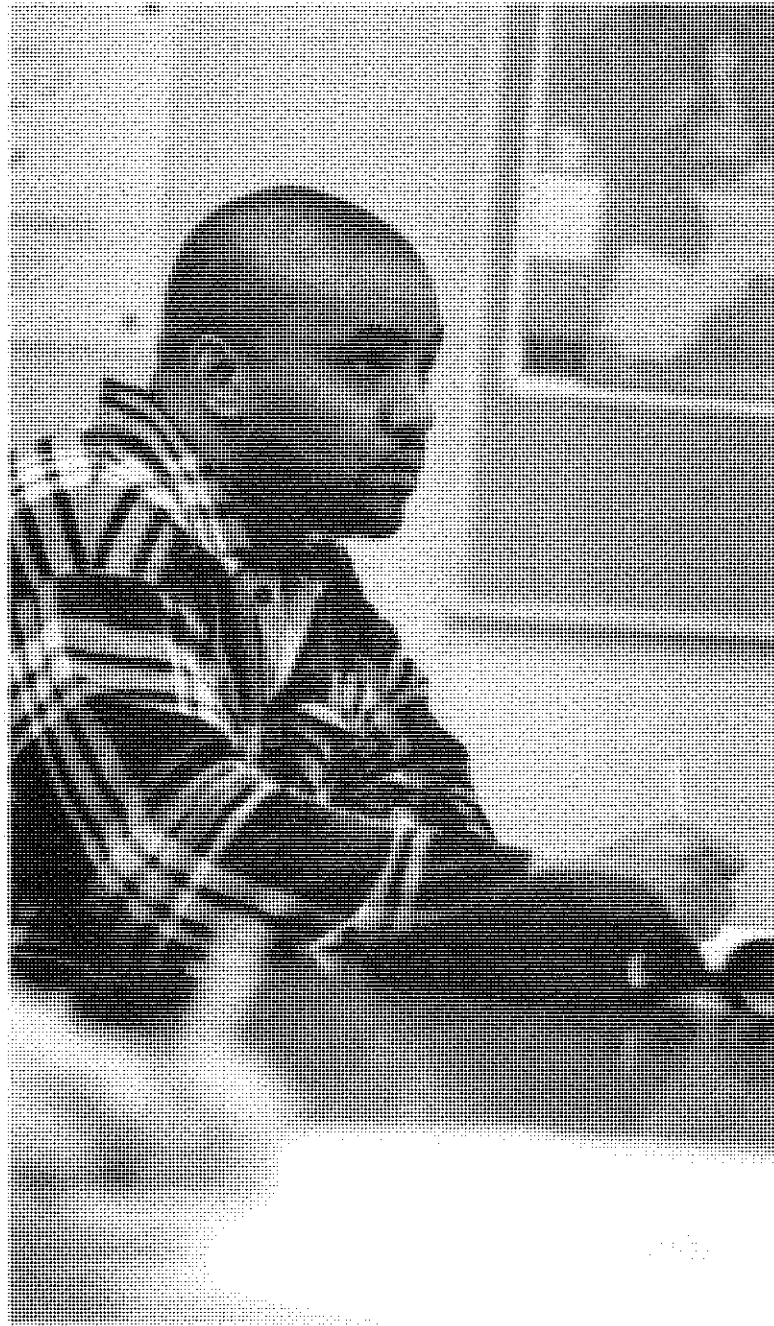
NOTES

1. Students are advised to also review specific transfer curricular guides. Some transfer institutions, for example, may require both a biological and physical science to satisfy the requirements for the degree.
2. Students seeking an LCC associate degree must fulfill specific graduation requirements including the LCC General Education Core requirements. See the *General Information* section of this catalog for additional details.

For further information and advising, contact an LCC academic advisor or counselor located in Room 103 of the Arts and Sciences Building, (517) 483-1904, or Room 208 of the Student Personnel Services Building, (517) 483-1185. The following four-year institutions are signatory to the MACRAO Transfer Agreement:

- | | |
|--------------------------------------|---|
| *Adrian College | *Lake Superior State University |
| *Albion College | *Lawrence Technological University |
| *Alma College | *Madonna University |
| *Aquinas College | *Michigan State University |
| *Baker College | *Michigan Technological University |
| *Calvin College | *Northern Michigan University |
| *Central Michigan University | *Northwood University |
| *Clarey College | *Oakland University |
| *Davenport College | Olivet College |
| *Detroit College of Business | Rochester College (formerly Michigan Christian College) |
| *Eastern Michigan University | *Saginaw Valley State University |
| *Ferris State University | *St. Mary's College |
| *Grand Valley State University | *Siena Heights College |
| *Hope College | *Spring Arbor College |
| *Kalamazoo College | *Western Michigan University |
| *Kettering University (formerly GMI) | |

*Some limitations may apply. Check with individual college/university.



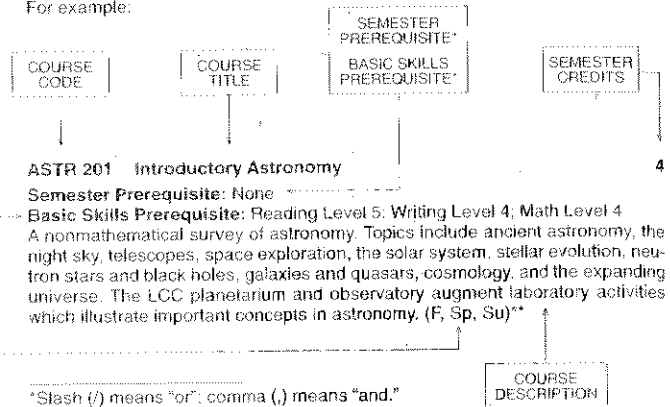
Course Descriptions

HOW TO READ COURSE DESCRIPTIONS

Each course description has seven (7) categories of information as follows:

1. Course code
2. Course title
3. Number of semester credit hours
4. Semester prerequisite
5. Basic skills prerequisite (not all courses have this category)
6. Course description
7. Semester planned

For example:



ASTR 201 Introductory Astronomy

Semester Prerequisite: None

Basic Skills Prerequisite: Reading Level 5; Writing Level 4; Math Level 4
A nonmathematical survey of astronomy. Topics include ancient astronomy, the night sky, telescopes, space exploration, the solar system, stellar evolution, neutron stars and black holes, galaxies and quasars, cosmology, and the expanding universe. The LCC planetarium and observatory augment laboratory activities which illustrate important concepts in astronomy. (F, Sp, Su)**

Basic skill levels required for enrollment. Involves student testing and/or advising before registration. **Other prerequisites may be added.** See *Course Schedule* or department each semester for current information.

Indicates when department plans to offer course, but **does not guarantee** that the course will be offered. See *Course Schedule* or department each semester for current information.

*Slash (/) means "or"; comma (,) means "and."

**F = Fall; Sp = Spring; Su = Summer

COURSE CODES USED IN DESCRIPTIONS

Courses are listed in course code order. The sequence is as follows:

ACCG	Accounting	CUAI	Credit Union Accounting and Insurance
AERO	Aerospace Studies	CUMA	Credit Union Management
AGRI	Agriculture	DADH	Dental Assistant/Dental Hygiene
AHCC	Allied Health Courses	DANC	Dance
AGRI	Agriculture	DAST	Dental Assisting
AIBL	American Institute of Banking: Lansing Area	DHYN	Dental Hygiene
ANAT	Anatomy	DTDS	Drafting and Design
ANTH	Anthropology	ECON	Economics
ARCH	Architecture	EDUC	Education
ARTS	Art, Design and Multimedia	ELCT	Electronics Technology
ARWS	Art Seminars and Workshops	ELTE	Electrical Technology
ASTR	Astronomy	EMSA	Emergency Medical Services
AUTO	Automotive	EMSB	Emergency Medical Services Seminars
AVAF	Aviation Airframe Maintenance	EMTA	Emergency Medical Technology
AVCE	Aviation Continuing Education	ENGL	English
AVEL	Aviation Electronics	ENRI	Enrichment
AVFT	Aviation Flight Training	ENVR	Environmental Science
AVGM	Aviation General Maintenance	ESLP	English as a Second Language
AVGS	Aviation Ground School	ESLW	English as a Second Language Workshop
AVIR	Aviation Instrument Repair	FIRE	Fire Science
AVPP	Aviation Powerplant Maintenance	FREN	French
AVST	Aviation Simulator Training	GEOG	Geography
BDCS	Business Development Seminars	GEOI	Geology
BIOL	Biology	GERO	Gerontology
BLDR	Building Related	GRET	Geographical Resource and Environmental Technology
BLDT	Building Trades	GRMN	German
BUSN	Business	HIST	History
CABS	Computer Applications Using Business Software	HMFS	Hotel/Motel and Food Service Operations
CACR	Court and Conference Reporting	HONR	Honors
CHCE	Continuing Health Careers	HORT	Horticulture
CHDV	Child Development	HUMS	Humanities
CHEM	Chemistry	HUSE	Human Services
CHIN	Chinese	HVAC	Heating, Ventilating, and Air Conditioning
CHSE	Community Health Services	IDMS	Diagnostic Medical Sonography
CISB	Computer Information Systems for Business	IMAG	Photography Technology
CIVL	Civil Technology	INAU	Industrial Automation
CJUS	Criminal Justice	INSU	Insurance
CNCP	Computerized Numerical Control Program	INTR	Interior Design
COOP	Cooperative Education	IRAD	Radiation Therapy Technology
CPSC	Computer Science	IRXT	Radiologic Technology
		ISCI	Integrated Science
		JAPN	Japanese

JRNL	Journalism
LABR	Labor Relations
LAND	Landscape
LEGL	Legal Assistant/Law
LING	Linguistics
MACH	Machine Tool Technology
MASG	Massage Therapy
MATH	Mathematics
MDCR	Management Development: Restricted
MDCS	Management Development Seminars
MEDA	Medical Assistant
METR	Meteorology
MFGM	Manufacturing Maintenance
MGMT	Management
MICR	Microbiology
MLS	Military Science
MKTG	Marketing
MTEC	Media Technology
MUSC	Music
NURS	Nursing
OADM	Office Administration
OCNL	Oceanology
PARA	Paramedic
PFAQ	Physical Fitness: Aquatics
PFCW	Physical Fitness: Combative/Weight Training
PFDA	Physical Fitness: Dance Courses
PFFT	Physical Fitness: Fitness Courses
PFHC	Physical Fitness: Health/Fitness Cardiac
PFHW	Physical Fitness: Health/Fitness Wellness
PFIS	Physical Fitness: Individual Sport/Interest
PFOA	Physical Fitness: Outdoor Activity
PFPR	Physical Fitness: Professional Courses
PFTS	Physical Fitness: Team Sport
PHGY	Physiology
PHIL	Philosophy
PHON	Phonics
PHYS	Physics
POLS	Political Science
PSYC	Psychology
PVAA	Property Valuation and Assessment Administration
QSEM	Quality Assurance Seminars
QUAL	Quality Assurance
RDGR	Reading: Restricted
READ	Reading
REAL	Real Estate
RELG	Religion
RESP	Respiratory Therapy Courses
RSEM	Resource and Operations Management Systems Seminars
SAFE	Safety
SCIS	Science Seminars
SDEV	Student Development
SIGN	Sign Language
SOCL	Sociology
SOWK	Social Work
SPAN	Spanish
SPCH	Speech Communication
SPEL	Spelling Development
STAT	Statistics
SURG	Surgical Technology
TDTP	Truck Driver Training Program
TEDU	Teacher Education
TECH	Technology General
THEA	Theater
TRVL	Tourism: Airline and Travel Agency Operations
VCBL	Vocabulary Improvement
WELD	Welding Technology
WRIT	Writing
WRTR	Writing: Restricted

DESCRIPTIONS

ACCG - ACCOUNTING

- ACCG 100 Practical Accounting for Non-Majors** 3
Semester Prerequisite: None
 Students will learn the bookkeeping procedures necessary for preparation of financial statements and payroll. Manual and computer systems will be covered. (F, Sp, Su)
- ACCG 101 Accounting Information for Management** 3
Semester Prerequisite: None
 Students will learn to interpret financial statements and use this information for analysis, budgeting, and decision-making. (F, Sp)
- ACCG 140 Individual Income Taxes** 3
Semester Prerequisite: None
 Students will complete individual income tax returns and supporting schedules according to the Internal Revenue Code. The focus is on the completion of forms rather than the theoretical aspects of the tax law. (F, Sp)
- ACCG 160 Payroll Systems and Business Taxes** 2
Semester Prerequisite: ACCG 100/Equivalent
 This course covers laws affecting payroll, calculation of payroll and payroll taxes using both manual and computer payroll systems, preparation of tax forms for payroll taxes, sales and use taxes, and personal property taxes. (Su)
- ACCG 210 Principles of Accounting I** 4
Semester Prerequisite: MATH 107/Higher Level Algebra
Basic Skills Prerequisite: Reading Level, Writing Level, Math Level
 (See Course Schedule)
 Principles of Accounting I is the first class of a two-semester sequence focusing on financial accounting, including accounting for service organizations and merchandisers. Topics covered include the basic accounting cycle, financial reporting, accounting theory, and accounting for inventories, cash, receivables and payables, plant assets, and stockholders equity. (F, Sp, Su)
- ACCG 211 Principles of Accounting II** 4
Semester Prerequisite: 2.0 Minimum in ACCG 210, MATH 112/Equivalent
 Principles of Accounting II is the second course in the two-semester accounting sequence. Topics include statement of cash flows, budgets and other managerial reports, capital budgeting, short-term decision-making, equity investments, time value of money, bonds, manufacturing accounting, job and process costing systems, and accounting for quality and cost management. (F, Sp, Su)
- ACCG 220 Intermediate Accounting I** 4
Semester Prerequisite: 2.0 Minimum in ACCG 211, Spreadsheet Experience
 The purpose of this course is to review and expand upon the concepts of financial accounting that were covered in the Principles courses, to master time value of money concepts, and to cover the more complex and theoretical aspects of accounting for revenue recognition, cash, receivables, and inventory. (F, Sp)
- ACCG 221 Intermediate Accounting II** 4
Semester Prerequisite: 2.0 Minimum in ACCG 220
 This course provides an in-depth coverage of long-term assets and liabilities, financial instruments, leases, pensions, accounting for income taxes, stockholders' equity, and earnings per share. (Sp)
- ACCG 230 Cost Accounting** 4
Semester Prerequisite: 2.0 Minimum in ACCG 211, ACCG 260
 This course focuses on cost-volume-profit analysis costing methods for service and merchandising businesses. Other topics include activity based costing, job order costing, responsibility accounting, budgeting, standards, variable vs. full costing, joint and by-products, process costing, spoilage, project control, and capital budgets. Computer applications are emphasized. (F)
- ACCG 231 Managerial Accounting** 4
Semester Prerequisite: 2.0 Minimum in ACCG 230
 This course focuses on the accountant's role in the organization; cost information gathering, processing and reporting for various decision and control purposes; pricing; cost allocation; project control; mix and yield variances; uncertainty; variance investigation; inventory management; cost management; strategic planning; and management control. (Sp)

- ACCG 235 Budgeting** 2
Semester Prerequisite: ACCG 211
 This course covers the budget cycle of an organization, both public and private, from a managerial perspective. Topics covered include budgetary terms, concepts and general format, performance budgeting, program budgeting, zero base budgeting, budgeting approval process, budgetary control, and the auditing phase of a budget. (F)
- ACCG 240 Federal Income Tax I** 4
Semester Prerequisite: 2.0 Minimum in ACCG 211
 This class is the first in a two-semester sequence in federal income tax. This course deals with taxation of individuals from a historical and theoretical perspective, as well as preparation of individual income tax returns under current tax law. (F, Sp)
- ACCG 241 Federal Income Tax II** 4
Semester Prerequisite: ACCG 240
 This class is the second in a two-semester sequence in federal income tax. This course deals with the taxation of corporations, partnerships, estates, trusts, and tax exempt entities from a historical and theoretical perspective, as well as preparation of tax and information returns under current tax law. (Sp)
- ACCG 245 Accounting Internship** 2
Semester Prerequisite: Departmental Approval
 This internship provides the student with on-the-job experience in the accounting field. It requires 128 hours of work experience. (F, Sp, Su)
- ACCG 250 Advanced Accounting** 4
Semester Prerequisite: 2.0 Minimum in ACCG 221/Departmental Approval
 This course covers business consolidations, foreign currency accounting, and partnerships in depth. In addition, the course provides an overview of governmental and nonprofit accounting. (Su)
- ACCG 260 Microcomputer Accounting Systems** 4
Semester Prerequisite: 2.0 Minimum in ACCG 210, Micro Experience
 Microcomputer Accounting Systems prepares students to work with and design information systems and to use the scientific methods in problem solving. Issues and problems related to microcomputers and other technology on accounting systems are emphasized. Students work with systems flowcharts, manual and computerized accounting systems, database design, and problem solving with spreadsheets. (F, Sp, Su)
- ACCG 266 Independent Study in Accounting** 1
Semester Prerequisite: Departmental Approval
 With this course, students will learn advanced accounting topics as a part of a class, an independent study, or a project. Grading criteria and course objectives are determined at the first meeting. The course requires a minimum for each credit earned of either 16 classroom hours or 48 independent study hours. (F, Sp, Su)
- ACCG 271 Principles of Finance** 3
Semester Prerequisite: ACCG 211
 This course emphasizes the short- and long-term decisions a financial manager may face. Topics include working capital management, risk, cost of capital, capital markets, long-term debt, stocks and dividend policy, mergers and acquisitions, and international financial markets as these topics relate to obtaining financing for a business. (F, Sp)
- ACCG 280 Governmental Accounting** 4
Semester Prerequisite: ACCG 211
 Applications of fund accounting principles are applied to governmental (local and state) and not-for-profit entities. Students learn skills necessary to understand the organization, accounting functions, auditing, and financial reporting practices of governmental and non profit organizations. Governmental Accounting Standards Board (GASB) and Financial Accounting Standards Board (FASB) requirements are taught. (F)
- ACCG 290 Auditing** 3
Semester Prerequisite: ACCG 221/Departmental Approval
 In this course, students will learn the theory and practice of auditing in accordance with generally accepted auditing standards. (F)
- ACCG 295 CPA Review - Tax, Managerial and Cost, Government, and Nonprofit** 1
Semester Prerequisite: Meet Requirement for CPA Exam
 The course is designed to provide CPA exam candidates with a review of federal taxation, cost, managerial, governmental, and nonprofit accounting. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)

ACCG 296 CPA Review - Business Law 1
Semester Prerequisite: Meet Requirement for CPA Exam
 This course is designed to provide CPA exam candidates with a review of business law, especially the provisions of the Uniform Commercial Code. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)

ACCG 297 CPA Review - Auditing 1
Semester Prerequisite: Meet Requirement for CPA Exam
 This course is designed to provide CPA exam candidates with a review of audit concepts, assumptions, and procedures. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)

ACCG 298 CPA Review - Financial Accounting and Reporting 1
Semester Prerequisite: Meet Requirement for CPA Exam
 This course is designed to provide CPA exam candidates with a review of the theory and practice of financial accounting and reporting for business enterprises. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)

AERO - AEROSPACE STUDIES

AERO 111 Air Force Today I 1
Semester Prerequisite: None
 This course provides an introduction to the U.S. Air Force today. Course topics include mission and organization, group leadership problems, and introduction to communication skills. Includes a leadership laboratory. (F)

AERO 112 Air Force Today II 1
Semester Prerequisite: None
 This course provides an introduction to the U.S. Air Force today. Course topics include officership and professionalism, group leadership problems, and introduction to communication skills. Includes a leadership laboratory. (Sp)

AERO 211 Development of Air Power I 1
Semester Prerequisite: None
 This course focuses on Air Force heritage. Course topics include evaluation of air power concepts and doctrine, introduction to ethics and values, introduction to leadership, and the continuing application of communication skills. Includes a leadership laboratory. (F)

AERO 212 Development of Air Power II 1
Semester Prerequisite: None
 This course focuses on Air Force leaders. Course topics include the role of technology in the growth of air power, introduction to Quality Air Force, group leadership problems, and the continuing application of communication skills. Includes a leadership laboratory. (Sp)

AGRI - AGRICULTURE

AGRI 101 Principles of Precision Agritechology 2
Semester Prerequisite: None
 This course introduces the field of precision agricultural technology. The combining of the latest technologies, i.e., Global Positioning Systems and Integrated Pest Management, make traditional agricultural practices as accurate and customized as possible for each specialized crop. (F, Sp)

AGRI 106 Diseases and Insects of Agrinomic Crops 2
Semester Prerequisite: None
 This course is for the professional applicator or farm operator interested in a basic knowledge of insects, diseases, vertebrates, and microorganisms that affect agrieconomic crops. Environmental problems, soil, fertilizers, planting, integrated pest management, and problem solving techniques will be stressed. Can be used toward pesticide certification by the Michigan Department of Agriculture. (Sp)

AGRI 200 Vegetation and Weed Management 3
Semester Prerequisite: None
 Students will develop skills necessary to monitor, control, and identify by species both vegetation and weed plants. Vegetation will be evaluated from seedling to mature stage for proper control measures by both natural and chemical controls. Various chemicals will be judged for environmental impact and effective control. (F, Sp)

AGRI 201 Principles of Sustainable Agriculture 3
Semester Prerequisite: None
 The modern era principles of sustainable agriculture will be covered by way of lecture and demonstration. The practice of proper plant selection, species requirements, land use, fertilization needs, and pesticide practices will be highlighted. Scientific practices utilized in plant genetics and technology applications will also be discussed. (F)

AHCC - ALLIED HEALTH COURSES

AHCC 104 Patient Care Principles 2
Semester Prerequisite: Admission to Program, ANAT 145 Recommended
 Principles of basic patient care are presented to assist the student in managing patients in the health care setting. Information and simulated practice will include surgical aseptic techniques, infection control procedures, taking vital signs, handling medical emergencies, and other practices emphasizing the physical and emotional aspects of basic patient care. (F, Sp)

AHCC 106 Introduction to Pathology 2
Semester Prerequisite: ANAT 145, Health Careers Applicant/Student
 General principles of pathology are discussed, rather than specific disease entities, to develop a new way of thinking about disease processes. Concepts of disease processes and their effect on normal structure and function of the body are emphasized. (F, Sp)

AHCC 110 Pharmacology-Allied Health 2
Semester Prerequisite: Health Careers Applicant/Student
 This course is designed to familiarize the student with common medications encountered in the health care occupations. Emphasis is on drug categories and the responsibilities associated with medication administration. (F, Sp, Su)

AHCC 111 Applied Electrocardiography 1
Semester Prerequisite: None
 This course is designed to teach the basic skills of electrocardiography necessary to perform, process, and explain the electrocardiogram. An overview of anatomy and physiology of the cardiovascular system, operation of the electrocardiograph and recording EKGs, cardiac pathology, and basic cardiac rhythm recognition will be presented. (F, Sp)

AHCC 112 Health Law and Ethics 2
Semester Prerequisite: Allied Health Applicant/Professional
 This course is a presentation and discussion of legal ethical issues arising from the organization and delivery of health care services. Topics will include contract, tort, and business law; medical recordkeeping and retention; agency; physicians' public duties; licensure, certification, and regulation of health professionals; consent; and exploration of issues arising from various bioethical topics. (Sp)

AIBL - AMERICAN INSTITUTE OF BANKING, LANSING AREA

AIBL 101 Principles of Banking 3
Semester Prerequisite: None
 This course is an introduction to the field of commercial banking, designed not only for newcomers to the field, but for students presently employed in banking who desire to broaden their knowledge and/or increase their opportunities for advancement. (F, Sp)

AIBL 120 Economics for Bankers 3
Semester Prerequisite: None
 This course provides bankers with an introduction to the fundamental principles of economics. Special emphasis is placed on topics of importance to bankers. The text covers the basics of economic theory and examples of the application of economics to banking. (Sp)

AIBL 160 Understanding and Selling Bank Products 2
Semester Prerequisite: None
 Working from the customer's perspective, this course shows student how to identify and practice six human relations skills that encourage smooth, clear, and personal communication. Includes the basic steps in selling, information about bank products and product benefits (rather than features) that appeal to a customer, and how to identify customer needs. (Sp)

AIBL 170 Preparing for Supervision 1
Semester Prerequisite: None
 This course is designed to help employees (students) prepare for the transition to supervisor, and/or to help those who wish to evaluate their own capabilities and desires to move toward a supervisory role. (F)

- AIBL 171 Customer Service** 1
Semester Prerequisite: None
 This course emphasizes the development of better communication skills to benefit employees, customers, and the bank. Students will learn effective ways of establishing contact, exploring customer needs, defining and resolving problems, and closing the encounter. (F)
- AIBL 174 Personnel and the Law** 1
Semester Prerequisite: None
 This seminar is designed to provide an introduction and overview to the principles and application of laws affecting banking personnel policies and procedures. The seminar will be most applicable to bank personnel officers, managers, branch managers, and supervisors. (F)
- AIBL 176 Compliance Management** 1
Semester Prerequisite: None
 This course takes students through the steps leading to an effective compliance program. The course provides guidelines for determining how the compliance function fits with the overall bank structure. It also explains how to implement a valid program and discusses ways to monitor and audit the program. (F)
- AIBL 178 Loan Collections** 1
Semester Prerequisite: None
 This course outlines an effective program of loan analysis, points out the early warning signals of problem loans, and shows students how to minimize losses should a problem loan occur. (F)
- AIBL 180 Mortgage/Loan Documentation** 2
Semester Prerequisite: None
 This course emphasizes the basics of loan processing and underwriting. Students will develop skills necessary to conduct loan interviews, process loan applications, act on a loan decision, and close real estate loans. (Sp)
- AIBL 206 Money and Banking** 3
Semester Prerequisite: AIBL 120/ECON 140/ECON 201/Departmental Approval
 This course presents a fundamental treatment of how money functions in the U.S. and world economies. Topics include the concept of money supply, the role a bank plays as a money creator and participant in the nation's payment mechanism, monetary and fiscal policies, the federal reserve, and more. (F)
- AIBL 207 Consumer Lending and Loan Training** 3
Semester Prerequisite: None
 This course offers essential information about the maze of regulations that govern credit practices and reviews loan processing, cross-selling, and collections. Case studies and role plays are offered to acquaint students with effective loan interviewing skills. The course also provides hands-on training to improve the quality of the credit decision. (F)
- AIBL 208 Commercial Lending and Loan Documentation** 3
Semester Prerequisite: AIBL 101
 This course focuses on how the commercial lending business is organized, how it contributes to bank profitability, and the total commercial lending process. Students will learn the credit-granting process which will help ensure asset quality, avoid pitfalls, and protect the bank's integrity. (Sp)
- AIBL 212 Analysis of Financial Statements** 3
Semester Prerequisite: AIBL 101
 This course provides the opportunity to further develop the skills necessary to conduct a comprehensive and effective financial analysis of a business borrower in order to assess repayment capacity. (Sp)
- AIBL 214 Law and Banking: Principles** 3
Semester Prerequisite: None
 This course covers legal principles and a general review of legal problems pertaining to business and banking. Includes contracts, consideration, statute of frauds, commercial paper, bank deposits, bank collections, sales, titles, agencies, and extracts from the uniform commercial code. (F)
- AIBL 215 Law and Banking: Applications** 3
Semester Prerequisite: AIBL 214 Recommended
 This course is an introduction to laws pertaining to secured transactions, letters of credit, and the bank collection process. Students will review the legal implications of normal activities and transactions in banking operations, the impact of the law, and applicable bank regulations. (Sp)

- AIBL 221 Branch Banking Series** 2
Semester Prerequisite: None
 A variety of topics are presented in this course to help new and prospective branch managers prepare for their new responsibilities. Credit, human resource management, managing sales in the branch, and marketing are presented to help students sharpen their skills and perform their job more effectively. (Sp)

ANAT - ANATOMY

- ANAT 145 Introductory Anatomy and Physiology** 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See Course Schedule)
 An introductory course in human anatomy and physiology which combines lecture and laboratory experiences to provide a basic understanding of the structure and function of body systems. Designed for vocational programs, including dental assistant and medical transcriptionist, as well as non-science majors. (F, Sp, Su)
- ANAT 151 Anatomy and Physiology I** 3
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See Course Schedule)
 First course of a two-semester sequence in human anatomy and physiology emphasizing the structure and function of cells and tissues: the skeletal, muscular and nervous systems; and special sense organs. (F, Sp, Su)
- ANAT 152 Anatomy and Physiology II** 3
Semester Prerequisite: 2.0 Minimum in ANAT 151
 This course is the second of a two-semester sequence emphasizing structure and function of the endocrine, digestive, respiratory, circulatory, urinary, and reproductive systems. Includes fetal development and genetics. (F, Sp, Su)
- ANAT 201 Human Anatomy** 4
Semester Prerequisite: BIOL, CHEM Recommended
Basic Skills Prerequisite: Reading Level; Writing Level (See Course Schedule)
 A study of the anatomy of the human body that includes the structures of the skeletal, muscular, nervous, sensory, circulatory, respiratory, digestive, excretory, endocrine, and reproductive systems. (F, Sp, Su)

ANTH - ANTHROPOLOGY

- ANTH 270 Cultural Anthropology** 3
Semester Prerequisite: SOCL 120
 This course compares ways of life for societies worldwide using anthropological theory and methodology. Basic institutions of human society, such as kinship, religion, law, politics, and economics are examined to provide a better understanding of the diversity of contemporary societies. (F)
- ANTH 275 Physical Anthropology and Archaeology** 3
Semester Prerequisite: SOCL 120
 Introduces human biological and cultural evolution, mechanisms of evolution, biological and cultural evidence from the fossil record, culture as an adaptive mechanism, and modern human variation. (Sp)
- ANTH 276 World Archaeology** 3
Semester Prerequisite: SOCL 120
 A general survey of archaeology. Includes an overview of the history of the field and the basic theories and methods employed in the study of prehistoric and historic cultures. Archaeological sites are used as examples. (F)

ARCH - ARCHITECTURE

- ARCH 100 Introduction to Architecture** 3
Semester Prerequisite: None
Basic Skills Prerequisite: Math Level (See Course Schedule)
 This course is for students with no previous experience in basic architectural drafting. Students will be introduced to the proper techniques of architectural line work, lettering, orthographic projection, and axonometric drawings. Techniques of architectural dimensioning, the use of symbols, and the production of a basic floor plan will be accomplished. (F, Sp, Su)

2	<p>ARCH 101 Architectural Drafting I 4</p> <p>Semester Prerequisite: ARCH 100/Equivalent Basic Skills Prerequisite: Math Level (See <i>Course Schedule</i>) This course is the first of a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained basic drafting techniques to draw a series of residential details. The development of professional quality drafting, lettering, research, and communication techniques will be emphasized. (F, Sp, Su)</p>	
4	<p>ARCH 102 Architectural Drafting II 4</p> <p>Semester Prerequisite: ARCH 101, ARCH 121/Concurrently Basic Skills Prerequisite: Math Level (See <i>Course Schedule</i>) This course is the second in a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained basic drafting techniques and knowledge of residential detailing to design and draft basic architectural design problems, residential floor plans, elevations, and building sections. (F, Sp, Su)</p>	
3	<p>ARCH 121 Visual Communication I 3</p> <p>Semester Prerequisite: ARCH 100/Equivalent Students with very little or no previous experience in the production of architectural graphics will be introduced to the basic techniques of sketching, axonometric, and perspective drawings. The theory and production of the most commonly used professional techniques of black and white architectural rendering and basic modeling will be studied. (F, Sp, Su)</p>	
3	<p>ARCH 122 Visual Communication II 3</p> <p>Semester Prerequisite: ARCH 121/Equivalent This course is a continuation of Visual Communication I. Students will gain knowledge of basic color rendering techniques using a variety of media. (Sp)</p>	
4	<p>ARCH 123 Visual Communication III 3</p> <p>Semester Prerequisite: ARCH 122 The goal of this course is to use the students' previously obtained graphic production knowledge to realistically depict three-dimensional architectural spaces and related entourage. An emphasis on developing the use of light and shadow and the true depiction of textures and materials will be taught. (F)</p>	
3	<p>ARCH 126 Model Building 2</p> <p>Semester Prerequisite: None Students in this course will enhance their design and communication skills by developing various techniques for building three-dimensional architectural models. Examples constructed will range from the most basic of study models, using readily available materials, to more sophisticated presentation models. (F, Sp)</p>	
3	<p>ARCH 128 Residential Planning 2</p> <p>Semester Prerequisite: None This course is designed for beginning through advanced students of architecture who want to study the theories behind the design of the American single-family residence. Architectural styles, planning concepts, the writing of design criteria programs, and the production of basic diagrams through finished concept drawings will be accomplished. (F, Sp)</p>	
3	<p>ARCH 131 City Planning 3</p> <p>Semester Prerequisite: None This is an introduction to the field of urban and regional planning. The development of planning theory, process and practices, such as urban design, environmental, and land-use planning; transportation; economic development; housing; and community facilities will be studied. The history of various cities and their development will also be studied. (F, Sp)</p>	
4	<p>ARCH 138 Architecture Portfolio 4</p> <p>Semester Prerequisite: CNCP 101/TECH 130, Second-Year Student This course will allow students to prepare a portfolio of previous classroom and professional work to be used for employment interviews and/or transfer to four-year institutions. Portfolios will be prepared using a variety of graphic techniques and will introduce the students to computer-generated portfolio presentations. (Sp)</p>	
3	<p>ARCH 141 Architectural History I 3</p> <p>Semester Prerequisite: None Beginning with ancient times, this course studies the major civilizations which have contributed to the development of the architecture of world civilizations. A wide variety of visual media will be used to present the major theories, works, personalities in architecture, and the decorative arts through the Renaissance. (F, Sp)</p>	
3	<p>ARCH 142 Architectural History II 3</p> <p>Semester Prerequisite: ARCH 141 Recommended This course, the second in a series, examines the greatest works and principal figures in world architectural history from the 1600s forward. Using a variety of visual media, this course will look at the principal works, theories, and individuals who have had the greatest impact on architecture and decorative arts to the present day. (F, Sp)</p>	
3	<p>ARCH 146 Preservation and Adaptive Reuse Architecture 3</p> <p>Semester Prerequisite: None This course is designed as an overview of the principles and practices of preservation, restoration, and adaptive reuse architecture. Students will have the opportunity to work on a project of their choosing while being introduced to research methods, publications, and examples of preservation and new uses for existing structures. (F, Sp)</p>	
3	<p>ARCH 181 Barrier-Free Design 3</p> <p>Semester Prerequisite: None This course covers the design, construction, and inspection aspects of commercial buildings required to be accessible to the handicapped. Michigan and federal laws, barrier-free residential design, and design practice problems are included. (F, Sp, Su)</p>	
2	<p>ARCH 182 Universal Design 2</p> <p>Semester Prerequisite: ARCH 100, ARCH 181 This course is designed for students with some architectural drafting experience. Students will apply ADA laws as well as Michigan's Barrier Free or Universal Design to residential design. Both study cases and original design projects will be used. (F, Sp)</p>	
4	<p>ARCH 201 Architectural Drafting III 4</p> <p>Semester Prerequisite: ARCH 102, ARCH 141 Basic Skills Prerequisite: Math Level (See <i>Course Schedule</i>) This course is the third of a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained drafting, research, and presentation skills to design, delineate, present, and draft a light commercial project from basic schematics to working drawings. (F, Sp, Su)</p>	
4	<p>ARCH 202 Architectural Drafting IV 4</p> <p>Semester Prerequisite: ARCH 201, ARCH 271/Concurrently Basic Skills Prerequisite: Math Level (See <i>Course Schedule</i>) This course is the conclusion in a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained drafting, research, and presentation skills to complete the working drawing floor plans, elevations, sections, and details for the light commercial projects started in the preceding course. (Sp)</p>	
3	<p>ARCH 211 Design Studio I 3</p> <p>Semester Prerequisite: ARCH 101/Concurrently This course is an introduction to the basic theories and methods of architectural design, problem-solving techniques, and design methodologies using contemporary architects as examples. Students will be given a series of problem-solving exercises and will be instructed in developing presentation and verbal techniques to present their solutions. (F, Sp)</p>	
3	<p>ARCH 212 Design Studio II 3</p> <p>Semester Prerequisite: ARCH 211 This course will use the skills developed in ARCH 211 to expand the student's understanding and processes for designing three-dimensional architectural space. Using models and various graphical mediums, students will explore the effects of scale, circulation, light, color, and texture on the spaces and forms created. (Sp)</p>	
3	<p>ARCH 213 Facilities Design 3</p> <p>Semester Prerequisite: ARCH 101/Equivalent In this course, students will explore, tour, and study the design theory behind a full range of structures used for office and manufacturing purposes. Systems of manufacturing and how they relate to the structures which house them will be studied. (F, Sp)</p>	
4	<p>ARCH 221 Architectural DataCAD I 4</p> <p>Semester Prerequisite: ARCH 100/Equivalent An introductory course to architectural computer-aided drafting, using DataCAD on a PC computer system. Students will create a series of two-dimensional drawings, including floor plans, elevations and building sections. An introduction to DataCAD's 3-D Modeler will also allow students to develop basic presentation drawings and perspectives. (F, Sp, Su)</p>	

- ARCH 222 Architectural DataCAD II** 4
Semester Prerequisite: ARCH 221
 This course is a continuation of ARCH 221 and will develop students' skills by introducing advanced two-dimensional operations, the creation and use of template symbols, and a complete overview of DataCAD's macro programs. Complete three-dimensional modeling will be taught including complex 3-D entities for developing professional presentations. (F, Sp)
- ARCH 225 Architectural DataCAD Independent Study** 2
Semester Prerequisite: ARCH 222, Approval Required
 This is an advanced-level, computer-aided drafting and design, independent study course, using DataCAD software. After completing all available structured DataCAD courses, students will outline, research, design, and construct a project of their own selection with the approval and guidance of the instructor. (F, Sp, Su)
- ARCH 231 Architectural AutoCAD I** 4
Semester Prerequisite: ARCH 100/Equivalent, Windows Experience
 This entry-level course introduces AutoCAD, a PC-based computer graphic system, for architectural applications. Students will concentrate on two-dimensional drawing and editing functions for creating floor plans, elevations, and building sections. An introduction to three-dimensional modeling techniques will also be covered. (F, Sp, Su)
- ARCH 232 Architectural AutoCAD II** 4
Semester Prerequisite: ARCH 231
 This course is a continuation of ARCH 231, utilizing advanced two-dimensional techniques and a strong emphasis in the three-dimensional environment. Additional topics include digitizing drawings, paper space, slide shows and rendering, basic 3-D solids, program customization, and an introduction to AutoLISP. (F, Sp)
- ARCH 235 Architectural AutoCAD Independent Study** 2
Semester Prerequisite: ARCH 232, Approval Required
 This is an advanced-level, computer-aided drafting and design, independent study course, using AutoCAD software. After completing all available structured AutoCAD courses, students will outline, research, design, and construct a project of their own selection, with the approval and guidance of the instructor. (F, Sp, Su)
- ARCH 237 Architectural Computer Rendering** 3
Semester Prerequisite: ARCH 222/ARCH 232, Windows Experience
 This course is intended for the advanced architectural computer graphics student. Using the three-dimensional graphics skills obtained in one or more of the architectural preliminary computer graphics courses, students will learn to produce three-dimensional wire frame models, advanced architectural computer renderings, and photo realistic pictorials. (Sp)
- ARCH 241 Architectural AES Computer Graphics I** 4
Semester Prerequisite: ARCH 100/Equivalent
 This course is designed as an entry-level, computer-aided drafting and design course using the AES software. Students will learn to build command strings in the modeling program to construct 3-D geometry, edit, create layers, plot, apply text and dimensions, and to open and close graphic windows. (F, Sp)
- ARCH 242 Architectural AES Computer Graphics II** 4
Semester Prerequisite: ARCH 241
 This course will build on the knowledge gained in ARCH 241 and will add additional applications in modeling, file management, plotting, and rendering. (Sp)
- ARCH 245 Architectural AES independent Study** 2
Semester Prerequisite: ARCH 242, Approval Required
 This is an advanced-level, computer-aided drafting and design independent study course using AES software. After completing all available structured AES courses, students will outline, research, design, and construct a project of their own selection with the approval and guidance of the instructor. (F, Sp, Su)
- ARCH 251 Architectural MicroStation I** 4
Semester Prerequisite: ARCH 100/Equivalent, Windows Experience
 This class is an introductory computer graphics course using the MicroStation computer graphics software. Students will learn to develop basic 2-D geometry, editing commands, file manipulation, and utilization of levels, views, text, dimensioning, and plotting. (F, Sp)
- ARCH 252 Architectural MicroStation II** 4
Semester Prerequisite: ARCH 251/Equivalent
 This is an intermediate-level computer graphics course. Using the MicroStation software, students will learn to create and manipulate 3-D drawing surfaces and solids, 3-D cells, rendering, lighting, material tables, pattern mapping, and object motion. Upon completion of this class, students will be able to create, manipulate, and render 3-D models. (Sp)
- ARCH 255 MicroStation Independent Study** 2
Semester Prerequisite: ARCH 252, Approval Required
 This is an advanced-level, computer-aided drafting and design independent study course using MicroStation software. After completing all available structured MicroStation courses, students will outline, research, design, and construct a project of their own selection with the approval and guidance of the instructor. (F, Sp, Su)
- ARCH 271 Structural Theory** 4
Semester Prerequisite: ARCH 101/Concurrently
 This course introduces the principles of statics and relates the application of physical forces to structural materials and elements. The structural and design properties of steel, wood, and concrete will be studied. The ability to read structural tables and accurately make calculations will be emphasized. (F, Sp)
- ARCH 273 Environmental Systems** 4
Semester Prerequisite: ARCH 101/Concurrently
 This course is designed for architecture and interior architecture students. All elements affecting the interior environment of a commercial or residential structure, such as lighting, HVAC systems, and acoustics, will be studied. Calculations and the sizing of systems will be part of all sections. (F)
- ARCH 274 Architectural Professional Practice** 3
Semester Prerequisite: ARCH 101
 Students will have the opportunity to study the configuration, responsibilities, and ethics of professional architectural offices. This course will examine and visit various offices of the architectural, engineering, and construction industry and explore job responsibilities, personnel, and the procedures used in the production of construction documents. (F, Sp)
- ARCH 276 Alternative Structures** 3
Semester Prerequisite: None
 The study of post and beam, underground, stress skin, and other alternative methods of construction will be studied in this course. (F, Sp)
- ARCH 278 Energy Efficient Design** 4
Semester Prerequisite: None
 An examination of all commonly used passive and active energy systems, energy efficient design, and the materials relating to insulation of residential and commercial construction will be reviewed in this course. (F, Sp)
- ARCH 283 Materials of Construction** 4
Semester Prerequisite: ARCH 101/Equivalent
 This course consists of the evaluation of the various characteristics of all materials commonly used in residential and light commercial structures. Students will develop a sensitivity to the use of building products based on a knowledge of their properties, limitations, and availability. (F, Sp)
- ARCH 295 Architectural Independent Study** 2
Semester Prerequisite: Second-Year Student/Approval
 This course provides the second-year architecture student with the opportunity to pursue a project of personal interest under the supervision of an instructor. With the approval and under the guidance of the instructor, the student will outline, research, design, and construct a project of his or her own selection. (F, Sp, Su)
- ARCH 297 Architectural Independent Study** 4
Semester Prerequisite: Second-Year Student/Approval
 This course provides the second-year architecture student with the opportunity to pursue a project of personal interest under the supervision of an instructor. With the approval and under the guidance of the instructor, the student will outline, research, design, and construct a project of his or her own selection. (F, Sp, Su)

ARTS ART DESIGN AND MULTIMEDIA

- ARTS 005 Computer Graphics Lab** .5
Semester Prerequisite: Currently Enrolled Art Student, Departmental Approval
 This course determines the time for the student's attendance in the Computer Graphics Laboratory; it is not a course. ARTS 005 enables the student to utilize the laboratory equipment and software to create individualized computer graphics for art courses conducted in a traditional classroom environment. (F, Sp, Su)
- ARTS 102 2-Dimensional Design** 3
Semester Prerequisite: Macintosh Computer Experience/Concurrent
Basic Skills Prerequisite: Reading Level: Writing Level (See *Course Schedule*)
 Universal elements and principles of two-dimensional design, design theory and process, with emphasis on composition and its application to black-and-white and color media. (F, Sp, Su)
- ARTS 103 3-Dimensional Design** 3
Semester Prerequisite: ARTS 102
 Line, shape, form, value, color, and texture are explored using a variety of three-dimensional materials and applying principles and elements of design. (F, Sp, Su)
- ARTS 131 Drawing I** 3
Semester Prerequisite: ARTS 102/IMAG 112/Concurrently
 An introductory studio course using a variety of media and methods that introduces both realism and abstraction. Fundamental elements of drawing, concepts of perception, and exploring properties of various media are stressed. Basic principles of one- and two-point perspective are covered. (F, Sp, Su)
- ARTS 132 Life Drawing** 3
Semester Prerequisite: ARTS 131
 Basic concepts, approaches, and techniques involving drawing the human figure, using materials such as pencil, ink, charcoal, and conte crayon. (F, Sp, Su)
- ARTS 137 Drawing II** 2
Semester Prerequisite: ARTS 131
 Further development of the drawing process. This course includes expanded perspective principles and quality of light with an emphasis on visualization. (F, Sp, Su)
- ARTS 140 Printmaking I** 3
Semester Prerequisite: ARTS 102/Concurrently
 An introduction to the various printmaking techniques, tools, and vocabulary of the printmaker. Includes etching, collagraph, embossing, monoprinting, and linoleum cut. (F, Sp)
- ARTS 141 Printmaking II** 3
Semester Prerequisite: ARTS 140
 Students expand on processes and concepts introduced in Printmaking (ARTS 140). Emphasizes refining technical skills and conceptual development. (F, Sp)
- ARTS 145 Screen Printing I** 3
Semester Prerequisite: ARTS 102/Concurrently
 An introduction to basic silkscreen stencil processes with an emphasis on registration techniques. Includes constructing a frame and making a phototransparency. (F, Sp)
- ARTS 146 Screen Printing II** 3
Semester Prerequisite: ARTS 145
 Students expand on processes and concepts introduced in Screen Printing I (ARTS 145). Exploration and experimentation with more complex techniques and problems. Includes an in-depth study of photographic processes in combination with paper, cut film, and block-out stencils. (F, Sp)
- ARTS 151 Computer Graphics/Illustration** 3
Semester Prerequisite: (ARTS 102, ARTS 131)/(IMAG 112, ARTS 131), Windows NT/Windows 95 Experience
 A beginning course for students interested in creating artistic images using a computer as a tool. Design and drawing skills are required for enrollment. (F, Sp, Su)
- ARTS 162 Typography** 3
Semester Prerequisite: ARTS 102/IMAG 112/Concurrently
 Use of type in graphic design with an emphasis on creativity. Includes the history of typography, type style identification, classification, and selection. Students will be introduced to the tools, materials, and techniques necessary to professionally use type. (F, Sp, Su)
- ARTS 171 Computer Graphics/Photography** 3
Semester Prerequisite: ARTS 102/IMAG 114, Macintosh Experience
 An introduction to computer manipulation of photographic images. Design and color skills are required for enrollment. (F, Sp, Su)
- ARTS 175 Electronic Design** 3
Semester Prerequisite: ARTS 162/Concurrently
 An introductory hands-on course designed to provide the student with a working knowledge of page layout and object oriented illustration software programs utilizing a Macintosh computer. Emphasis is on design using electronic publishing applications. (F, Sp, Su)
- ARTS 177 Computer Prepress Production Techniques** 3
Semester Prerequisite: ARTS 171, ARTS 175
 Digital prepress production techniques for computer-generated media, including color separation, color trapping, resolution, paper and film output, and digital file preparation. Instruction includes an overview of computer system components and peripheral devices. Printing terminology and processes covered. The course emphasis is on professional knowledge and accuracy. (F, Sp)
- ARTS 180 Graphic Design I** 3
Semester Prerequisite: ARTS 102, ARTS 162
 An overview of the designer's role in developing design products for print, including the logotype and its varied applications. Color, paper, and type selection for the individual client will be emphasized. (F, Sp, Su)
- ARTS 181 Graphic Design II** 3
Semester Prerequisite: ARTS 137, ARTS 175, ARTS 180
 An overview of publication and advertising design and the designer's role in the creative organization of typography, photography, and illustration. Emphasis on editorial concept, format, and design considerations. (F, Sp)
- ARTS 182 Graphic Design III** 3
Semester Prerequisite: ARTS 181, MKTG 140
 An advanced course involving corporate image and the design of promotional graphics, both two- and three-dimensional. Utilizes innovative design and media considerations. Students will work through the design process from initial concept to final presentation. (Sp)
- ARTS 190 Matting and Framing Techniques** 1
Semester Prerequisite: None
 An overview of the various materials and techniques for displaying and exhibiting artwork. Students will apply demonstrated techniques to matting and framing their work. (F, Sp)
- ARTS 195 Employment and Business Issues for Artists** 2
Semester Prerequisite: None
 An introduction to business, legal, and marketing issues relevant to visual artists. Students will be introduced to copyright, contract and negotiation concerns, and basic record keeping. Job search/marketing skills content, including creative resumes, letter writing, and self promotion will focus on matching individual presentations to specific employment or freelance goals. (F, Sp)
- ARTS 200 Painting I** 3
Semester Prerequisite: ARTS 102, ARTS 131
 An introduction to oil and acrylic painting concepts in the Western tradition, ranging from Renaissance to Contemporary. Examines basic materials, tools, techniques, and modes of expression. (F, Sp, Su)
- ARTS 201 Painting II** 3
Semester Prerequisite: ARTS 200
 A continuation of Painting I (ARTS 200) emphasizing more advanced techniques and increasingly complex problems in painting. A variety of media, techniques, and approaches are encouraged. (F, Sp, Su)
- ARTS 203 Figure Painting** 3
Semester Prerequisite: ARTS 102, ARTS 132
 A studio course in the human figure using various media such as oil paint, watercolor, acrylic paint, and pastel. (F, Sp)
- ARTS 204 Watercolor I** 3
Semester Prerequisite: ARTS 102, ARTS 131
 An introduction to the art of transparent watercolor. Examines paper characteristics, degrees of wetness, brushes and tools, and various techniques in producing watercolor art works. (F, Sp)

ARTS 205 Watercolor II 3	ARTS 235 Computer Graphics/3-D Animation II 3
Semester Prerequisite: ARTS 204 A continuation of Watercolor I (ARTS 204) emphasizing more advanced techniques and increasingly complex problems using watercolor. (F, Sp)	Semester Prerequisite: ARTS 234, Departmental Approval A continuation of 3-D Animation I (ARTS 234). Emphasis on creation of more complex models and animations. Introduction of sound and editing. (F, Sp)
ARTS 206 Advanced Watercolor 3	ARTS 236 Computer Graphics/Production 3
Semester Prerequisite: ARTS 205 An opportunity for the advanced student to continue with his or her personal exploration and development of watercolor skills under the guidance of an instructor. (F, Sp)	Semester Prerequisite: ARTS 233/ARTS 235 This course covers analysis, design, and development of a completed electronic project such as a CD, videotape, or WWW publishing. Techniques include recording and editing of two- and three-dimensional graphics, animation, video, audio, and imaging. Students implement theory and practice for designing, producing, and disseminating multimedia at planning pre-production, managing production, and post-production levels. (F, Sp)
ARTS 213 Illustration Fundamentals 3	ARTS 240 Basic Art for Elementary Teachers 3
Semester Prerequisite: ARTS 132, ARTS 137 Illustrative techniques are utilized to prepare working sketches and convert them to finished illustrations. This course includes a variety of contemporary, realistic techniques. Emphasis is placed on sound draftsmanship and solving simple graphic problems through illustration. (F, Sp)	Semester Prerequisite: None Especially for elementary school teachers responsible for the student art experience. Emphasis on developing a greater art appreciation, awareness of art forms, and competency working with a variety of art media. Covers the creative and mental growth of children and their needs in an art situation. (F, Sp, Su)
ARTS 216 Humorous Illustration I 3	ARTS 269 The Portfolio 1
Semester Prerequisite: ARTS 132 Basic humorous illustration/cartooning foundations are demonstrated. Exercises are given on cartooning heads, figures, animals, objects, and drawing techniques. Graded projects include caricatures utilizing various drawing techniques. Originality and imagination are emphasized. (F, Sp, Su)	Semester Prerequisite: Departmental Approval The student will assemble his or her best work under instructor supervision into a cohesive, relevant presentation for the purpose of securing employment in a chosen career area. This course is intended to be a final course in the Art Program. (F, Sp)
ARTS 217 Humorous Illustration II 3	ARTS 270 Computer Graphics Independent Study 3
Semester Prerequisite: ARTS 216 A continuation of Humorous Illustration I designed to expand the student's humorous illustration skills through a variety of black-and-white and color projects. Projects will concentrate on the various commercial applications of humorous illustration. (Sp)	Semester Prerequisite: Departmental Approval Individual pursuit of special projects not incorporated in regular class offerings. The student must submit a written application detailing his or her project to receive department approval. Cannot be audited. (F, Sp, Su)
ARTS 221 Airbrush Techniques I 3	ARTS 272 Printmaking Independent Study 3
Semester Prerequisite: None Introduction to the operation and techniques of the airbrush in shading and creating textures in both black-and-white and color. Assignments include using various masking methods and freehand techniques. (F, Sp, Su)	Semester Prerequisite: Departmental Approval Individual pursuit of special projects not incorporated in regular class offerings. The student must submit a written application detailing his or her projects to receive department approval. Cannot be audited. (F, Sp, Su)
ARTS 222 Airbrush Techniques II 3	ARTS 276 Art Independent Study 3
Semester Prerequisite: ARTS 102, ARTS 131, ARTS 221 A continuation of Airbrush Techniques I (ARTS 221) with an emphasis on more complex airbrushing problems including portrait rendering and painting of non-metallic surfaces. A variety of surfaces will be used including fabric, leather, fingernails, and pastries. (F, Sp, Su)	Semester Prerequisite: Departmental Approval Individual pursuit of special projects not incorporated in regular class offerings. The student must submit a written application detailing his or her project to receive department approval. Cannot be audited. (F, Sp, Su)
ARTS 224 Automotive Airbrush Techniques 3	ARTS 281 Art Internship 3
Semester Prerequisite: ARTS 221, AUTO 185 This course introduces techniques for painting on contoured automotive surfaces. Projects incorporate various masking techniques, handbrush techniques, and specialized paint systems. (F, Sp, Su)	Semester Prerequisite: Departmental Approval An off-campus field study. Students will gain pre-career experience by working in a studio environment under the supervision of a professional artist/designer. Regularly scheduled progress reports will be given and discussed with supervising faculty member. A minimum of 15 hours per week. (F, Sp, Su)
ARTS 227 Humorous Illustration III 3	
Semester Prerequisite: ARTS 217 A continuation of Humorous Illustration II with an emphasis on development of a personal style. Projects include commercial illustration and self-promotion. (F, Sp, Su)	
ARTS 231 Computer Graphics/Advanced Illustration 3	
Semester Prerequisite: ARTS 151/ARTS 175, ARTS 171 Full-color illustration techniques are taught using the computer as a tool. Assignments include stylized drawing techniques and design-oriented composition, with an emphasis on problem solving. (F, Sp, Su)	
ARTS 232 Computer Graphics/2-D Animation 4	
Semester Prerequisite: ARTS 216/IMAG 111, ARTS 151, Departmental Approval Create 2-D animations using the computer. Emphasis is on the history, theory, and principles of animation. (F, Sp)	
ARTS 233 Computer Graphics/2-D Interactive 4	
Semester Prerequisite: ARTS 232, Departmental Approval A course which uses 2-D animation skills to create interactive presentations and animated Web pages. Emphasis is on basic programming concepts and design. (F, Sp)	
ARTS 234 Computer Graphics/3-D Animation I 4	
Semester Prerequisite: ARTS 151, ARTS 171, Departmental Approval An introduction of 3-D solid modeling, rendering techniques and animation on a desktop graphics system. Introduction of the principles of designing for video. (F, Sp)	
	ARWS – ART SEMINARS AND WORKSHOPS
	ARWS 120 Basic Drawing 1
	Semester Prerequisite: None An introductory course using a variety of materials including pencil, charcoal, and ink. For non-majors. (F, Sp, Su)
	ARWS 131 Introduction to Computer Illustration Workshop 1
	Semester Prerequisite: Computer Familiarity A condensed hands-on workshop introducing computer graphics utilizing sophisticated, user-friendly, artistic software. Programming skills are not necessary. (F, Sp, Su)
	ARWS 132 Introduction to Quark Express 1
	Semester Prerequisite: None A condensed, hands-on workshop designed to provide the student with a working knowledge of QuarkXpress software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (F, Sp)

ARWS 133 Introduction to PageMaker	1
Semester Prerequisite: None	
A condensed hands-on workshop designed to provide the student with a working knowledge of Adobe PageMaker software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (F, Sp, Su)	
ARWS 134 Introduction to FreeHand	1
Semester Prerequisite: None	
A condensed hands-on workshop designed to provide the student with a working knowledge of Macromedia FreeHand software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (F, Sp)	
ARWS 135 Desktop Design Fundamentals	.75
Semester Prerequisite: None	
A seminar focusing on basic graphic design concepts to help the student improve the appearance and effectiveness of desktop publishing projects. This is not a hands-on computer course. (F, Sp)	
ARWS 136 Introduction to Adobe Illustrator	1
Semester Prerequisite: None	
A condensed, hands-on workshop designed to provide the student with a working knowledge of Adobe Illustrator software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (Sp)	
ARWS 137 Introduction to Adobe Photoshop	1
Semester Prerequisite: None	
A condensed, hands-on workshop designed to provide the student with a working knowledge of Adobe Photoshop software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (F)	
ARWS 138 Introduction to MacroMind Director	1
Semester Prerequisite: None	
A condensed, hands-on workshop designed to provide the student with a working knowledge of MacroMind Director software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (Su)	
ARWS 141 Watercolor Workshop	1
Semester Prerequisite: None	
A condensed learning experience introducing the student to the art of transparent watercolor. Emphasis is on the use of different papers, degrees of wetness, tools, and techniques. Students will progress to more complex problems as ability develops. (F, Sp, Su)	
ARWS 142 Watercolor Workshop II	1
Semester Prerequisite: ARWS 141/Equivalent	
A condensed learning experience designed to advance the student in the variety of effects of transparent watercolor, stressing the fundamentals of design color and value in the composition. (Sp)	
ARWS 145 Landscape Painting and Drawing	1
Semester Prerequisite: None	
Emphasis is on the use of color, perspective, and compositional strategies of the landscape. Most sessions spent in the field. All types of media are acceptable. (Su)	
ARWS 221 Calligraphy I	1
Semester Prerequisite: None	
Introduces the student to the art of fine writing using italic pens. Emphasis on hand lettering, surveying different styles and scripts used in early manuscripts, and adaptation to modern use. (F, Sp)	
ARWS 224 Cartooning Workshop	1
Semester Prerequisite: None	
Emphasizes simple but imaginative characterizations and dramatic exaggerated action in a variety of media including pencil, fibertipped pen, and brush and ink. Previous drawing experience helpful. (F, Sp)	

ASTR - ASTRONOMY

ASTR 201 Introductory Astronomy	4
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See <i>Course Schedule</i>)	
A non-mathematical survey of astronomy. Topics include ancient astronomy, the night sky, telescopes, space exploration, the solar system, stellar evolution, neutron stars and black holes, galaxies and quasars, cosmology, and the expanding universe. The LCC planetarium and observatory augment laboratory activities which illustrate important concepts in astronomy. (F, Sp, Su)	

AUTO - AUTOMOTIVE

AUTO 100 Auto Service I	3
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See <i>Course Schedule</i>)	
This course is intended to provide the student with an extensive orientation to an automotive repair facility, while developing tool and equipment usage skills needed to advance in the automotive repair field. (F, Sp, Su)	
AUTO 110 Auto Electrical Theory	5
Semester Prerequisite: AUTO 100/Concurrently/Approval	
This course in basic electricity covers the fundamentals of automobile electricity. Materials covered will include electron theory, circuits, and wiring diagrams. The students will learn how circuits work and how to diagnose malfunctioning circuits. Maximum emphasis will be directed to vehicle diagnosis. (F, Sp)	
AUTO 120 Auto Drive Train	2.5
Semester Prerequisite: AUTO 100/Concurrently/Approval	
This course is designed to prepare the technician to enter the auto repair and service industry. The student will study the operation and repair procedures for manual transmissions and transaxles, manual and hydraulic clutches, drive shafts and half-shafts, rear-axles, front and rear-wheel drive differentials, and four-wheel drive components. (F, Sp)	
AUTO 121 Automatic Transmissions	5
Semester Prerequisite: AUTO 110, AUTO 120/Approval	
This course in automatic transmissions is designed to prepare the technician to enter the auto repair and service industry. The student will study the theory of operation, service procedures, problem diagnosis, repair techniques, and overhaul procedures for the following transmissions: GM 125C, 700R4, and the Chrysler A404. (F, Sp)	
AUTO 122 Advanced Transmission	2.5
Semester Prerequisite: AUTO 121	
This course in automatic transmissions is designed to prepare the technician to enter the auto repair and service industry. The student will study the theory of operation, service procedures, problem diagnosis, repair techniques, and overhaul procedures for the following transmissions: Ford AXOD, General Motors 4T60E, and Chrysler 604. (F, Sp)	
AUTO 130 Automotive Engines	2.5
Semester Prerequisite: AUTO 100, AUTO 110/Concurrently/Approval	
This advanced course in engine rebuilding is designed to prepare technicians to enter the auto repair and service industry. The student will disassemble, inspect (using precision measuring tools and specialized equipment), and reassemble an engine. Theory of operation, basic computer technology, and machining procedures are also covered. (F, Sp)	
AUTO 133 Small Engine Repair	2.5
Semester Prerequisite: None	
This is a basic course covering servicing and repair of two-cycle and four-cycle small gas engines. Each student is required to supply a small engine for laboratory work. (F, Sp, Su)	
AUTO 136 Marine Engine Repair	2.5
Semester Prerequisite: None	
This course covers the basics of outboard engine servicing including carburetion, ignition, and troubleshooting malfunctions. (F, Sp, Su)	

AUTO 140 Automotive Brakes 2.5
Semester Prerequisite: AUTO 100, AUTO 110/Concurrently/Approval
 This course prepares technicians to enter the auto repair and service industry. Theory and operation of modern automotive brake systems, hydraulic system diagnostic procedures, and service procedures for disc and drum brake systems will be studied. A brief overview of anti-lock brake systems will also be covered. (F, Sp)

AUTO 150 Automotive Suspension 2.5
Semester Prerequisite: AUTO 100/Concurrently/Approval
 This course is designed to prepare technicians to enter the auto repair and service industry. The student will study theory, problem diagnosis and repair of suspension and steering components found on both front- and rear-wheel drive vehicles, and adjustment of alignment angles on front- and rear-wheel drive vehicles. (F, Sp)

AUTO 160 Auto Air Conditioning 2.5
Semester Prerequisite: AUTO 100, AUTO 110/Approval
 This course in automotive air conditioning service is designed to prepare technicians to enter the auto repair and service industry. The student will study the theory, application, diagnosis, and repair of automobile air conditioning systems. Both mechanical and electronic controlled systems will be studied. (F, Sp)

AUTO 165 General Auto Mechanics 2.5
Semester Prerequisite: None
 Automobile owners will gain a better understanding of the automobile and be able to make some repairs. Areas covered include preventive maintenance, tune-ups, brakes, engines, electrical systems, drive lines, front end, and steering. (F, Sp, Su)

AUTO 180 Auto Body Welding/Metal Finishing 5
Semester Prerequisite: None
 This course presents metal welding as it applies to auto body repair. Included are gas, spot, and wire-feed welding, brazing, heat shrinking, and plasma arc cutting. This course also teaches basic sheet metal repair, body shop tools and their proper use, along with materials used to repair minor damages. (F, Sp, Su)

AUTO 182 Major Collision Repair 5
Semester Prerequisite: AUTO 180
 This course teaches the restoration of a collision-damaged automobile to its original condition, including estimating the total job, glasswork, and painting. Instruction in repair of larger, dented panels with an emphasis on replacing panels. (F, Sp)

AUTO 184 UniBody and Frame Repair 2.5
Semester Prerequisite: AUTO 180
 This course is an introduction to the basics of frame straightening, covering aligning the frame, or unlifted body to original specifications. Analyzing and gauging damage is included. (F, Sp)

AUTO 185 Basic Auto Painting 2.5
Semester Prerequisite: None
 This is an auto painting course designed to teach basic refinishing procedures. The student must refinish at least one panel in acrylic enamel and acrylic lacquer by the end of the course. (F, Sp, Su)

AUTO 186 Advanced Painting 5
Semester Prerequisite: AUTO 185
 This course teaches advanced auto painting techniques for spot repair, color matching, and troubleshooting—including auto painting techniques for refinishing a complete auto in enamel and acrylic lacquer. Includes estimating the cost of materials and overhead costs of operating a paint shop. (F, Sp)

AUTO 188 Auto Body Repair and Painting 4
Semester Prerequisite: AUTO 180, AUTO 182, AUTO 185
 This is a combined course of auto body repair and painting. It provides an opportunity to practice the techniques learned in Auto Body Welding/Metal Finishing (AUTO 180) and Basic Auto Painting (AUTO 185). (F, Sp, Su)

AUTO 215 Engine Performance/Tune-Up 5
Semester Prerequisite: AUTO 110, AUTO 130
 This course prepares technicians to enter the auto repair and service industry. Theory and fundamentals of basic engine tune-up procedures will be studied. This course covers general engine diagnosis, introduction to computerized engine controls, ignition system diagnosis and repair, carburetion and fuel injection, and examination of emission control systems. (F, Sp)

AUTO 225 Automotive Computers 5
Semester Prerequisite: AUTO 110, AUTO 130, AUTO 215
 This advanced course in automotive computer systems is designed to train the student in theory and diagnosis of varying automotive engine computer control systems. The systems covered will include ignition, air induction, emission control, exhaust gas recirculation, exhaust gas treatment, intake air temperature control, and early fuel evaporation. (F, Sp)

AUTO 230 Anti-Lock Braking Systems 3
Semester Prerequisite: AUTO 110, AUTO 140, AUTO 225
 This course in anti-lock brakes is designed to prepare the student to enter the auto repair and service industry. The theory, application, and diagnosis of Bosch, Teves, and Kelsey-Hayes anti-lock systems will be studied in detail. The students will also study the basic principles of other various anti-lock systems. (F, Sp)

AUTO 251 Advanced Computer Diagnosis 2
Semester Prerequisite: AUTO 225
 This advanced course in automotive computer systems diagnosis is designed to prepare the student to enter the auto repair and service industry. The student will study computer diagnosis procedures for General Motors, Chrysler, and Ford vehicles. "Strategy Based Diagnosis" procedures will be emphasized. (F, Sp)

AUTO 260 Introduction to Alternative Fuels 2
Semester Prerequisite: AUTO 110, AUTO 130, AUTO 215, AUTO 225
 This course is designed to help prepare the student to enter the auto repair and service industry. The student will study the use of propane, methanol, compressed natural gas (CNG), ethanol, liquified natural gas, hydrogen and electricity as alternative fuels in cars and light trucks. Safety regulations will be covered. (F, Sp, Su)

AUTO 261 Alternative Fuels-Compressed Natural Gas (CNG) 3
Semester Prerequisite: AUTO 110, AUTO 130, AUTO 215, AUTO 225
 This course is designed to help prepare the student to enter the auto repair and service industry. It is an intensive study covering the use of compressed natural gas (CNG) on automobiles and light trucks. Theory, application, installation, diagnosis, and safety regulations pertaining to the use of CNG will be covered. (F, Sp)

AUTO 280 Automotive Service Laboratory 6
Semester Prerequisite: Approval Required
 This laboratory course is designed to provide work experience and develop trade-entry skills in general and light-line repair. (F, Sp)

AUTO 285 Automotive Internship 6
Semester Prerequisite: Approval Required
 Students are able to earn credits while employed as a technician in auto mechanics, auto body or diesel heavy equipment repair. A pre-enrollment interview between the student and department director is required. The director must approve the training station and working conditions. (F, Sp)

AUTO 286 Independent Study in Automotive: 1 Credit 1
Semester Prerequisite: Approval Required
 Special research projects and/or individual readings are used to apply personal and professional experience to the academic area of interest. A minimum of 48 hours of work is required, and the completion of a written project report. This course cannot be audited. (Su)

AUTO 287 Independent Study in Automotive: 2 Credit 2
Semester Prerequisite: Approval Required
 Special research projects and/or individual readings are used to apply personal and professional experience to the academic area of interest. A minimum of 96 hours of work is required, and the completion of a written project report. This course cannot be audited. (F, Sp, Su)

AUTO 288 Independent Study in Automotive: 3 Credit 3
Semester Prerequisite: Approval Required
 Special research projects and/or individual readings are used to apply personal and professional experience to the academic area of interest. A minimum of 144 hours of work is required, and the completion of a written project report. This course cannot be audited. (F, Sp, Su)

AVAF - AVIATION AIRFRAME MAINTENANCE

- AVAF 125 Aircraft Systems I** 2
Semester Prerequisite: Program Approval
 The study of fuel management, transfer, defueling, and fuel pump systems. The course covers the procedures used to inspect, check, service, troubleshoot, and repair aircraft fuel systems and fuel system components. Course material emphasizes fluid quantity indicating, fluid pressure, and warning systems. (Sp)
- AVAF 126 Aircraft Systems II** 6
Semester Prerequisite: Program Approval
 The study, analysis, and repair of aircraft landing gear and brake systems and their related warning systems. Includes the study, inspection, servicing, and repair of aircraft hydraulic and pneumatic systems and their related components. (Sp)
- AVAF 127 Aircraft Systems III** 3
Semester Prerequisite: Program Approval
 Covers the inspection, checking, troubleshooting, servicing, and repair of aircraft heating, cooling, air-conditioning, pressurization, oxygen, ice and rain control, and fire protection systems. (Su)
- AVAF 130 Avionics Airframe Applications** 3
Semester Prerequisite: None
 This course covers the airframe related subjects necessary for an avionics technician. Topics include aircraft structure principles, installation procedures, material and fastener identification, and antenna installation procedures. Students will work with sheet metal and composite structures. (F)
- AVAF 134 Aircraft Instruments** 2
Semester Prerequisite: Program Approval
 Course covers inspection, checking, servicing, troubleshooting, repair of electronic flight instrument systems, both mechanical and electrical speed, altitude, temperature, pressure, and flow instrument systems. Also, special removal and installation techniques applicable to aircraft instruments is included. (Su)
- AVAF 208 Aircraft Structures I** 4
Semester Prerequisite: Program Approval
 This course introduces the procedures for identification, inspection, testing, and repairing of wood, fabric-covered, and sheet metal aircraft. This course also covers the installation and removal of conventional rivets, the forming of aircraft sheet metal, the installation of special rivets and fasteners, and an introduction to applying finishing materials. (Sp)
- AVAF 209 Aircraft Structures II** 4
Semester Prerequisite: Program Approval
 Covers assembly and rigging of fixed wing and rotary wing aircraft control structures. Provides practical application in removal, installation, and adjustment of flight controls by balancing, cable tension, and motion studies. Also includes aircraft inspection procedures to insure conformity with flight safety standards. (F)
- AVAF 210 Aircraft Structures III** 3
Semester Prerequisite: Program Approval
 An advanced course covering the inspection, repair, lay out, bending, and assembly of aircraft sheet metal. Inspection, testing, and repair of fiberglass, plastics, honeycomb, and composite and laminated structures is practiced. Installation and removal of special fasteners for bonded and composite structures and servicing of aircraft windows, doors, and interior furnishings is included. (F, Sp)
- AVAF 211 Aircraft Electrical I** 4
Semester Prerequisite: Program Approval
 The intermediate aviation electrical course concentrating on the theory, calculation, and measurement of A.C. electrical systems. Includes reading and interpreting aircraft electrical circuit diagrams, including those with solid-state devices and logic functions. Also the installation, checking, and servicing of airframe and engine wiring, controls, switches, indicators, and protective devices is covered. (Sp, Su)
- AVAF 212 Aircraft Electrical II** 4
Semester Prerequisite: Program Approval
 Studies the repair of airframe and engine electrical system components with emphasis on the inspection, checking, servicing, and repair of alternating and direct current systems. Also, general troubleshooting techniques are practiced with special emphasis on A.C. and D.C. electrical systems. (Su)

- AVAF 246 National Airframe Certification Procedures** 1
Semester Prerequisite: Program Approval
 Study of the Federal Aviation Regulations pertaining to national certification as a licensed airframe mechanic. Includes testing in all required areas of study as a prerequisite to receiving authorization to take the general and airframe national certification test administered by representatives of the Federal Aviation Administration. (F)

AVEL - AVIATION ELECTRONICS

- AVEL 136 Avionics Installations** 3
Semester Prerequisite: None
 This course includes familiarization with the various types of wires and connectors used in the construction of aircraft wiring harnesses. The student will develop skills in soldering, aircraft wiring diagram reading, standard procedures, and weight and balance calculation. (F)
- AVEL 150 Avionics Installation and Generation** 2
Semester Prerequisite: ELCT 110/AVEL 151 Concurrently
 Covers the operational characteristics and operation of basic and specialized test equipment found in the avionics industry. Students will develop reading skills in aircraft wiring diagram and weight and balance calculation. Equipment covered includes multimeters, oscilloscopes, power supplies, multifunction test generators, wattmeters, time domain reflectometers, and spectrum analyzers. (Sp)
- AVEL 151 Avionics Installation and Generation Lab** 1
Semester Prerequisite: ELCT 110/AVEL 150 Concurrently
 Subjects covered in AVEL 150 will be put to practical use in the laboratory. The student builds and calibrates own volt ohm meter. The student will construct aircraft wiring harnesses and complete soldering exercises. Common electronic and specialized avionics test equipment is used in the lab. (Sp)
- AVEL 190 Receiver Troubleshooting** 2
Semester Prerequisite: AVEL 150/AVEL 191 Concurrently
 Familiarization with basic superhetrodyne receiver principles and operation using block diagrams and component level theory. Various logical troubleshooting techniques are discussed. (Su)
- AVEL 191 Receiver Troubleshooting Lab** 1
Semester Prerequisite: AVEL 151/AVEL 190 Concurrently
 Familiarization with basic superhetrodyne receiver principles and operation. Various logical troubleshooting techniques will be put to practical use in the laboratory. Students construct, align, and troubleshoot an AM superhetrodyne receiver. (Su)
- AVEL 200 Flight Line Testing** 2
Semester Prerequisite: AVEL 150/AVEL 201 Concurrently
 A study of the Avionics systems found aboard modern aircraft focusing on the flight line testing of such systems as VHF communications, VHF navigation, ADF, radar, autopilots, and others. (F, Su)
- AVEL 201 Flight Line Testing Lab** 1
Semester Prerequisite: AVEL 151/AVEL 200 Concurrently
 A practical study of the electronics systems found aboard modern aircraft, focusing on the flight line testing of such systems as VHF communications, VHF navigation, ADF, radar, autopilots, and others. (F, Su)
- AVEL 220 Avionics Systems I** 3
Semester Prerequisite: AVEL 200/AVEL 221 Concurrently
 A study of the communications, navigation, and other systems found in modern aircraft, focusing on component level repair and testing to manufacturer's specifications. Students will have the opportunity to obtain factory certifications for the repair of various systems. (F)
- AVEL 221 Avionics Systems I Lab** 2
Semester Prerequisite: AVEL 201/AVEL 220 Concurrently
 A hands-on study of the communications, navigation, and other systems found in modern aircraft, focusing on component level repair and testing to manufacturer's specifications. (F)
- AVEL 225 Avionics Licensing and Regulations** 1
Semester Prerequisite: ELCT 112
 Federal Communication Commission rules and regulations are discussed as they pertain to the avionics technician. Elements 1 and 3 of the FCC General Radiotelephone Operator's License examination are presented to prepare the student for successful completion of the actual examination. (F)

AVEL 226 FAA Rules and Regulations for Avionics Technicians	1
Semester Prerequisite: ELCT 112	
This course covers various Federal Aviation Administration rules and regulations as they pertain to avionics shop operations and the avionics technician. (F)	
AVEL 230 Avionics Systems II	3
Semester Prerequisite: AVEL 200/AVEL 231 Concurrently	
A study of navigation, microwave pulse equipment, and other systems found in modern aircraft, focusing on component level repair and testing to manufacturers' specifications. Students will have the opportunity to obtain factory certification of the repair of various systems. (Sp)	
AVEL 231 Avionics Systems II Lab	2
Semester Prerequisite: AVEL 201/AVEL 230 Concurrently	
A hands-on study of navigation, microwave pulse equipment, and other systems found in modern aircraft, focusing on component level repair and testing to manufacturers' specifications. (Sp)	
AVEL 297 Avionics Internship	2
Semester Prerequisite: AVEL 231	
Minimum 128 hours per semester as an aviation electronics intern. Part-time occupational internship in avionics technology. The internships will be at certified repair stations as established by the intern coordinator. (Su)	
AVEL 299 Advanced Avionics Laboratory	2
Semester Prerequisite: AVEL 200	
Students will further develop troubleshooting and installation skills acquired in other courses. Students will work in an environment close to actual working conditions in most avionics repair stations. (Su)	

AVFT - AVIATION FLIGHT TRAINING

AVFT 201 Flight Training I	7.5
Semester Prerequisite: Program Approval	
Provides in-flight and ground training in the single-engine, non-complex aircraft culminating in aeronautical knowledge, experience, and skill in accordance with the Federal Aviation Administration Private Pilot Practical Test standards. (F, Sp)	
AVFT 202 Flight Training II	5
Semester Prerequisite: Program Approval	
Provides in-flight and ground training in single-engine, non-complex airplane developing the student's instrument, night, and cross-country flying skills. (F, Sp, Su)	
AVFT 203 Flight Training III	5.5
Semester Prerequisite: Program Approval	
Provides instruction in complex, single-engine airplane developing the student's skill at IFR navigation and ATC procedures in en route and terminal environment. (F, Sp, Su)	
AVFT 204 Flight Training IV	5
Semester Prerequisite: Program Approval	
Provides in-flight and ground instruction in complex airplane developing the student's skill in IFR navigation and ATC procedures in en route and terminal environment. Student will develop skills at performing commercial proficiency flight maneuvers. At completion of course, the student will take practical test for commercial/instrument pilot airplane. (F, Sp, Su)	
AVFT 205 CFI Flight Training	3.5
Semester Prerequisite: Program Approval	
Provides in-flight and ground training in common primary training and complex airplanes. The student will develop instructional skills necessary to train pilots to certification in accordance with Federal Aviation Regulations. The student will take practical test for Certified Flight Instructor Airplane upon completion. (F, Sp, Su)	
AVFT 206 Flight Instructor Instrument Flight Training	2.5
Semester Prerequisite: Program Approval	
Provides in-flight and ground training in non-complex aircraft. The student will develop instructional skills necessary to train pilots for the instrument rating. The student will take practical test for the instrument flight instructor rating airplane upon completion. (F, Sp, Su)	
AVFT 207 Multi-engine Flight Training	1.5
Semester Prerequisite: Program Approval	
Provides in-flight and ground instruction in multi-engine airplane. The student will take multi-engine practical test upon completion. (F, Sp, Su)	

AVFT 208 Multi-engine Instructor Flight Training	7.5
Semester Prerequisite: Program Approval	
Provides in-flight and ground instruction in multi-engine airplane. The student will develop instructional skills necessary to train students for multi-engine practical test. The student will take multi-engine instructor practical test upon completion of course. (F, Sp, Su)	
AVFT 224 Tail Wheel Transition	1
Semester Prerequisite: Private Pilot Certificate	
Provides the student with skills and knowledge required to safely operate a tail-wheel aircraft under a variety of conditions. This course is designed for transitioning from operations in a tri-gear aircraft to those of a tailwheel aircraft. Upon completion of the course objectives, the individual will be issued a tailwheel endorsement as per the Federal Aviation Regulations. (F, Sp, Su)	

AVGM - AVIATION GENERAL MAINTENANCE

AVGM 111 Aviation General I	4
Semester Prerequisite: Program Approval	
This course is designed to develop the skills and knowledge required to weigh an aircraft and record the appropriate data. It involves mathematical and basic physics principles related to aviation, including aerodynamics, theory of flight, aircraft structural design, and simple machines. (F, Sp)	
AVGM 112 Aviation General II	6
Semester Prerequisite: Program Approval	
Introduces the Federal Aviation Regulations involving the mechanic's privileges and limitations and related aviation operations. Includes the selection and use of aviation publications, maintenance forms, records, reports, aircraft drawings, graphs and charts, symbols, blueprints, and system schematics. Also focuses on aircraft ground operations and servicing of related aircraft systems. (F, Sp)	
AVGM 113 Aviation General III	4
Semester Prerequisite: Program Approval	
This initial aviation electrical course offers instruction in basic electrical theory and its aviation application. It includes the calculation and measurement of voltage, current resistance, continuity, and power; the theory, inspection, and servicing of aircraft lead-acid and ni-cad batteries; and the construction of a volt-ohm meter. (F, Sp)	
AVGM 114 Material and Processes	5
Semester Prerequisite: Program Approval	
This course covers identification and selection of the appropriate aviation hardware, hand tools, cleaning materials, fluid lines, and non-destructive testing methods. Included is performance of non-destructive testing, precision measurements, aircraft cleaning and corrosion control, fabrication, installation, and testing of fluid lines. (F, Sp)	

AVGS - AVIATION GROUND SCHOOL

AVGS 101 Private Pilot Ground School	4
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level, Writing Level, Math Level (See <i>Course Schedule</i>)	
This course prepares the student for successful completion of the Federal Aviation Administration private pilot written examination. The student will learn basic aerodynamic theory, principles of aircraft/powerplant operation and performance, Federal Aviation Regulations, air traffic control procedures, meteorology, navigation, and flight physiology. (F, Sp, Su)	
AVGS 121 Aviation Meteorology	4
Semester Prerequisite: AVGS 101/Private Pilot License	
This course focuses on the application of meteorological theory to the practical aspects of flight planning. The student will understand basic concepts of weather theory; obtain weather briefings by using a personal computer; interpret weather charts, forecasts and reports, both domestic and international, (ICAO); and make appropriate "go/no go" decisions. (Sp)	
AVGS 211 Instrument Pilot Ground School	4
Semester Prerequisite: AVGS 101/Private Pilot License	
This course prepares the student for the successful completion of the FAA instrument rating written examination. The student will learn operation and interpretation of the flight instruments; the use of en route, approach, SID, and STAR charts for navigation; air traffic control procedures; and meteorology as it applies to the instrument pilot. (F, Sp, Su)	

AVGS 221 Commercial Pilot Ground School 4**Semester Prerequisite:** AVGS 101/Private Pilot License

This course prepares the student for the successful completion of the FAA commercial pilot written examination. The student will develop knowledge of aerodynamics, high performance aircraft systems, aircraft performance, Federal Aviation Regulations, navigation and flight planning, and meteorology as it applies to commercial pilots. (F)

AVGS 222 Flight Instructor Ground School 4**Semester Prerequisite:** Program Approval

This course will prepare the student for the successful completion of the FAA Fundamentals of Instructing and the Flight Instructor-Airplane and Advanced Ground Instructor written exams. The student will develop a flight training syllabus with lesson plans for use in training pilots. (Sp)

AVIR - AVIATION INSTRUMENT REPAIR**AVIR 140 Avionics Instruments I 1****Semester Prerequisite:** None

Familiarization with common aircraft instruments to include principles of operation, interpretation of indications, testing, proper handling, repair, and calibration. Students will learn the proper use of test equipment and instrument repair procedures. (F)

AVPP - AVIATION POWERPLANT MAINTENANCE**AVPP 185 Preventive Maintenance 2****Semester Prerequisite:** None

This course will cover the items described in the Federal Aviation Regulation Part 43, Appendix A, titled Preventive Maintenance. These items include the removal and installation of tires, servicing of wheel bearings, and cleaning fuel and oil strainers or filter elements. The safety, responsibility, and operations of various aircraft systems will be discussed. (F, Sp, Su)

AVPP 241 Reciprocating Engine 8**Semester Prerequisite:** Program Approval

Presents the theory and practices used in the removal, inspection, overhaul, service, repair, and installation of reciprocating engines. This course also studies the inspection, service, repair, and troubleshooting of reciprocating engine lubrication systems. (F)

AVPP 251 Reciprocating Engine Systems 2**Semester Prerequisite:** Program Approval

This course covers the inspection, servicing, troubleshooting, and repair of reciprocating engine cooling and exhaust systems. In addition, the inspection requirements necessary to meet established conformity and standards of airworthiness are studied, and reciprocating engine operations and adjustments are conducted using FAA and maintenance publication procedures. (F, Sp)

AVPP 253 Reciprocating Ignition Systems 5**Semester Prerequisite:** Program Approval

This course covers the operation, analysis, inspection, service, and repair of reciprocating engine ignition systems and components. This includes magnetos, ignition harnesses, spark plugs, and starter systems. (F, Sp)

AVPP 255 Reciprocating Induction Systems 4**Semester Prerequisite:** Program Approval

Study and analysis of reciprocating engine fuel systems and components. Includes inspection, checking, servicing, troubleshooting, and repair of carburetors, water injection systems, heat exchangers, superchargers, intake and induction manifolds, and other engine fuel system components. Also includes carburetor overhaul procedures. (F, Sp)

AVPP 257 Aircraft Propeller Systems 4**Semester Prerequisite:** Program Approval

Covers the study, analysis, service and repair of aircraft propellers, systems, and controls. Includes propeller synchronizing, ice control, lubrication, balancing, pitch control, repair procedures and removal, and installation of both fixed-pitch and variable-pitch propellers. (F, Sp)

AVPP 259 Turbine Engine I 4**Semester Prerequisite:** Program Approval

Covers the theory of operation and design of the varied turbine engine and turbine-driven auxiliary power unit types including the induction and cooling systems of each. (F, Sp)

AVPP 261 Turbine Engine II 4**Semester Prerequisite:** Program Approval

Covers inspection, checking, servicing, repair, removal, installation, and troubleshooting of turbine engines and systems. Detailed study of the lubrication system and inspection procedures to insure conformity with FAA specifications and standards is included. (Sp, Su)

AVPP 263 Turbine Engine Systems 2**Semester Prerequisite:** Program Approval

This course is a detailed study of turbine-engine ignition, pneumatic and electric starters, exhaust and thrust reverser, fire detection and protection, fuel metering and electronic fuel control systems, and components. Study also includes inspection, checking servicing, repair, and troubleshooting procedures. (Su)

AVPP 255 Powerplant Instruments 2**Semester Prerequisite:** Program Approval

Covers the inspection, servicing, checking, troubleshooting, and repair of both reciprocating and turbine engine electrical and mechanical fluid rate-of-flow indicating, temperature, pressure, R.P.M., airflow and related systems and components. (Sp, Su)

AVPP 267 National Powerplant Certification Procedures 1**Semester Prerequisite:** Program Approval

Study of the Federal Aviation Regulations pertaining to national certification as a licensed powerplant mechanic. Includes testing in all required areas of study as prerequisite to receiving authorization to take the powerplant national certification tests administered by representatives of the Federal Aviation Administration. (Sp, Su)

AVST - AVIATION SIMULATOR TRAINING**AVST 211 Flight Simulator I 1****Semester Prerequisite:** AVGS 101/Concurrently

Provides flight simulator and ground training to develop student's basic attitude instrument flying skills. Course is intended to be taken concurrently with AVFT 201. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 212 Flight Simulator II 1**Semester Prerequisite:** AVGS 101, AVST 211

Provides flight simulator and ground training to develop student's skills in IFR navigation and ATC procedures in terminal environment. Course intended to be taken concurrently with AVFT 202. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 213 Flight Simulator III 1**Semester Prerequisite:** AVGS 211, AVST 212

Provides flight simulator and ground training to further develop student's skills at IFR navigation and ATC procedures in en route and terminal environment. Course intended to be taken concurrently with AVFT 203. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 214 Flight Simulator IV 1**Semester Prerequisite:** AVGS 211, AVST 213

Provides flight simulator and ground training to develop student's skill to level of instrument rating practical test standards. Student will perform simulated flights in en route and terminal environment including compliance with emergency procedures. Course intended to be taken concurrently with AVFT 204. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 215 Multi-engine Flight Simulator 1**Semester Prerequisite:** AVST 214

Provides flight simulator training culminating in aeronautical knowledge and maneuvering skills in support of advanced visual and instrument flight training in multi-engine aircraft. Intended for the Flightmatic multi-engine simulator. (F, Sp, Su)

BDGS - BUSINESS DEVELOPMENT SEMINARS**BDGS 201 Starting a Business .5****Semester Prerequisite:** None

Entrepreneurs are usually required to wear many "hats" and may have no idea what skills and processes are involved in starting and operating a business. If you decide that owning a business is feasible, this class can help you find assistance to begin and maintain a business. (F, Sp, Su)

BDCS 202 Pitfalls to Avoid When Opening or Operating a Business .5
Semester Prerequisite: None
This seminar, presented by a successful business person, can save you both problems and money. What to AVOID! What to LOOK OUT FOR! Where to SEEK HELP! Where to CUT COSTS! How to help ensure your chances of a successful business venture! Come and learn from those who can help. (F, Sp, Su)
BDCS 205 Systems for Record Keeping .5
Semester Prerequisite: None
This seminar increases the participants' working knowledge of the accounting process and the maintenance of accounting records, ledgers, and income statements, and the preparation for income tax time. (F, Sp, Su)
BDCS 209 Financial Management for Small Business .5
Semester Prerequisite: None
This seminar offers practical presentation, application, and practice of basic financial management techniques, such as analyzing and applying information from balance sheets, income statement, and cash flow statements. (F, Sp, Su)
BDCS 210 Customer Relations .5
Semester Prerequisite: None
Anyone who sells, greets, or provides services to customers can discover new ways for creating good customer relations. By communicating effectively, understanding customer personalities and how to deal with them, and assessing their own motivation and esteem needs, participants can serve their customers in a positive manner. (F, Sp, Su)
BDCS 211 Advertising for Small Business .5
Semester Prerequisite: None
This seminar will teach how to plan, create, select, and evaluate advertising. Entrepreneurs can learn to develop an advertising plan that is unique to the special needs of their organizations. (F, Sp, Su)
BDCS 215 Developing a Marketing Plan .5
Semester Prerequisite: None
This seminar familiarizes participants with marketing and provides an opportunity to write a marketing plan. Participants will learn to use a six-step process that involves obtaining data, developing the plan, and analyzing the results. (F, Sp, Su)
BDCS 225 Writing a Business Plan .5
Semester Prerequisite: None
Participants can expect to become familiar with business planning and how to develop and maintain a business plan. Most creditors require a business plan before reviewing a loan application. Be prepared. Write your business plan with the information provided at this seminar. (F, Sp, Su)
BDCS 230 Small Business Taxes .75
Semester Prerequisite: None
Federal, state and local governments assess a variety of taxes on business. This seminar will identify the various taxes which pertain to small businesses in Michigan and provide information on the tax returns used and filing responsibilities of the business. (F, Sp, Su)

BIOL - BIOLOGY

BIOL 121 Biology 4
Semester Prerequisite: Chemistry Recommended
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See Course Schedule)
Topics include organic molecules, biological molecules, enzymes, metabolism, cell structure and function, passage of materials across membranes, harvesting energy, mitosis, meiosis, introductory genetics, and the relationship between DNA, RNA, and protein synthesis. (F, Sp, Su)
BIOL 127 Cell Biology 4
Semester Prerequisite: CHEM 120/CHEM 125/High School Chemistry
Basic Skills Prerequisite: Math Level (See Course Schedule)
One of two biology courses for science majors. Lecture topics include chemistry of carbohydrates, lipids and proteins; structure and function of prokaryotic and eukaryotic cells; biochemistry of respiration and photosynthesis; and genetics and the regulation of gene expression. Laboratory stresses techniques of cell and molecular biology as well as genetics. (F, Sp)

BIOL 128 Organismal Biology 4	
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See Course Schedule)	
This course examines adaptations of organisms to changing environments. Major emphasis is on physiological adaptations, natural selection, ethology, and ecology. Aquatic systems are examined in the laboratory; sampling techniques and statistical methods are used to analyze a local river. (Sp, Su)	
BIOL 210 Natural Resource Conservation 4	
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See Course Schedule)	
This course examines the renewable natural resources and the policies which govern their use in the United States. Laboratory investigations include measurement techniques, land use evaluations, and environmental problem solving. These exercises will be oriented toward the completion of an environmental impact assessment covering a current local environmental situation. (F)	
BIOL 260 Botany 4	
Semester Prerequisite: One Semester of Biology Recommended	
Basic Skills Prerequisite: Reading Level; Writing Level (See Course Schedule)	
An introduction to the study of plants that includes structure and function, development, and ecology. Emphasis will be placed on the diversity, adaptations, and life cycles of major plant groups. Laboratory will complement the basic concepts with emphasis on physiology, systematics, and species of value to medicine and agriculture. (Sp)	
BIOL 265 Zoology 4	
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See Course Schedule)	
Begins with an introduction to heredity, population genetics, the theory of evolution, and ecology. Deals principally with the taxonomy and comparative anatomy of members found within the major animal phyla. A phylogenetic approach is used to study the various animal phyla from Protozoa through Chordata. (Sp)	
BIOL 270 Human Genetics 3	
Semester Prerequisite: BIOL 121/Equivalent	
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See Course Schedule)	
Presents general principles of genetics with specific human application. Topics include Mendelian genetics, mitosis and meiosis, chromosome structure and aberrations, sex determination and x-linkage, molecular basis of inheritance, gene mutations, genetics of immune system, cancer genes, recombinant DNA technology, and genetic screening and counseling. (Sp)	
BIOL 275 Molecular Biology I 4	
Semester Prerequisite: BIOL 127, CHEM 161/Departmental Approval	
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See Course Schedule)	
Introduces basic principles of molecular biology, DNA/RNA structure, function and replication, Polymerase Chain Reaction, and recombinant DNA technology. Laboratory emphasizes reagent preparation, culturing bacteria, isolating and purifying both bacterial and plasmid DNA, restriction enzyme digests of DNA, and agarose gel electrophoresis analysis of DNA. Field trip to research laboratories. (F)	
BIOL 276 Molecular Biology II 4	
Semester Prerequisite: 2.0 Minimum in BIOL 275/Departmental Approval	
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See Course Schedule)	
Continuation of BIOL 275. Advanced lecture topics in bacteriophage biology, gene analysis, gene sequencing, and applications of molecular biotechnology. Gene cloning experiments with lambda bacteriophage and plasmid vectors, Southern hybridizations, and construction of a genomic library of lambda phage DNA. (Sp)	
BLDR - BUILDING RELATED	
BLDR 101 Basic Woodworking 2	
Semester Prerequisite: None	
The students learn about wood characteristics, hand and portable power tools, woodworking machinery, joint construction, fastening methods, woodworking techniques and procedures, and technical information to be applied to student-made projects. (F, Sp, Su)	

BLDR 106 Furniture Making 2

Semester Prerequisite: BLDR 101
Design and construction of simple furniture, with emphasis on selection of materials, options in joint and fastening methods, construction techniques, assembly procedures, and problem solving. (F, Sp)

BLDR 107 Wood Joinery, Joint Strength, and Methods 2.5

Semester Prerequisite: None
In this course students will receive instruction in various techniques for making wood joints. The strength and application of the various joints will be discussed. (F, Sp)

BLDR 109 Build Your Own Cabinets 2

Semester Prerequisite: BLDR 101
This course offers a hands-on experience in building vanities, base cabinets, and wall cabinets. It also covers use of tools and machines, cabinet construction, drawer construction, door style options, and formica work. Students supply their own lumber. (F, Sp, Su)

BLDR 110 Wood Projects 2

Semester Prerequisite: Previous Woodworking Experience
This class is designed to offer students a shop in which to work on individual woodworking projects. All of the tools and equipment in the shop are available for student use. The instruction demonstrates uses of tools/equipment and consults with students on their individual projects. (F, Sp)

BLDR 112 Wood Projects Lab .75

Semester Prerequisite: Previous Woodworking Experience
This class is designed to offer students the opportunity to work on their own wood-working projects. The tools and equipment in the shop are available for student use. The instructor is available to help with the use of tools and to assist with their projects. (Su)

BLDR 123 Basic Painting and Decorating 3

Semester Prerequisite: None
This course covers the step-by-step procedures of interior and exterior painting, including surface prep, materials, tools, estimation, patching, wood staining, antiquing, wood graining, marblizing, and decorative stenciling techniques and procedures. (F, Sp)

BLDR 132 General Home Maintenance 2

Semester Prerequisite: None
This is an introductory course in general home maintenance. Areas to be covered will be basic tools, electrical, plumbing, framing, roofing, interior trim, drywall and painting, appliance maintenance and repair, and concrete flatwork and blocklaying. (F, Sp, Su)

BLDR 144 Build Your Own Home 2

Semester Prerequisite: None
This course is designed for students who wish to build their own homes. Included are design considerations, land acquisition, selection of materials, choosing contractors, scheduling of work, financing, and landscaping. Guest speakers, who are experts in their various fields, provide the instruction. (F, Sp, Su)

BLDT - BUILDING TRADES

BLDT 100 Introduction to Construction 3

Semester Prerequisite: None
This course covers basic concepts of construction, including city and regional planning, managing, contracting, designing, engineering, estimating, bidding, and inspecting, as well as the production work normally associated with construction. (F)

BLDT 103 Structural Blueprint Reading 4

Semester Prerequisite: None
This course covers symbols, conventions, and abbreviations used in structural blueprints. The students will be able to recognize conventions and verbally describe their interpretation in trade or lay terms, according to standard architectural practices. Residential and commercial prints are used to show the relationship between working drawings and specifications. (F, Sp, Su)

BLDT 121 Residential Framing and Foundations 4

Semester Prerequisite: None
Students will learn to frame residential buildings using accepted framing techniques, such as framing member spacing, framing floor systems, interior and exterior walls, ceilings, roofs, and stairs. This course covers the various types of foundations and the advantages and disadvantages of each. Hands-on methods are used. (F, Sp)

BLDT 122 Framing Square 1

Semester Prerequisite: MATH 050
The students will learn how to use the information on the framing square to lay out the different types of rafters used in roof framing. The tables and scales on the framing squares will be explained. The use of the framing square to lay out stairs will also be explained. (F, Sp)

BLDT 124 Remodeling, Shingling, and Siding 4

Semester Prerequisite: BLDT 121
Students will learn to remodel, shingle, and side a residential building. This course covers the analysis, designing, estimating, problem solving, building practices, materials, and installation methods for remodeling, roofing, and exterior wall covering projects. (Sp)

BLDT 126 Interior Carpentry 4

Semester Prerequisite: BLDT 121
Students will learn to finish the interior of a residential building. This course covers the materials, installation practices, and material takeoff to do the finish carpentry for a house to include windows, doors, base, chair rail, wood floors, stairs, simple built-ins, and cabinets. (F)

BLDT 127 Framing Square and Stair Layout 2

Semester Prerequisite: None
This course covers the proper use of the framing square. Students will lay out common, hip, valley, and jack rafters. Layouts will also include gable and studs, cross bridging, and stair stringers. Instruction will emphasize understanding of math and decimal conversions involved in using the square. (F, Sp, Su)

BLDT 262 Builder's Business License 4

Semester Prerequisite: None
This course covers the principles of residential builder organizations and business practices, along with other useful information to help students pass the State of Michigan Builder's License Exam. Preparation for a residential project from planning to actual construction and sale of the project is covered. (Sp)

BLDT 277 Construction Cost Estimating 4

Semester Prerequisite: BLDT 103
Students will learn to do a structural material takeoff and a complete estimate for residential and light commercial buildings. The course uses standard estimating practices to estimate the cost of buildings, based on detailed blueprints. (F, Sp)

BLDT 281 BOCA/Uniform Code 3

Semester Prerequisite: None
Students will be introduced to the two most commonly used building codes in the United States. This course will emphasize the use, interpretation, and application of the Uniform and BOCA Building Codes. Requirement for materials, barrier-free design, and fire standards for residential and commercial construction will be emphasized. (F, Sp)

BLDT 285 Residential Building Internship 2

Semester Prerequisite: BLDT 121, Approval Required
This course offers students the opportunity to work for a residential builder in an actual job situation. The students can gain experience working with tools used in the industry and applying what they learned in the classroom and laboratory. (F, Sp)

BLDT 296 Ceramic Tile Seminar .5

Semester Prerequisite: None
This seminar will teach the basic principles for installation of ceramic tile. This includes the selection of types of tile, how to lay out the tile, preparation of the surface, care of tools used, and estimation of labor and materials. (F, Sp)

BLDT 298 Builder's License Review 1

Semester Prerequisite: None
This is a two-day workshop designed to prepare individuals for the State of Michigan Residential Builder's Examination. This workshop will include concentrated instruction in blueprint reading, state regulations, building terms, basic math, and construction codes. (F, Sp, Su)

BUSN - BUSINESS

BUSN 118 Introduction to Business 3

Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Introduces students to principles, problems, and practices related to the world of business. Topics covered include business management and organization, marketing, finance, economics, production, and international business. (F, Sp, Su)

BUSN 191 Independent Study in Management	1
Semester Prerequisite: Departmental Approval	
Students are allowed to undertake special research projects and/or individual readings to apply personal and professional experience to academic area of interest. Minimum of 16 hours work required, plus completion of written project report. (F, Sp, Su)	
BUSN 192 Independent Study in Management	2
Semester Prerequisite: Departmental Approval	
Students are allowed to undertake special research projects and/or individual readings to apply personal and professional experience to academic area of interest. Minimum of 32 hours work required, plus completion of written project report. (F, Sp, Su)	
BUSN 193 Independent Study in Management	3
Semester Prerequisite: Departmental Approval	
Students are allowed to undertake special research projects and/or individual readings to apply personal and professional experience to academic area of interest. Minimum of 48 hours work required, plus completion of written project report. (F, Sp, Su)	
BUSN 201 International Business	3
Semester Prerequisite: BUSN 118/Equivalent	
Overview of international business: organizational, social, cultural, and economic variables that create change in the international marketplace. Includes exchange rates, resource allocation, import quotas and export controls, balance of payments, and free trade versus protectionism. (F, Sp, Su)	
BUSN 229 Public Relations	2
Semester Prerequisite: None	
Provides an introduction to principles involved in creating and maintaining good public relations. Techniques for developing improved employer-employee relations, customer relations, and the total public relations effort will be discussed and applied. (F, Sp)	
BUSN 250 Personal Finance	2
Semester Prerequisite: None	
Provides a broad survey of topics including budgeting, smart shopping, buying a car, renting, buying or selling a home, credit requirements, investing, insurance, and estate and retirement planning. Not intended to be a financial planning course, but students will develop a fundamental knowledge of financial concerns. (F, Sp)	
BUSN 251 Stock Market Essentials	3
Semester Prerequisite: None	
Study of securities market to give framework with which to set investment goals and achieve desired results. Introduction to some of the more prevalent theories, concepts, and skills to aid in developing strategies and making sound investment decisions related to the stock market. (F, Sp)	
BUSN 254 Introduction to Investments	2
Semester Prerequisite: None	
This course covers the fundamental principles of investing and its role in our economy. Emphasis will be on developing terminology, types of investments, and personal financial planning such as mutual funds, real estate, CDs, money market funds, limited partnerships, insurance, IRAs, stock, and tax shelters. This is an overview course. (F, Sp)	
BUSN 255 Advanced Investments	2
Semester Prerequisite: BUSN 254	
Students will use their knowledge of investment options to develop and implement a personal investment strategy. Investment objectives and influencing factors will be examined. (Sp)	
BUSN 295 Small Business Management	3
Semester Prerequisite: None	
Small business operations, including business and managerial functions, principles of management, environment of small business, financial, marketing, production management, and legal and governmental relationships. Development of a small business plan is required. (F, Sp)	

CABS – COMPUTER APPLICATIONS USING BUSINESS SOFTWARE

CABS 100 Seminar: Special Subjects	.25
Semester Prerequisite: None	
This series of seminars provides successful participants with operational proficiency in using specific microcomputer software. The seminars also provide students with some experience using commands, functions, and features of the software beyond the basic level. Extensive hands-on activity is the primary method used in learning. (F, Sp, Su)	
CABS 101 Beginning Keyboarding on the Computer	2
Semester Prerequisite: None	
This course is designed for students having no previous typing experience. Basic keyboarding skills using the touch method for the microcomputer operator are developed. Emphasis is on speed and accuracy using the alphabetic keyboard, the figure keys, symbol keys, and the number pad. Skill level of 35 wpm is developed. (F, Sp, Su)	
CABS 102 Microcomputers for Non-majors	2
Semester Prerequisite: None	
Surveys concepts and uses of software applications: word processors, spreadsheets, and database managers. Terminology, problem solving, and acquisition factors associated with personal computers are discussed. Hands-on computer use. (F, Sp, Su)	
CABS 104 Skillbuilding for Computers	2
Semester Prerequisite: Previous Keyboarding	
This course is designed to develop speed and accuracy at the keyboard and to individualize this development for each student. (F, Sp, Su)	
CABS 105 WordPerfect for the Office/Intermediate Keyboarding	4
Semester Prerequisite: CABS 101/CABS 104/Equivalent, Typing Minimum 35 WPM	
In addition to building speed and accuracy on the computer, this course is designed to develop basic word processing skills using WordPerfect software for the rapid production, revision, and retrieval of routine business documents such as letters, envelopes, memorandums, reports, outlines, and tabulated material. (F, Sp, Su)	
CABS 110 Microsoft Office	3
Semester Prerequisite: Windows, Keyboard Experience	
This course provides an introduction to MS Office. It is designed to develop basic operational proficiency while using MS Office (MS Word, MS Excel, MS Access, and MS PowerPoint). Students learn how to use word processing, spreadsheet, database, and presentation software. Topics include creating letters, memos, simple spreadsheets, database structures, and desktop presentations. (F, Sp, Su)	
CABS 112 Advanced WordPerfect for the Office	4
Semester Prerequisite: 2.0 Minimum in CABS 105/CABS 111/Equivalent	
In addition to building speed and accuracy on the computer, this course is designed to develop an advanced word processing skill using WordPerfect software for the rapid production, revision, and retrieval of medical and legal documents, manuscripts and reports, and business publications. (F, Sp)	
CABS 113 Microsoft Word for the Office/Intermediate Keyboarding	4
Semester Prerequisite: CABS 101/CABS 104/Equivalent, Typing Minimum 35 WPM	
In addition to building speed and accuracy on the computer, this course is designed to develop a basic word processing skill on the microcomputer using Microsoft Word software for the rapid production, revision, and retrieval of routine business documents such as letters, envelopes, memorandums, tables, reports, short manuscripts, and repetitive correspondence. (F, Sp, Su)	
CABS 114 WordPerfect - Beginning for DOS	2
Semester Prerequisite: Keyboard Familiarity	
Beginner-level instruction on use of WordPerfect. Topics include creating, editing, formatting, and storing word processing documents. Also learned are the use of the block technique, spell-checker, thesaurus, merge feature for form letters, and maintaining lists. Extensive hands-on activity. (F, Sp, Su)	
CABS 115 WordPerfect - Advanced for DOS	2
Semester Prerequisite: CABS 114	
Instruction in the use of WordPerfect features such as macros, tables, columns, footnotes and endnotes, indexes, lists, table of contents, outline, boxes, graphics, and fonts. Includes techniques for improving the appearance of documents produced through use of appropriate fonts and other print capabilities. (F, Sp)	

- CABS 117 Microcomputer Forms Design** 2
Semester Prerequisite: None
This course covers the development and composition of business forms using forms design software on a microcomputer. Additional topics include forms layout, margins, type sizes, grades of paper, construction, reproduction, specifications, and forms management. (F, Sp)
- CABS 118 Advanced Microsoft Word for the Office** 4
Semester Prerequisite: 2.0 Minimum in CABS 113/Equivalent
In addition to building speed and accuracy on the computer, this course is designed to develop advanced word processing skill using Microsoft Word software for the rapid production, revision, and retrieval of medical and legal documents, manuscripts and reports, and business publications. (F, Sp)
- CABS 119 Word for Windows** 2
Semester Prerequisite: Windows, Keyboard Experience
This course is designed to provide the person new to the Word for Windows program with the ability to perform the most common word processing functions. The course also covers less frequently used features, such as performing mail merge and creating tables. (F, Sp)
- CABS 121 WordPerfect for Windows** 2
Semester Prerequisite: Windows, Keyboard Experience
Provides instruction in the use of WordPerfect for Windows. Topics include creating, editing, formatting, and storing word processing documents. Also learned are the use of the block technique, spell-checker, thesaurus, merge feature for form letters, and other related skills. (F, Sp, Su)
- CABS 122 Lotus 1-2-3 Self-Taught** 2
Semester Prerequisite: None
An introduction to using the Lotus 1-2-3 spreadsheet, graphics, and database management program. The course uses a variety of teaching techniques such as videotape and computer-assisted instruction. Provides hands-on experience in creating spreadsheets, producing graphs and reports, and searching and sorting databases. (F, Sp, Su)
- CABS 123 Lotus 1-2-3 for DOS** 2
Semester Prerequisite: None
Provides the student with a working knowledge of the Lotus 1-2-3 spreadsheet program and enables the student to apply Lotus to routine business problems. Topics include spreadsheet navigation, basic functions, spreadsheet formatting, formulas, special functions, move, copy, and an introduction to graphs, macros, and database. (F, Sp, Su)
- CABS 126 Excel** 2
Semester Prerequisite: Windows, Keyboard Experience
Beginner-level training in the creating of spreadsheets and databases using the Microsoft Excel program. The instruction includes the manipulation and generation of reports, tables, and graphs. Also included is instruction in file handling, disk management, and macro creation and use. (F, Sp, Su)
- CABS 127 Quattro Pro** 2
Semester Prerequisite: Windows, Keyboard Experience
Beginner-level training for the Quattro Pro spreadsheet program that provides the student with skills needed to apply Quattro Pro to routine business problems. Topics include basic operating concepts, functions, macros, and graphing. (F, Sp)
- CABS 128 Lotus 1-2-3 for Windows** 2
Semester Prerequisite: Windows, Keyboard Experience
Provides an introduction to the spreadsheet program Lotus 1-2-3 for Windows. Students develop a working knowledge of the program and the ability to apply Lotus to routine business problems through hands-on activities. Topics include creating, modifying and enhancing a worksheet; graphing information; using databases; creating macros; and using multiple worksheets. (F, Sp)
- CABS 129 Excel - Advanced** 2
Semester Prerequisite: CABS 126
Advanced-level training in the creating of spreadsheets and databases using the Microsoft Excel program. The instruction includes the manipulation and generation of reports, tables, and graphs. (F, Sp, Su)
- CABS 132 Paradox Database** 2
Semester Prerequisite: Windows, Keyboard Experience
This course is designed for the person who uses an existing Paradox database or who needs to develop a simple database application with Paradox. Students learn how to create database structures, enter and edit data, find data, and prepare printed reports. Students learn how to use the Paradox Personal Programmer. (Sp)
- CABS 133 Microsoft Access Database** 2
Semester Prerequisite: Windows, Keyboard Experience
This course is designed for the person who uses an existing Microsoft Access database or who needs to develop a simple database application with Access. Students learn how to create database structures, enter and edit data, find data, and prepare printed reports. (F)
- CABS 140 Business Graphics Using Harvard Graphics** 2
Semester Prerequisite: Windows, Keyboard Experience
This course uses the microcomputer as a tool to create and present information in a graphic form. Students learn to determine the most appropriate type of chart or graph to communicate specific kinds of information. They use Harvard Graphics software to produce and present information. (F, Sp)
- CABS 180 Desktop Publishing Using PageMaker** 3
Semester Prerequisite: Windows, Keyboard Experience
This course provides experience in producing documents with text and graphics using the desktop publishing program PageMaker. Good design of documents is emphasized in addition to the mechanics of producing the document. The basics of publishing are also discussed. Documents produced include reports, flyers, and newsletters. (F, Sp, Su)
- CABS 182 Microsoft PowerPoint/Windows** 2
Semester Prerequisite: Windows, Keyboard Experience
MS PowerPoint for Windows is designed to give your computer the capabilities for desktop presentations. The user will learn to plan, compose, and create complete presentations. MS PowerPoint makes it easy for the individual to present professional, high quality presentations. (F, Sp, Su)
- CABS 195 Microsoft Windows** 2
Semester Prerequisite: None
This course is for a novice in the use of the Microsoft Windows environment. Topics include the use of Windows features (icons, dialog boxes, etc.), functions (program manager, file manager, print manager, control panel), and applications included with Windows (Write, Paintbrush, Accessories, Recorder, Terminal). (F, Sp, Su)
- CABS 210 Advanced Microsoft Office** 3
Semester Prerequisite: CABS 110
A sequel to CABS 110, this course provides advanced instruction in Microsoft Office Professional. Designed to develop advanced skills using MS Word, MS Excel, MS Access, and MS Powerpoint. This class uses extensive hands-on activity. (F, Sp, Su)
- CABS 219 Advanced Microsoft Word** 2
Semester Prerequisite: CABS 119
Advanced-level training in wordprocessing using the Microsoft Word program. The instruction includes footnotes, tables, using and defining styles, using graphics, creating forms, and advanced font and text formatting. (F, Sp, Su)
- CABS 233 Advanced Microsoft Access Programming** 4
Semester Prerequisite: CABS 133
Advanced-level database management programming using the Microsoft Access software package. The instruction includes the creation of action queries, macros, functions, and program modules. (F, Sp, Su)
- CABS 282 Advanced Microsoft PowerPoint** 2
Semester Prerequisite: CABS 182
A sequel to CABS 182, this course provides advanced level training using Microsoft PowerPoint. Students will design and present professional high quality presentations. Emphasis will be placed on planning and making color changes, importing, applying group/ungroup, and integrating sound and movie clips into Microsoft PowerPoint. (F, Sp, Su)

CACR - COURT AND CONFERENCE REPORTING

CACR 101 Machine Shorthand Theory I	6
Semester Prerequisite: Admission to Program	
This course is specifically designed for conflict-free theory, taught on a steno machine to develop notewriting accuracy from 95 to 100 percent and speeds up to and including 70 wpm for five minutes. (F, Sp)	
CACR 111 Machine Shorthand Theory II	6
Semester Prerequisite: CACR 101	
This course is specifically designed for conflict-free theory taught on a steno machine to develop notewriting accuracy from 96 to 100 percent and speeds up to and including 100 wpm for five minutes. (Sp, Su)	
CACR 121 Introduction to Speedbuilding	6
Semester Prerequisite: CACR 111	
This course is specifically designed for machine shorthand speedbuilding in the areas of Q & A and Literary dictation. It will assist students in developing the required levels of 110 and 120 for five minutes at 97 percent accuracy. (F, Su)	
CACR 205 Court Reporting I	11
Semester Prerequisite: CACR 121	
This course includes Literary dictation from 100-140 wpm, Q & A dictation from 130-170 wpm, and Jury Charge dictation from 110-140 wpm. Also included in the course is instruction in CAT (Computer-aided Transcription), vocabulary improvement, and medical terminology. (F, Sp)	
CACR 206 Court Reporting II	11
Semester Prerequisite: CACR 205	
This course includes Literary dictation from 150-180 wpm, Q & A dictation from 180-230 wpm, and Jury Charge from 160-200 wpm. Also included in the course is instruction in legal vocabulary. (F, Sp)	
CACR 215 Intermediate Speedbuilding	6
Semester Prerequisite: CACR 206	
This course is designed for machine shorthand speedbuilding in the areas of Q & A, Literary, and Jury Charge dictation. It will assist the students in developing the required speed levels. (Su)	
CACR 225 Advanced Speedbuilding I	4
Semester Prerequisite: CACR 215	
This course is taught concurrently with Court Reporting I (CACR 205) for students who need an additional semester to reach required speeds. It includes the Literary and Q & A speedbuilding and timing portions of CACR 205. This course can be waived if the student has already attained the speed requirements mandated by the National Court Reporters Association. (F, Sp)	
CACR 226 Advanced Speedbuilding II	4
Semester Prerequisite: CACR 215	
This course is taught concurrently with Court Reporting II (CACR 206) for students who need an additional semester to reach required speeds. It includes the Q & A, Literary, and Jury Charge speedbuilding and timing portions of CACR 206. This course can be waived if the student has already attained the speed requirements mandated by the National Court Reporters Association. (Sp, Su)	
CACR 250 Internship	2
Semester Prerequisite: Instructor Approval	
Students placed in this field work will spend 200 hours with official reporters, deposition reporters, and hearings reporters writing, transcribing notes in proper form, and producing 200 pages of transcript in order to learn courtroom, conference, hearings, and deposition techniques, procedures, and transcript production. (F, Sp)	
CACR 250 CSR Preparation	.5
Semester Prerequisite: CACR Student/Reporter	
This training and practice class is designed to prepare the Court and Conference Reporting student for the Certified Shorthand Reporter Examination using goal-setting projects, speedbuilding material, five-minute timings (Literary at 180 words per minute and 1.6 syllabic intensity, Jury Charge at 200 words per minute, Q & A at 225 words per minute), and written knowledge test handouts. (F, Sp)	
CACR 270 Realtime Reporting	1
Semester Prerequisite: CACR Student/Reporter	
This course consists of instruction in realtime reporting as related to people with disabilities through lectures, videotapes, and hands-on applications. (F, Sp)	

CHCE - CONTINUING HEALTH CAREERS

CHCE 100 Nurse Refresher	9
Semester Prerequisite: Current Michigan License	
For the inactive RN or LPN who would like to re-enter active practice. Includes theory and practice in nursing care, pharmacology, selected disease processes, and new concepts in delivery of health care. Clinical component is included. (F, Sp)	
CHCE 101 Suicide Seminar: Assessment and Prevention	.5
Semester Prerequisite: None	
This seminar covers demographics, attitudes, and theories regarding suicide. Assessment skills for identifying suicide potential, interventions for the prevention of suicide, videotapes, case studies, and group discussions are used to increase awareness regarding suicide, in addition to gaining insight in recognition, assessment, and prevention of suicide. (F, Sp)	
CHCE 102 Seminar Special Subjects in Health	.25
Semester Prerequisite: None	
Seminar content is dependant upon course requirement. (F, Sp, Su)	
CHCE 106 Cardiac Dysrhythmia Interpretation	2.75
Semester Prerequisite: Health Professional	
This course introduces the student to identification of common dysrhythmias seen on a monitor or telemetry unit. Content will include criteria, causes, hemodynamic effects, and treatment of dysrhythmias according to ACLS guidelines. Use of monitoring equipment is integrated within the course content. (F, Sp, Su)	
CHCE 114 Physical Assessment Skills for Nursing Practice	2.5
Semester Prerequisite: RN/LPN/Nurse	
This course is designed for nurses in any area of practice. Emphasis is on techniques of physical examination: inspection, palpation, percussion, and auscultation. History-taking and interpretation of physical findings are stressed. All major body systems are studied. Live models are used in supervised practice sessions. All equipment supplied. (F, Sp, Su)	
CHCE 115 Physical Assessment Refresher	.75
Semester Prerequisite: CHCE 114/Equivalent	
This seminar is designed for students who have already had formal training in physical examination skills. Course content is designed to help students recall important signs of pathology and normal physical findings. There is also ample opportunity, through supervised practice sessions, to improve specific techniques of physical examination. (F, Sp, Su)	
CHCE 117 Physical Assessment Techniques for the Corrections Nurse	2.75
Semester Prerequisite: Corrections Nurse/EMT	
This course is designed for and restricted to Nurses/EMTs currently employed by Michigan Department of Corrections. Physical exam skills are studied and extensively practiced with special attention to modifications required in the corrections setting. Live models are used. Common pathological findings are emphasized. All equipment supplied. (F, Sp, Su)	
CHCE 182 Acute Trauma/Emergency Nursing Seminar	2
Semester Prerequisite: RN/LPN/EMT/AEMT	
Nurses and pre-hospital personnel will increase their knowledge of acute trauma and medical emergencies. Lecture, demonstrations, and simulated emergency practice sessions are all used to assist students in assessing, prioritizing, and providing emergency care in a safe, organized manner. Chest, abdomen, burns, face, extremities, and neuro trauma are included. (F, Sp, Su)	
CHCE 185 Lab Tests for Nurses	.5
Semester Prerequisite: None	
A seminar for nurses and other health care personnel. Seminar content focuses on the systematic disease processes of specific lab tests, interpretation of test values, and application to practice. Mock lab reports and case study situations are used. (F, Sp)	
CHCE 194 Mental Health Nursing Seminar	1.5
Semester Prerequisite: Registered Nurse	
This course is designed for registered nurses currently working with or who will work with clients with emotional problems. Students are taught the content for a mental status assessment, therapeutic communication techniques, psychotropic medications, patient teaching techniques, nursing interventions, and the evaluation of client progress. (F, Sp, Su)	

- CHCE 195 Effective Interaction and Problem-Solving Techniques** .5
Semester Prerequisite: RN/LPN/Allied Health
This seminar stresses application of assertive communication skills. Personality and temperament styles are identified which determine conflict resolution, value clarification, and confrontational skills. Real and theoretical work situations are stressed to assist in effective problem-solving techniques. (F, Sp, Su)
- CHCE 198 Geriatric Nursing Seminar** .5
Semester Prerequisite: Nurse (RN/LPN/GN/SN)
This focused seminar is designed specifically for the nurse working in long-term care facilities. The student investigates concepts of nursing leadership and applies them to his or her own work environment. Issues of staff morale, staff turnover, realistic changes within economic and organization limitations are discussed. (F, Sp)
- CHCE 200 Managing Aggressive Behavior** 1
Semester Prerequisite: None
This course is designed for staff working where the potential for aggressive behavior exists. Michigan's mental health code is used as a basis for course content which includes cues to emotional crisis, causes for aggressive behavior, de-escalating techniques, self-protective maneuvers, and non-offensive physical controls. Practice sessions are included. (F, Sp, Su)
- CHCE 202 Advanced Nursing Practice Seminar: Medical-Surgical Nursing** 3
Semester Prerequisite: RN/LPN/GN
This specialty course is designed to enhance nurses' knowledge of medical-surgical practices. Content focuses on patient assessment, current treatment modalities, and pharmacology. Specialized monitoring and treatment equipment or procedures are included where applicable. Important types of pathology and dysfunctional states are included with emphasis on the nursing management. (F, Sp, Su)
- CHCE 203 Oncology Nursing Practice** 3
Semester Prerequisite: RN/LPN/GN
A specialized course for nurses pursuing a position in oncology or for those seeking professional growth. Course content includes the diagnosis and pathophysiology of cancer, principles of radiation, chemotherapy and surgical treatment, oncologic complications with related management, emotional adjustment issues, and bereavement. Strong emphasis on nursing care. (F, Sp, Su)
- CHCE 204 Essentials of Home Health Nursing Practice** 3
Semester Prerequisite: RN/LPN/GN
This course helps prepare nurses for work in home health care. Course content is extensive, including information about Medicare/Medicaid, DRGs, charting, patient assessment, personal safety, infection control, and effective communication. Cultural values affecting delivery of care, appropriate referrals, supervision, and planning effective home visits are also emphasized. (F, Sp, Su)
- CHCE 205 Intravenous Therapy** .5
Semester Prerequisite: Nurse, Health Care Professional
This workshop will provide the most recent information on a variety of topics relating to intravenous therapy. Content can range from basic principles to advanced high-tech therapy. This seminar is designed for professional members of the health care team who routinely deal with IV therapy. (F, Sp)
- CHCE 208 Clinical Practicum for Professional Nurses** 1
Semester Prerequisite: RN/LPN/GN
This practicum is designed for nurses requiring supervised clinical practice as part of their advanced study. A variety of clinical settings are used, including acute care, clinics, home care, and treatment centers. This course is most appropriate in conjunction with one of the advanced nursing practice courses/seminars. (F, Sp, Su)
- CHCE 210 Pediatric Advanced Life Support** 1.5
Semester Prerequisite: Basic Cardiac Life Support Certification/Health Professional
This seminar is designed for members of the health care team who work with pediatric patients. A combination of lecture and practice in skills stations will prepare the student for success in achieving American Heart Association certification as a Pediatric Advanced Life Support Provider. Prior assigned reading mandatory. (F, Sp)
- CHCE 211 Pediatric Advanced Life Support (PALS) Refresher** .5
Semester Prerequisite: Basic Cardiac Life Support, Pediatric Advanced Life Support Certification
This seminar is designed to recertify, according to the American Heart Association (AHA) standards, those professionals currently possessing valid Pediatric Advanced Life Support (PALS) certification cards. Upon successful recertification, the AHA will issue each student a new PALS certification card. Prior assigned readings are mandatory. (F, Sp)
- CHCE 227 New Dimensions in Nursing** .5
Semester Prerequisite: Nurse (RN/LPN/GN/SN)
Seminar content is dependent upon course requirement. (F, Sp, Su)
- CHCE 228 Nursing Management Strategies** 2
Semester Prerequisite: Health Professional
This course provides an overview of the management function in a health care setting. It is based on a conceptual understanding of the management functions of planning, organizing, leading, controlling, and dealing with change. Emphasis will be on developing practical skills needed to manage resources and set realistic goals. (F, Sp)
- CHCE 229 Nursing Practice Update Seminar** .75
Semester Prerequisite: RN/LPN/Health Professional
Seminar topics are selected from current medical literature and/or prevailing community needs. Trends and issues in nursing, patient care advances and dilemmas, diagnostic and treatment protocols, medical-legal-ethical considerations, and professional nursing concepts all form the basis for final topic selection. Specialized faculty participate in areas of their expertise. (F, Sp, Su)
- CHCE 230 Advanced Cardiac Life Support Training Seminar** 1.75
Semester Prerequisite: Basic Cardiac Life Support Certification/Health Professional/Departmental Approval
This seminar is designed for members of the health care team to develop knowledge and skills in Advanced Cardiac Life Support (ACLS). A combination of lecture and skills performance will prepare the student to achieve success in American Heart Association certification as an ACLS provider. Pre-preparation mandatory. (F, Sp, Su)
- CHCE 234 Mental Health Update** .75
Semester Prerequisite: Nurse
This seminar is for health care personnel with the need to practice and expand their skills in working with the mentally ill. Content will focus on those areas prioritized by the contracting agency. Various teaching, learning, and testing techniques will be utilized including lecture, role-playing, audiovisual, case studies, and written quizzes. (F, Sp)
- CHCE 235 Advanced Cardiac Life Support (ACLS) Refresher Seminar** .5
Semester Prerequisite: Basic Cardiac Life Support, Advanced Cardiac Life Support Certificate
This seminar is designed to recertify, according to the American Heart Association standards, those individuals currently possessing valid Advanced Cardiac Life Support (ACLS) cards. The American Heart Association will issue a certificate to each student upon successful completion of the program. Prior assigned readings are mandatory. (F, Sp, Su)
- CHCE 239 Emergency/Trauma/Update and Review** 1.5
Semester Prerequisite: RN/LPN Emergency Care Nurse
This course is designed for nurses working in the specialty field of emergency/trauma care. It may be used as an update in the current status of emergency/trauma nursing or as an adjunct in helping the emergency nurse prepare for the certification exam. (F, Sp, Su)
- CHCE 240 Cardiac Rehabilitation Cognate for Nurse Assistants** 2.75
Semester Prerequisite: CHSE 101
Nurse assistant care of the monitored cardiac patient emphasizes recognition of heart waves, rates, and lethal arrhythmias; observation of various cardiac procedures; and clinical practice. Care of the cardiac patient is integrated with knowledge of effects of immobility, deconditioning, and aging, and reporting of abnormal behavior or symptoms. (F, Sp, Su)
- CHCE 266 Focal Problems and Patient Care Issues in Geriatric Nursing** 1.5
Semester Prerequisite: Nurse (RN/LPN/GN/SN)
This specialty course is designed for nurses working with the elderly client in any setting. Common, serious conditions are studied using physical assessment data to identify and document the problem. An overview of normal physical and physiologic changes in the aging client is the framework used to assess abnormal developments. (F, Sp)
- CHCE 267 Therapeutic Communications** .75
Semester Prerequisite: Health Professional
For health professionals with emphasis on the application of communication theory to practice in health care. Communication techniques useful in daily as well as crisis and difficult situations are included. Videotape, film clips, slides, role-playing, and a written assignment are utilized to enhance the student's learning. (Su)

CHCE 273 Registered Nurse Critical Care Core Curriculum	3
Semester Prerequisite: RN with Medical Surgery Experience	
A course for registered nurses practicing in critical care, preparing to work in critical care and/or considering taking the certification exam. Emphasis placed on the CCRN core course content which includes anatomy and physiology, pathophysiology of selected common conditions, related nursing interventions, and medical management. (F, Sp)	
CHCE 282 Dental Auxiliary Seminar	.5
Semester Prerequisite: Dental Auxiliary	
Seminar content is dependent upon course requirement. (F, Sp, Su)	
CHCE 289 Health Care Risk Management and Quality Review Risk Workshop	.5
Semester Prerequisite: None	
In this general overview of business writing skills, specific emphasis is placed on writing reports and executive summaries. Conciseness, clarity, analyzing and organizing information, and basic principles of good writing are stressed. (F, Sp, Su)	
CHCE 292 Risk Management: Prevention and Reduction of Loss	3
Semester Prerequisite: M.H.A.I.C. Selected, Approval Required	
This course provides an overview of the health care system and management functions necessary to control risk/promote quality; skills necessary to develop and maintain an effective loss prevention and risk financing program in a health care setting; and health care law, the medical malpractice arena, and claims management principles. (F)	
CHCE 293 Quality Review: Performance Evaluation and Process Improvement	3
Semester Prerequisite: M.H.A.I.C. Selected, Approval Required	
This course covers history of quality assurance and the ways QA and QM have become integrated into the current health care system; the role of accreditation (JCAHO) and third-party payer (MPRO) bodies in the review of physician practice and patient care; quality and peer review processes; data management; medical staff governance, credentialing, privileging; and quality/risk issues in high risk clinical areas. (Sp)	
CHCE 294 Practicum: Health Care Risk Management and Quality Review	2.5
Semester Prerequisite: M.H.A.I.C. Selected, Approval Required	
The student will select an approved topic and design an independent study/practicum related to risk management or quality review in their work setting. Each student may choose a CHCE 292/CHCE 293 faculty or an agency staff person as a mentor. A written project report is required from each student. (Sp)	
CHCE 295 Health Care Risk Management and Quality Review Special Issues	.5
Semester Prerequisite: M.H.A.I.C. Selected, Approval Required	
This seminar will highlight a specially selected issue and examine how that issue impacts health care risk management and quality review. (Su)	
CHCE 296 Health Care Risk Management and Quality Review Update	1
Semester Prerequisite: M.H.A.I.C. Selected, Approval Required	
This seminar will be held yearly for graduates of the Health Care Risk Management and Quality Review program to update their risk management skills and review new issues in loss prevention and quality review. (F)	
CHCE 299 Advanced Cardiac Life Support (ACLS) Instructor Seminar	2
Semester Prerequisite: Basic Cardiac Life Support/Advanced Cardiac Life Support Certification	
This course will train those health care professionals who are currently certified in Advanced Cardiac Life Support (ACLS), according to American Heart Association standards, as ACLS instructors. All participants are expected to recertify their ACLS skills at the time of the course. Prior assigned readings are mandatory. (F, Sp, Su)	

CHDV - CHILD DEVELOPMENT

CHDV 101 Child Growth and Development: 0-5 years	4
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level, Writing Level (See <i>Course Schedule</i>)	
This course examines the growth and development patterns of children (prenatal to five years) in physical, social, emotional, cognitive, and language development. Additional topics include nutrition, health, play, families, and the preschool experience. Students acquire skills in observing, recording, and interpreting child behavior. CDA: developmental context; functional area: healthy. (F, Sp, Su)	
CHDV 111 Positive Guidance and Communication Skills with Children	4
Semester Prerequisite: None	
This course, which includes field work, examines interaction skills and environmental structures which foster social and emotional growth in children. Topics include positive guidance and discipline, effective communication with children, problem solving, social skill development, group management, and aggression prevention. CDA functional areas: learning environment, self, social, guidance, communication, professionalism. (F, Sp)	
CHDV 112 Building Relationships with Families in Child Care	2
Semester Prerequisite: CHDV 111 Recommended	
This course examines ways to establish and maintain positive and supportive relationships with families in child care programs. The focus includes understanding the parent's perspective, supporting the child's relationship with his or her family, encouraging parental involvement, and communicating with parents. CDA functional area: families. (Sp, Su)	
CHDV 113 Health and Safety Issues in Child Care	2
Semester Prerequisite: None	
This course examines health and safety issues in child care homes and centers. Topics include understanding and preventing communicable illnesses, bloodborne pathogens, safe equipment and play areas, preventing accidents, nutrition, and health and safety education. It addresses the CDA competencies of safe and healthy. (F, Sp)	
CHDV 120 Child Care Curriculum: Physical Development	1
Semester Prerequisite: None	
This course examines curriculum and activities which enhance the development of physical and motor skills of children in early childhood programs. It includes specific information on developmentally appropriate activities for fine motor, gross motor, and sensory development for a variety of ages. CDA functional area: physical. Uses seminar format. (F)	
CHDV 121 Child Care Curriculum: Cognitive and Language Development	1
Semester Prerequisite: None	
This course examines curriculum and activities which enhance cognitive and language development of children in early childhood programs. It focuses on designing developmentally appropriate activities which foster curiosity and exploration. Topics include math, science, language arts, and emergent literacy. CDA functional areas: cognitive and communication. Uses seminar format. (Sp)	
CHDV 122 Child Care Curriculum: Creative Development	1
Semester Prerequisite: None	
This course examines curriculum and activities which enhance the creative development of children in early childhood programs. Specific information on developmentally appropriate and open-ended activities in the areas of art, music, creative, and dramatic play with a variety of materials are shared. CDA functional area: creative. Uses seminar format. (Su)	
CHDV 130 Introduction to Child Care	1
Semester Prerequisite: None	
This course introduces factors in providing quality child care. Topics include program planning; curriculum development; child growth and development; positive guidance and discipline skills; safety, health and nutrition; parent communication and involvement; and professionalism. CDA functional area: learning environment, program management, and professionalism. (F)	
CHDV 131 Family Child Care Management	2
Semester Prerequisite: None	
This course presents a systematic approach to managing a family child care home and creating a positive learning environment for young children in a home setting. Topics include business aspects, program development, professionalism, managing personnel, and organizing the environment. CDA functional areas: learning environment, program management, professionalism. (F)	
CHDV 151 Child Development Associate (CDA) Credentialing Preparation	3
Semester Prerequisite: Departmental Approval	
This course, and accompanying field work, examines credentialing procedures and competency standards for the national Child Development Associate (CDA) Credentialing Assessment. Students complete the resource file, are observed using the CDA observation instrument, and prepare for the CDA situational assessment. Covers the CDA functional areas of families and professionalism. (Sp)	
CHDV 181 Decision-making and Problem Solving by Adults in Child Care	1
Semester Prerequisite: None	
This course examines the child care provider's use of decision-making and problem-solving skills in challenging situations. Communication skills, values, priorities and conflict resolution will be introduced and practiced. (F, Sp)	

- CHDV 184 Children and Stress** 1
Semester Prerequisite: None
This course examines stress as it relates to children. Specific topics include symptoms and causes of stress, situations which are stressful for children, ways to help children cope with stress, and techniques for reducing stress. Specific information on divorce, death, family violence, and hospitalization are discussed. Seminar format is used. (Sp, Su)
- CHDV 185 Preventing Child Sexual Abuse: Teaching Personal Safety** 1
Semester Prerequisite: None
This course explores preventing child sexual abuse through teaching personal safety to children. Topics include the sexually abusive situation, behavioral indicators, appropriate adult responses, legal mandates, and reporting protocol. It emphasizes appropriate ways of teaching personal safety to children, selecting personal safety materials, and adult concerns when teaching it. Seminar format is used. (F)
- CHDV 186 Children's Self-esteem and Positive Discipline** 1
Semester Prerequisite: None
This course looks at children's self-esteem: what it is, where it comes from, and how it can be fostered in both homes and child care. It focuses on practical suggestions and teaches positive discipline techniques that build self-esteem. CDA functional area: self, guidance. Seminar format is used. (F, Su)
- CHDV 188 Caring for Young Children with Special Needs** 2
Semester Prerequisite: None
This course focuses on the special and diverse individual needs of children and their families, including handicapping conditions and cultural diversity in various settings. It addresses identification of children with disabilities or in "at-risk" categories; community services; inclusion in least restrictive environments; family-centered intervention; and communication skills which enhance work with children with special needs and their families in various settings. (Sp)
- CHDV 189 Helping Children Value Diversity** 1
Semester Prerequisite: None
This course explores the various cultural groups and family structures that children encounter. It presents activities that caregivers can use to aid children in recognizing, valuing, and respecting diversity. Development of multi-cultural and anti-bias curriculum is emphasized. Seminar format is used. (F)
- CHDV 190 Child Care Seminars** 1
Semester Prerequisite: None
This course provides a variety of topics of special interest to child care providers. (F, Sp)
- CHDV 220 Curriculum and Learning Environments for Preschoolers** 4
Semester Prerequisite: 2.5 Minimum in CHDV 101, CHDV 111/
Departmental Approval
This course, with field work, explores developmentally appropriate preschool programming which promotes physical, cognitive, language, and creative development. Emphasis is on active involvement of children in concrete experiences. Other topics include appropriate learning environments, materials and equipment, and children's learning objectives. CDA functional areas: learning environment; creative, physical, cognitive, and communication. (F, Sp)
- CHDV 221 Infant/Toddler Program Development** 3
Semester Prerequisite: CHDV 101/Concurrently
This course, which includes field work, explores physical and emotional environments needed for quality child care for infants and toddlers. Focus includes developing nurturing skills, developmentally appropriate activities and materials, managing schedules and routines, observation, and record keeping skills. CDA functional areas: safe, healthy, learning environment; physical, cognitive, communication; program management. (F, Su)
- CHDV 222 School-age Child Care Program Development** 2
Semester Prerequisite: None
This course examines the development of child care programs to meet the developmental characteristics of school-aged children (age 5-12). Content includes growth and development patterns in the areas of physical, cognitive, social and emotional; appropriate equipment and activities; environment and program structure; and individual and group management. (F, Sp)

- CHDV 230 Child Care Center Administration** 2
Semester Prerequisite: CHDV 220/Departmental Approval
This course examines the administrator's role in directing an early childhood center and in providing a systematic approach to program management. Topics include goal-setting, safety, licensing, health and nutrition, policy development, business techniques, and personnel management. CDA functional areas: safe, program management, professionalism. (Sp)
- CHDV 284 Child Development Practicum** 5
Semester Prerequisite: CHDV 220, Departmental Approval
A supervised field experience working directly with children in a child care program. Students gain skill in planning and implementing the daily children's program, and in setting and assessing goals for individual children and the classroom. Accompanying seminar explores the teacher's professional role in planning, goal-setting, and evaluation. (F, Sp)

CHEM - CHEMISTRY

- CHEM 120 Basic General, Organic and Biological Chemistry** 4
Semester Prerequisite: Chemistry Inventory
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)
Introduces topics in general, organic, and biological chemistry that are used in health-related occupations. Included are scientific measurement, atomic structure and bonding, chemical equations and stoichiometry, solutions, acids, bases, buffers, gas behavior, nuclear radiation, organic functional groups, and the biologically important compounds: carbohydrates, lipids, and proteins. (F, Sp, Su)
- CHEM 125 Basic Chemistry** 4
Semester Prerequisite: Chemistry Inventory
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)
Intended for students who have not had high school chemistry or who require a refresher course. Measurement, problem solving, chemical formulas, chemical equations, stoichiometry, atomic structure, chemical bonding, gas laws, solutions, and acids and bases are emphasized. (F, Sp, Su)
- CHEM 130 Biochemistry** 4
Semester Prerequisite: 2.0 Minimum in CHEM 120/CHEM 125
Basic Skills Prerequisite: Writing Level (See Course Schedule)
This course is designed to provide an understanding of the chemistry of life processes. Topics include organic functional groups, enzymes, carbohydrates, lipids, proteins, metabolic pathways, nucleic acids, biochemical genetics, blood and respiratory chemistry, urine, electrolytes, acid-base balance, hormones, and nutrition. (F, Sp, Su)
- CHEM 135 Chemistry in Society** 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)
A general education course which presents chemistry to non-science majors, who must function and make decisions in a society shaped by science and technology. Chemistry knowledge is introduced and applied on a need-to-know basis with respect to issues in society that have significant chemistry components. (F, Sp, Su)
- CHEM 151 General Chemistry Lecture I** 4
Semester Prerequisite: 2.0 Minimum in CHEM 125/High School Chemistry
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)
The first of two semester courses designed to provide an in-depth introduction to general chemistry for students who plan careers in the health professions, physical sciences, biological sciences, or engineering. Topics discussed include measurement, aqueous reactions, stoichiometry, thermochemistry, atomic structure, bonding, and modern materials. (F, Sp, Su)
- CHEM 152 General Chemistry Lecture II** 3
Semester Prerequisite: 2.0 Minimum in CHEM 151, MATH 121
Basic Skills Prerequisite: Math Level (See Course Schedule)
The second of two semester courses designed to provide an in-depth introduction to general chemistry for students who plan careers in the health professions, sciences, or engineering. Topics include kinetics, ionic equilibria, thermodynamics, electrochemistry, descriptive chemistry, and nuclear chemistry. (F, Sp, Su)

CHEM 161 General Chemistry Laboratory I 1

Semester Prerequisite: 2.0 Minimum in CHEM 151/Concurrently
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
 (See *Course Schedule*)

Laboratory course designed to complement CHEM 151. Stresses basic laboratory techniques, writing lab reports, and critical thinking exercises. Topics include density determination, synthesis, empirical formulas, molecular geometry, gas laws, pH and water hardness. (F, Sp, Su)

CHEM 162 General Chemistry Laboratory II 1

Semester Prerequisite: 2.0 Minimum in CHEM 161. CHEM 152/Concurrently
 CHEM 162 is the second semester general chemistry laboratory course. The main focus of the course is inorganic synthesis and analysis. (F, Sp, Su)

CHEM 182 Introductory Organic Chemistry 3

Semester Prerequisite: 2.0 Minimum in CHEM 151
 A survey of the principles of organic chemistry. Introduces the student to structure, nomenclature, chemical and physical properties, selected characteristics, and preparations and reactions of the most common classes of organic compounds. Other topics include polymers, optical isomerism, and selected reaction mechanisms. (Sp)

CHEM 192 Introductory Organic Chemistry Laboratory 1

Semester Prerequisite: 2.0 Minimum in CHEM 182/Concurrently
 Designed for students in majors such as packaging, agriculture, and forestry who require only one credit of organic lab. It gives students an introduction to common techniques, equipment, and chemicals found in an organic laboratory. Particular attention is given to compounds studied in CHEM 182. (Sp)

CHEM 251 Organic Chemistry Lecture I 4

Semester Prerequisite: 2.0 Minimum in CHEM 152
 The first lecture course of a two-semester sequence in organic chemistry for chemical engineering, chemistry, or preprofessional majors. Topics include structure and bonding, hybridization, nomenclature, stereochemistry, thermodynamics and kinetics of organic reactions, functional groups including reactions and mechanisms, and applications of mass spectrometry. (F, Sp)

CHEM 252 Organic Chemistry Lecture II 4

Semester Prerequisite: 2.0 Minimum in CHEM 251
 Continuation of CHEM 251. Topics include aromatic compounds, spectroscopy, organometallic compounds, aldehydes and ketones, carboxylic acids and their derivatives, amines, enolates, phenols, carbohydrates, lipids, and proteins. (Sp, Su)

CHEM 272 Organic Chemistry Laboratory 2

Semester Prerequisite: CHEM 251/Concurrently
 Designed for students (in majors such as chemistry, pre-med, and pre-pharmacy) who require more than one credit of organic lab. It gives students experience with the chemicals, techniques, and equipment commonly employed in organic laboratories. Particular attention is given to compounds studied in CHEM 251 and 252. (Sp)

CHIN - CHINESE**CHIN 115 Conversational Chinese I** 3

Semester Prerequisite: None
 Designed for people who have little background in the Chinese language and culture but wish to acquire conversational skills. Students will learn proper pronunciation, the four tones of Putonghua—the standard vernacular, basic sentence structures, and practical vocabulary for everyday use. Selected aspects of Chinese culture will be introduced. (F)

CHIN 121 Elementary Chinese I 4

Semester Prerequisite: None
 Designed to help students build a foundation of Chinese language learning. Students will develop the basic skills in the areas of speaking, listening, reading, and writing. Different aspects of the Chinese culture will be introduced. (F)

CHIN 122 Elementary Chinese II 4

Semester Prerequisite: CHIN 101/CHIN 121/Equivalent/Approval
 Second course of a two-semester sequence in elementary Chinese. Further work on the four basic skills in the areas of speaking, listening, reading and writing, with increasing emphasis on vocabulary building, conversation, and character writing. Different aspects of the Chinese culture will be discussed. (F, Sp, Su)

CHSE - COMMUNITY HEALTH SERVICES**CHSE 101 Acute Care Nurse Assistant/Orderly** 6.5

Semester Prerequisite: None
 This course will prepare an individual for employment as a nursing assistant/orderly in a hospital, long-term care facility or home health care agency. The course will provide the knowledge and skills needed in order to provide safe basic patient care. (F, Sp, Su)

CHSE 102 Advanced Acute Care Nurse Assistant 4.5

Semester Prerequisite: CHSE 101/CHSE 108/Equivalent
 This course will prepare an individual for employment as an advanced acute care nursing assistant in an acute care hospital, long-term care facility, or home health care. The course will provide the knowledge and skills needed to perform patient care safely as a skilled nursing assistant. (F, Sp, Su)

CHSE 108 Long-Term Care Nurse Aide 4

Semester Prerequisite: None
 This course will prepare an individual to be a nurse aide in a long-term care facility. This is a state-approved certified course and will provide specific knowledge and skills required for a nurse aide to safely function in a long-term care facility. (F, Sp, Su)

CHSE 111 Medical Insurance Billing I 3

Semester Prerequisite: CHSE 121/Equivalent
 First course in a two-semester sequence which introduces the student to insurance billing, diagnostic and procedure coding for physician billing, and comprehensive billing directions for Medicare. The student must have a grade of 2.5, or better, to continue with Medical Insurance Billing II. (F)

CHSE 112 Medical Insurance Billing II 3

Semester Prerequisite: 2.5 Minimum in CHSE 111
 Second course in a two-semester sequence. Course covers comprehensive billing directions for BCBS of Michigan, Medicaid, PHP, and other commercial insurance carriers for billing in the physician's office. A certificate of completion is awarded for Medical Insurance Billing if a grade point of 2.5 or better is earned in CHSE 111 and CHSE 112. (Sp)

CHSE 113 Computers in the Medical Office 1

Semester Prerequisite: CHSE 111/CHSE 112 Concurrently,
 Keyboarding Experience
 This course offers an easy-to-follow approach to teaching medical billing using Medical Manager software. Students will learn how to record charges and payments, schedule appointments, record information on patients, ICD-9 and CPT coding, produce claim forms and patient statements, submit claims electronically, and build office databases. (F, Sp)

CHSE 121 Medical Terminology for Allied Health I 2.5

Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Medical Terminology I will provide a basic knowledge of word building, use, pronunciation, and spelling of medical terms. The use of medical terms in periodicals, textbooks, and medical care areas will be stressed. It provides a sound basis for those students interested in health careers. (F, Sp, Su)

CHSE 122 Medical Terminology for Allied Health II 2.5

Semester Prerequisite: CHSE 121
 Medical Terminology II will teach the student to utilize medical terminology in context by applying terms to the function and structure of body systems and specific disease conditions. Students will build on knowledge learned in Medical Terminology I. (F, Sp)

CHSE 126 Medical Terminology for Insurance Examiners 1.25

Semester Prerequisite: Medical Technician/Insurance Examiner/Approval
 Medical terminology is a technically exact vocabulary used by professionals to speak and write precisely. This medical terminology course is designed for insurance examiners and insurance medical technicians. The use of medical terms in records and specific medical areas will be stressed. (F, Sp, Su)

CHSE 132 Health Unit Coordinator 7

Semester Prerequisite: CHSE 121
 Course is designed to introduce the student to basic health unit coordinator skills. Subject matter will include communication skills, computers, assertiveness, chart forms, admissions, transfers, discharges, death and dying, pharmacology, laboratory tests, transcribing physician orders, and job application skills. Clinical component is included. (F, Sp)

CHSE 143 Phlebotomy Technician	2
Semester Prerequisite: None	
This course is designed to prepare a person to function as a phlebotomy technician. It will provide the knowledge and skills necessary to safely and skillfully obtain a blood specimen from a patient. The course includes lecture, campus, and clinical laboratory. (F, Sp)	
CHSE 145 Central Service Technician	4
Semester Prerequisite: None	
Prepares individuals to function competently in the central service department of a health care facility. Duties include (but are not limited to) processing of patient care equipment, supplies, and instruments for use in all departments. Includes principles and practices of decontamination, cleaning, disinfection, sterilization, and distribution of medical/surgical supplies. (F)	
CHSE 201 Dietary Manager I	5
Semester Prerequisite: Departmental Approval	
The first course in a three-semester sequence which will prepare students for a career as a dietary manager. The course will include both classroom and field experience. Topics such as the role of the supervisor, quality assurance, and nutritional principles will be included. (F)	
CHSE 202 Dietary Manager II	5
Semester Prerequisite: CHSE 201	
The second course in a three-semester sequence which will prepare students for a career as a dietary manager. This course will include both classroom and field experience. Content includes the purchasing process, sanitation principles, governmental laws as they apply to food service, and other required content to become a dietary manager. (Sp)	
CHSE 205 Advanced Dietary Therapy	2
Semester Prerequisite: CHSE 201/Nutrition Class	
The third course in a three-semester sequence which is designed to provide advanced knowledge of diet therapy and nutritional care for dietary managers. The course will include knowledge of disease states, as well as laboratory data and nutritional assessment techniques as they relate to providing adequate nutritional care to patients. (Su)	
CHSE 213 Basic Psychiatric Technician	4
Semester Prerequisite: None	
This course covers concepts of personality development, identification of mental illnesses, patient rights, aspects of confidentiality, therapeutic interventions, and specific means of evaluating patient care. Supervised clinical experience provides opportunities for students to apply classroom material to practical situations. (F)	
CHSE 222 Special Transportation Health Care	2
Semester Prerequisite: Special Transportation Employee/Approval	
Course is designed for special transportation health care personnel/bus drivers/assistants who transport medically handicapped or mentally fragile individuals. This course covers various medical diseases and treatments, and provides practice skills pertinent for job performance. (F, Sp, Su)	
CHSE 224 Special Transportation Health Seminars	.25
Semester Prerequisite: None	
This seminar is designed as a yearly review and updating of skills in areas of need as designated by the contracting agency. It could include, but is not limited to, medical emergencies, airway management and oxygen therapy, communication skills, and physical management of aggressive behavior. (F, Sp, Su)	
CHSE 225 Care of the Medically Fragile Child	1.5
Semester Prerequisite: None	
This course is designed for health care personnel who work with and/or provide care for the medically fragile child. Content will include diseases and medical conditions common to the fragile child. Basic anatomy and physiology, potential problems, and medications and their side effects will also be covered. (F, Sp, Su)	
CHSE 226 School Bus Health Care	2
Semester Prerequisite: Special Transportation Employee/Approval	
Course is designed for special transportation health care personnel/bus drivers/assistants who transport medically handicapped or mentally fragile individuals. This course covers various medical diseases, treatments, and provides practice skills pertinent for job performance. This course includes dealing with aggressive behavior and steps in first aid. (F, Sp, Su)	

CHSE 235 Pharmacy Technician	4
Semester Prerequisite: MATH 040/MATH 050 Competency	
This course is designed to introduce students to the skills necessary for a pharmacy technician position in a hospital or retail pharmacy. Students will be prepared to function with knowledge and accuracy in dispensing and control of drugs in either setting. (F)	
CIBS - COMPUTER INFORMATION SYSTEMS FOR BUSINESS	
CISB 100 Introduction to Computer Information Systems	3
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
This course provides an introduction to computers, their role in managing business information systems, their influence on society, and their use in personal productivity. A hands-on introduction to major microcomputer tools, including Windows word processing, spreadsheet, and database management applications. (F, Sp, Su)	
CISB 102 Introduction to the Internet in Business	2
Semester Prerequisite: Windows Familiarity	
This course is designed to introduce the student to the use and potential use of the Internet for business. Hands-on assignments will allow the student experience using the Internet. (F, Sp, Su)	
CISB 104 Introduction to DOS	1
Semester Prerequisite: None	
Students in this course develop skill in applying the most common commands of the disk operating system (DOS) used by IBM-type microcomputers. Students also learn how to work with disk directories and how to create simple batch files. (F, Sp, Su)	
CISB 107 DOS Management	1
Semester Prerequisite: CISB 104	
Advanced concepts in managing a DOS-based operating system. Techniques are presented in the areas of memory allocation, system organization, batch files, software conflict detection and correction, disk compression, and virus detection and prevention. Assignments include the use of DOS provided and third-party software in diagnosing and optimizing system performance. (F, Sp, Su)	
CISB 119 Introduction to Windows Programming With Visual BASIC	4
Semester Prerequisite: MATH 050/Equivalent	
This course introduces students to Windows programming using the Visual BASIC programming environment. Students learn to develop business applications by designing and creating a user interface and writing the necessary procedures. Students also learn to use logic development tools and object-oriented programming techniques. (F, Sp, Su)	
CISB 120 Introduction to Programming and Logic	4
Semester Prerequisite: MATH 050/Equivalent	
A first course in computer programming and programming logic for computer information majors and others wanting an intensive introduction to problem-solving techniques. (F, Sp, Su)	
CISB 122 Advanced Windows Programming With Visual BASIC	3
Semester Prerequisite: CISB 100, CISB 119	
A second course in the Visual BASIC programming sequence. This course leads to the creation of functional Windows application programs. Topics include random access files, database access, error trapping, calling DLL procedures, developing objects, using OLE controls, OLE automation, developing help systems, mouse and keyboard handlers, and developing crystal reports. (F, Sp)	
CISB 130 Data Communications	3
Semester Prerequisite: CISB 100, CISB 119/CISB 120	
The course provides a comprehensive introduction to data communications systems: the major components, how they are integrated, and the differences between the various networks and network carriers. Students learn the terminology and major protocols to a level adequate to design application programs and discuss data communication topics with other professionals. (F, Sp, Su)	
CISB 133 Operating Systems	3
Semester Prerequisite: (CISB 100, CISB 119)/(CISB 100, CISB 120)	
The course covers what operating systems are, why they exist, what they do, and how they interface with the operators and programmers. Main memory management and processor scheduling are studied. Case studies of current operating systems are studied. (F, Sp)	

<p>CISB 136 SQL: Structured Query Language 2</p> <p>Semester Prerequisite: Windows Familiarity</p> <p>This course covers the relational database language SQL. Topics include table definition, queries, special operators, the join operation, views, security, administration, and reports. A commercial SQL product is used to provide students with hands-on experience. (F, Sp, Su)</p>	<p>CISB 176 AS/400 Environment 1</p> <p>Semester Prerequisite: None</p> <p>This course will provide the student with a customized set of materials about the AS/400 computer environment. The student and instructor will establish the specific course content from the available AS/400 tutorials and IBM Discover/Education courses the first week of class. (F, Sp, Su)</p>
<p>CISB 140 Client/Server Computing 3</p> <p>Semester Prerequisite: CISB 100, CISB 119/CISB 120</p> <p>The student will study the various features of the client/server environment including both software and hardware components. Communications technology, network operating systems, and training issues are investigated. Case studies are used. (F, Sp)</p>	<p>CISB 177 AS/400 Operations 3</p> <p>Semester Prerequisite: CISB 176</p> <p>A hands-on course in AS/400 operations. The course will cover the AS/400 architecture and facilities; operational requirements, such as save and restore; hardware and software installation; configurations for local and remote communications; CL and CMD programming; system problem determination; and problem resolution. (Sp)</p>
<p>CISB 141 PowerBuilder 2</p> <p>Semester Prerequisite: Windows Familiarity</p> <p>This course teaches the student how to program with PowerBuilder. Upon completion of this course, the student should be able to create a client-server application using PowerBuilder. Topics will include accessing a database, modifying and inserting data, and constructing an attractive graphical user interface including windows, menus, command buttons, etc. (F, Sp)</p>	<p>CISB 180 C Programming with Business Application 3</p> <p>Semester Prerequisite: CISB 100, CISB 120</p> <p>Students will use professional development tools to become familiar with the C programming language by designing, implementing, and testing programming projects. Topics include pointers, linked lists, data structures, and dynamic memory allocation. (F, Sp)</p>
<p>CISB 143 Oracle Database for Business 2</p> <p>Semester Prerequisite: CISB 136/CABS 136/Equivalent, Windows Familiarity</p> <p>This course introduces the student to the features and utilities of the Oracle relational database system as used in business. Among the topics included are datatypes, tables, indexes, views, snapshots, cursors, data integrity, triggers, stored procedures, and database security. Tuning Oracle applications are also covered. (F, Sp, Su)</p>	<p>CISB 199 Introduction to Business Use of Information Technologies 3</p> <p>Semester Prerequisite: None</p> <p>This open entry/open exit course is designed to help the busy professional become better versed in the application of information technologies in the business world. The student may choose from activities providing a basic awareness of information technologies applicable to businesses, through basic hands-on skills in software productivity tools, to CASE-driven analysis and application of business information technology. (F, Sp, Su)</p>
<p>CISB 145 Operations Internship 1 2</p> <p>Semester Prerequisite: CISB 100, CISB 119/CISB 120/Approval</p> <p>This internship provides the student with on-the-job experience as a computer operator. The student may take the second internship concurrently with the first at a different site. This internship requires 150 hours of experience. (F, Sp, Su)</p>	<p>CISB 200 Information Systems Technology and Problem Solving 3</p> <p>Semester Prerequisite: None</p> <p>Basic Skills Prerequisite: Reading Level (See <i>Course Schedule</i>)</p> <p>Fundamental changes have occurred in organizations with the application of computer technology. This course chronicles the source of that technology in science, explores the limitations of computer technology, examines the impact of the technology in business organizations and society, and develops problem-solving techniques for use in conjunction with computers. Students will practice TOM and work in teams. (F, Sp, Su)</p>
<p>CISB 146 Operations Internship 2 2</p> <p>Semester Prerequisite: CISB 145</p> <p>This internship provides the student with on-the-job experience as a computer operator. The student may take the first internship concurrently with the second at a different site. This internship requires 150 hours of experience. (F, Sp, Su)</p>	<p>CISB 201 Information Systems Auditing 3</p> <p>Semester Prerequisite: CISB 100</p> <p>This course covers basic concepts important in the auditing of computer systems. The use of general and application controls of information systems will be discussed. Other topics include computer crimes, computer ethics, and auditing standards. (F)</p>
<p>CISB 151 Using Lotus Notes 2</p> <p>Semester Prerequisite: Windows Familiarity</p> <p>This course introduces the student to groupware using Lotus Notes. Included are the use of e-mail, name and address books, shared databases, tables, calendar and scheduling, mobile computing, and World Wide Web interface. Students use Lotus Notes as the learning tool both in the classroom and to complete course assignments. (F, Sp, Su)</p>	<p>CISB 202 Advanced Internet for Business and Education 2</p> <p>Semester Prerequisite: CISB 102/Equivalent</p> <p>This course works with advanced features of common e-mail and World Wide Web programs to allow the student to compare and contrast different programs. In this sequel to CISB 102, students will use additional types of internet software, plan for future changes, and develop advanced strategies involving multiple mediums for using the Internet and Intranets as business and research tools. (F, Sp, Su)</p>
<p>CISB 152 Developing Lotus Notes Applications 2</p> <p>Semester Prerequisite: CISB 151/Equivalent</p> <p>A sequel to CISB 151, this course covers the creation of Lotus Notes applications. It includes the use of the development tools provided by Lotus Notes and strategies for developing application databases. Topics include the Lotus Notes editors, macros, user access, installing and maintaining a Lotus Notes database, and use of Lotus Notes on the World Wide Web. (F, Sp, Su)</p>	<p>CISB 204 Web Site Management 2</p> <p>Semester Prerequisite: CISB 202/Equivalent</p> <p>This course covers detailed step-by-step procedures that guide the Web administrator through the process of selection of Web server software and hardware. Students will learn to install and configure a server and administer the server on an ongoing basis. Topics include, security and access controls, creating professional sites, UNIX site, and NT servers. (F, Sp)</p>
<p>CISB 170 COBOL I 4</p> <p>Semester Prerequisite: CISB 100, CISB 120</p> <p>An introductory course in COBOL programming emphasizing syntax, structured program design, and business application processing concepts. Coding standards and program documentation are introduced. Topics include control breaks, table processing, data validation, sort report processing, and sequential file maintenance. (F, Sp, Su)</p>	<p>CISB 227 Advanced Concepts in Computer Information Systems 2.5</p> <p>Semester Prerequisite: Departmental Approval</p> <p>With this course, students will learn advanced computer information systems topics as part of a class, an independent study, or a project. Grading criteria and course objectives are determined at the first meeting. The course requires a minimum of either 8 classroom hours or 12 independent study hours. (F, Sp, Su)</p>
<p>CISB 175 Beginning RPG on the AS/400 3</p> <p>Semester Prerequisite: CISB 100</p> <p>This course develops the learner's competence in RPG programming in the AS/400 environment. This course includes problem definitions, file procedures, control-level processing, physical and logical file processing, and fundamentals of interactive programming. An AS/400 computer will be used and RPG/400 topics covered as well as basic skills in RPG II. (F)</p>	<p>CISB 228 Advanced Concepts in Computer Information Systems 5</p> <p>Semester Prerequisite: Departmental Approval</p> <p>With this course, students will learn advanced computer information systems topics as part of a class, an independent study, or a project. Grading criteria and course objectives are determined at the first meeting. The course requires a minimum of either 16 classroom hours or 24 independent study hours. (F, Sp, Su)</p>

CISB 229 Advanced Concepts in Computer Information Systems 1	CISB 250 Database Concepts 3
Semester Prerequisite: Departmental Approval With this course, students will learn advanced computer information systems topics as part of a class, an independent study, or a project. Grading criteria and course objectives are determined at the first meeting. The course requires a minimum of either 32 classroom hours or 49 independent study hours. (F, Sp, Su)	Semester Prerequisite: CISB 100, CISB 119/CISB 120 Students learn the functions of a database management system. The relational model and SQL are used. Normalization and database design are covered. The CODASYL model is discussed and emerging trends are studied. (F, Sp)
CISB 230 Introduction to Local Area Networks 3	CISB 253 WWW Interactive Programming 4
Semester Prerequisite: CISB 130, CISB 133 The student in this course learns how to install and maintain a Local Area Network (LAN). Topics start with basic network concepts and terms, then advances students to a point where they can install and maintain a particular network system such as Novell. (F, Sp)	Semester Prerequisite: CISB 102, CISB 119/Programming and Internet Experience This course provides instruction in programming the World Wide Web (WWW) to make it interactive. The fundamentals and techniques of Common Gateway Interface programming are presented as step-by-step instructions. Students progress to more advanced topics to design interactive Web pages. Complete instructions are given on implementing JavaScript, VBScript, C, and Perl. (F, Sp)
CISB 231 Advanced Local Area Networks 3	CISB 256 Multimedia in Business 3
Semester Prerequisite: CISB 230/Equivalent The student in this course learns advanced administration techniques for a typical Local Area Network such as Novell NetWare. Topics start with an in-depth review of networking technology, then advance students to a point where they can tune a network to achieve maximum performance. (F, Sp)	Semester Prerequisite: CISB 119/CISB 120/ARTS 233 A detailed course covering fundamentals of modern usage of multimedia in business. Students will not only apply problem-solving skills and instructional design techniques to evaluate multimedia applications, they will also develop and modify simple, but practical, multimedia applications and demonstrate skills learned in a multimedia project. (Su)
CISB 233 Windows NT Server 3	CISB 257 Multimedia Presentations 2
Semester Prerequisite: CISB 230 This course provides hands-on training in Microsoft Windows NT Server including setup of the hardware and software for server and client workstations. Students will set up and manage user accounts. Also covered are security management, access rights, permissions, and network devices. (F, Sp, Su)	Semester Prerequisite: CISB 100/Computer Experience In this course, students will develop presentations using one or more presentation tools, such as Powerpoint, and learn how to use clipart, graphics, and A/V files to enhance the presentations. (F, Sp)
CISB 235 Microcomputer Hardware Support 3	CISB 258 Developing Multimedia Home Pages for the WWW 2
Semester Prerequisite: CISB 100, CISB 130, CISB 133 This course provides the student with practical, hands-on experience in installing, maintaining, and trouble-shooting microcomputer hardware and software. Topics include CPU, storage devices, add-on boards, video displays, printers, communication devices, software installation, and configuration. (F, Sp)	Semester Prerequisite: CISB 102/CISB 119/CISB 120/Equivalent Computer Programming Experience In this course, students will review different types of home pages available on the World Wide Web and recognize the role of multiple medias in reaching the apparent goal of the page. Students will develop both HTML text based and multimedia pages. Students will have the opportunity to create graphics and digitized video sequences to enhance their creations. (F, Sp, Su)
CISB 236 Microcomputer Software Support 3	CISB 259 Introduction to Developing Multimedia Training 2
Semester Prerequisite: CISB 195, CISB 133, CISB 200, CISB 119/CISB 120 This course provides students with the skills necessary to diagnose and correct problems that microcomputer users frequently encounter in using software. The course covers installing operating systems, installing and upgrading applications, memory optimization, printer fonts, printer emulation, remote site support, telephone support, and software training. (F, Sp)	Semester Prerequisite: CISB 119/CISB 120/Equivalent Computer Programming In this course, the student will learn how to use rapid prototyping techniques (or rapid application development) to create multimedia training. (F, Sp)
CISB 245 Programming Internship 3	CISB 260 Systems Analysis and Design 4
Semester Prerequisite: Departmental Approval This internship provides the student with on-the-job experience as a computer programmer. Two hundred hours of experience at a local computer information systems site is required. The student is expected to write or maintain programs, create documentation, learn job control commands, and work on interactive systems. (F, Sp, Su)	Semester Prerequisite: CISB 100, CISB 119/CISB 120 This course presents concepts and techniques used in development of computer business application systems. The traditional approach for systems development is presented and compared to the approach used in a 4th Generation Environment. Structured techniques are utilized in the development approach as well as Computer-Assisted Software Engineering (CASE) tools. (F, Sp)
CISB 247 Microcomputer Project 2	CISB 261 Systems Implementation with CASE Tools 3
Semester Prerequisite: Departmental Approval With this course, students apply what they have learned about programming and systems development as a part of an internship, an independent study, or a project. Grading criteria and course objectives are determined at the first meeting. The course requires a minimum of 150 internship hours or 96 independent study hours. (F, Sp, Su)	Semester Prerequisite: CISB 260 This course applies the concepts and techniques of systems analysis and design developed in CISB 260 into working systems. Computer-Assisted Software Engineering (CASE) tools will be used to develop a business computer system. Students will be formed into project teams for the course project. (F, Sp)
CISB 248 Advanced Concepts in Computer Information Systems 2	CISB 270 COBOL II 3
Semester Prerequisite: Departmental Approval With this course, students will learn advanced computer information systems topics as part of a class, an independent study, or a project. Grading criteria and course objectives are determined at the first meeting. The course requires a minimum of either 32 classroom hours or 96 independent study hours. (F, Sp, Su)	Semester Prerequisite: CISB 170 An advanced COBOL course covering indexed file creation and updating, sub-program concepts, and writing interactive programs using CHCS. Copy libraries are used, and a system of related programs is completed as a class project. (F, Sp)
CISB 249 Advanced Concepts in Computer Information Systems 3	CISB 271 COBOL/400: Implementing the COBOL Language on the AS/400 3
Semester Prerequisite: Departmental Approval With this course, students will learn advanced computer information systems topics as part of a class, an independent study, or a project. Grading criteria and course objectives are determined at the first meeting. The course requires a minimum of either 48 classroom hours or 144 independent study hours. (F, Sp, Su)	Semester Prerequisite: CISB 170, AS/400 Experience This course provides the student with information and support necessary to master the implementation of COBOL programming in the AS/400 environment. Students will learn to use the user interfaces and relational file format native to the AS/400 as well as learning how to communicate between programs. (Sp)

CISB 272 Object-oriented COBOL 3

Semester Prerequisite: CISB 270/Equivalent Work Experience
This course is intended for those already familiar with the COBOL language. It includes the concepts and terminology of object-oriented development and uses object-oriented COBOL as the programming tool. Students will complete assignments using object-oriented COBOL. (F)

CISB 275 Advanced RPG on the AS/400 4

Semester Prerequisite: CISB 175
A detailed course covering fundamentals of the modern RPG programming language. The course will cover RPG/400 programming techniques, modular programming, relational database manipulation and techniques, and system interaction. The course will use an AS/400 computer in the native AS/400 environment. (Sp)

CISB 280 C++ Language with OOP 4

Semester Prerequisite: CISB 180
Students will use the Borland Integrated Environment to become familiar with the C++ programming language and object-oriented programming and design by designing, implementing, and testing programming projects. (F, Sp)

CISB 281 Visual C++ Programming 3

Semester Prerequisite: CISB 122
An introduction to the fundamentals of the modern usage of C++ as a control/linking program in the Windows environment. Emphasis will be placed on using existing classes and visual tools to rapidly create applications and linkages between applications. Students will learn to use object oriented techniques with a wide collection of existing C++ tools. (F, Sp)

CISB 282 C/400: Implementing the C Language on the AS/400 3

Semester Prerequisite: CISB 180, AS/400 Experience
This course provides the student with information and support necessary to master the implementation of C programming in the AS/400 environment. Students will learn to use the user interfaces and relational file format between programming applications. (F)

CISB 283 Introduction to JAVA Programming 3

Semester Prerequisite: CISB 102, CISB 281/Equivalent Experience
This course introduces students to the essential elements of the Java Programming language. As the first course in the Java Programming path, this course introduces students to object-oriented programming methodology and the features provided by the Java language. Students will create and modify simple Java applets. (F, Sp, Su)

CIVL - CIVIL TECHNOLOGY**CIVL 101 Civil Drafting 4**

Semester Prerequisite: DTDS 100
Civil Drafting is a course which emphasizes traverse and topographical drawing problems. The course will equip the student with skills and line techniques, and the ability to prepare a clear, readable, graphical presentation from rough notes furnished by the survey party. (Sp)

CIVL 115 Survey Fieldwork 2

Semester Prerequisite: None
This course consists of fieldwork using surveying equipment and techniques related to construction projects such as cloth tape, drag chain, chaining pins, levels, level rods, and transits. (F, Sp)

CIVL 120 Surveying 4

Semester Prerequisite: MATH 115/TECH 101/TECH 110
Introduces basic surveying practices and procedures. The course consists of fieldwork involving the use of surveying equipment and procedures (cloth tape, drag chain, Dumpy level, automatic level, level rods, optical transit, laser level, electronic transit, Total Station) and basic computational techniques (chaining corrections, azimuths, bearings, coordinates, and traverses). (F, Sp)

CIVL 124 Route Survey 4

Semester Prerequisite: CIVL 120, Trigonometry
This course includes surveying computations in such areas as horizontal curves, vertical curves, spirals, and data needed for highway construction layout. Also includes work with surveying computation software and fieldwork with lasers, total stations, and data collectors. (F, Sp)

CIVL 131 Traffic Technology 3

Semester Prerequisite: None
This course introduces the basic principles of traffic engineering design, signing and pavement marking, traffic signalization, and how these elements are used to improve motorists' safety. Emphasis is placed on the use of these devices in and around construction zones. Basic concepts on traffic flow and capacity analysis will be presented. (Sp)

CIVL 132 Construction Materials 5

Semester Prerequisite: MATH 115/TECH 101/TECH 110/Placement Test
Students will study techniques and equipment used in constructing bridges, buildings, highways, and pipelines. Deals with the determination of properties of aggregates, concrete, and other bituminous materials. Teaches methods of designing concrete mixes for different uses and methods of sampling and testing. Comparison of building codes and construction specifications will be covered. (Sp)

CIVL 135 Soils Technology 3

Semester Prerequisite: MATH 115/TECH 101/TECH 110/Placement Test
Exploring, sampling, testing, and evaluating subsurface materials and their effect on construction are covered in this course. Introduction to methods of subsurface drainage, soil classifications, and physical properties of soils. Includes discussion, demonstration, and performance with equipment used in density testing. (Sp)

CIVL 136 Hydrology and Highway Technology 5

Semester Prerequisite: MATH 115/TECH 101/TECH 110/Placement Test, CIVL 131
This course is an introduction to highway inventory, planning, organization, rudiments of finance, geometric design, earthwork, and drainage structures. Emphasis is placed on these elements as components of final highway plans. Analysis of precipitation and the attendant runoff and recharge will be introduced. (Sp)

CIVL 200 Civil Mathematics 5

Semester Prerequisite: MATH 115/TECH 101/TECH 110/Placement Test
This course covers the applications of differential calculus and integral calculus to practical technical problems. Topics include related rates, maximum and minimum problems, and areas under curves. (Sp)

CIVL 225 Independent Study in Civil: 4 Credit 4

Semester Prerequisite: None
Students are allowed to undertake special research projects to apply to their professional experience and academic major. A minimum of 192 hours of work is required and the completion of a written project report. This course cannot be audited. (Sp)

CIVL 241 Statics and Strength of Materials 5

Semester Prerequisite: CIVL 200/Math Placement Test
This course introduces structural terminology and concepts. The general behavior of structural members in compression, stress, strain, creep, fatigue, yield, tension, shear, bending, and torsion due to different loading conditions are studied. Loads and forces, conditions of stability and equilibrium in structural frames, and free body analysis for reactions and member forces are considered in the course. (Sp)

CJUS - CRIMINAL JUSTICE**CJUS 101 Introduction to Criminal Justice 3**

Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level, Writing Level (See Course Schedule)
A survey course designed to provide students with a current, coordinated, and comprehensive overview of criminal justice as an institution and as a system. Emphasizes historical, philosophical, constitutional, and organizational perspectives. (F, Sp, Su)

CJUS 102 Crime Causes and Conditions 3

Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level, Writing Level (See Course Schedule)
Why do some individuals pursue a life of crime? This course introduces and analyzes the past, present, and future of criminology. Sociological, psychological, and biological factors are examined to determine their interaction with and impact on criminal behavior. (F, Sp, Su)

CJUS 103 Criminal Law 3

Semester Prerequisite: CJUS 101
Study of substantive criminal law. Includes classification of crimes, common law concepts, elements of specific crimes, and discussion of current trends in criminal law nationally and locally. (F, Sp, Su)

CJUS 106 Introduction to Juvenile Justice 3	CJUS 203 Criminal Procedure 3
Semester Prerequisite: None	Semester Prerequisite: CJUS 101, CJUS 103
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	Study of criminal procedural law. Includes laws of arrest, search and seizure, and admissions and confessions; suspect identification; and rules of evidence. (F, Sp)
This course emphasizes the legal foundation, as defined by Michigan law, upon which the criminal justice practitioner must rely in dealing with the juvenile offender and the juvenile victim. In addition, this course will introduce the student to the juvenile offender. (F, Sp, Su)	CJUS 204 Criminal Investigation 4
CJUS 126 Juvenile Offenders and Their Families 3	Semester Prerequisite: CJUS 103
Semester Prerequisite: CJUS 106/Concurrently	Examines the fundamentals of criminal investigation such as crime scene procedures, collection and preservation of physical evidence, interviewing, interrogation, and latent investigation. (F, Sp)
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	CJUS 205 Policing into the 21st Century 3
The course takes an in-depth look at the diverse nature of juvenile offenders and their family backgrounds. Issues impacting juvenile behavior such as gender, gangs, drugs, and disabilities will be discussed. (F, Sp, Su)	Semester Prerequisite: CJUS 101
CJUS 130 Local Detention 3	This course is designed to provide the student with an understanding of the philosophy of community policing. As such, the components and processes involved in the implementation of non-traditional policing methods, as well as the development of a partnership between the community and the police, will be examined. (F, Sp)
Semester Prerequisite: None	CJUS 206 Interview and Interrogation 2
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	Semester Prerequisite: None
The course explains operations of local detention facilities and their unique role in the criminal justice system. Emphasis is placed on Michigan jail and lockup operations, as well as the organization, management, policy environment, and emerging issues confronting American jails. Differences in jail and prisons regarding operations and differing clientele are also covered. (F, Sp)	Provides students with the techniques and procedures utilized in conducting lawful, admissible, and successful investigative interviews and interrogations. (F, Sp, Su)
CJUS 131 Introduction to Corrections 3	CJUS 242 Unarmed Defense 3
Semester Prerequisite: None	Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	Hands-on techniques to prepare students to properly and effectively handle law enforcement related physical confrontations. Includes use of force decision-making skills, pressure points, control holds, and handcuffing. (F, Sp, Su)
Introduction to agencies and processes within the correctional system. An examination of correctional officer behavior, corrections legislation, the courts, correctional institutions and their operation, and administration. Includes overview of history sentencing, probation, parole, and community corrections. This course is required for the corrections officer vocational certificate. (F, Sp)	CJUS 245 Report Writing in Criminal Justice 2
CJUS 133 Juvenile Residential Services 3	Semester Prerequisite: CJUS 101/CJUS 131/Approval
Semester Prerequisite: None	Designed to meet the needs of criminal justice writing. Components include grammar, punctuation, sentences, paragraphs, styles of writing, and proper documentation of work effort. Frequent writing practice. (F, Sp, Su)
All aspects of court-placement of juveniles in residential facilities will be examined. Staffing and operations of both public and private agencies will be discussed, focusing both on treatment and detention issues. (F, Sp, Su)	CJUS 246 Jail Safety and I.D. Issues 4
CJUS 134 Probation and Parole 3	Semester Prerequisite: CJUS 130, CJUS 242/Concurrently, Approval Required
Semester Prerequisite: CJUS 101/CJUS 131	This course introduces students to safety and identification issues in a jail setting. The course includes hands-on training in fire safety, fingerprinting, first aid and CPR, and legal defense techniques against spontaneous knife attacks. (F, Sp)
An introductory level course in probation and parole with strong emphasis on counseling, interviewing skills, and supervision techniques. Students will also learn the mechanics of writing violation, progress, and pre-sentence reports. (F, Sp, Su)	CJUS 248 Physical Fitness for Criminal Justice 3
CJUS 135 Legal Issues in Corrections 3	Semester Prerequisite: None
Semester Prerequisite: CJUS 131	Designed to assist the students in developing and enhancing their level of health and physical fitness so they may successfully complete the certification and re-certification physical fitness criteria established in law enforcement and corrections. The course includes aerobic, strength building, and stretching exercises along with nutrition information. (F, Sp, Su)
Study of current constitutional, federal and state law as it pertains to penal institutions, inmates, and correctional employees. The course will provide students with insight into policy considerations behind state and federal law, legal process, court decisions, and inmate rights. This course is required for the correctional officer vocational certificate. (F, Sp, Su)	CJUS 250 Correctional Institutions 3
CJUS 170 Emergency Dispatching I 4	Semester Prerequisite: CJUS 131/Concurrently
Semester Prerequisite: None	Examines the historical development of corrections institutions in the United States. The organizational structure, purpose, programs, security aspects, and prisoner due-process rights, as well as the future of institutions, will be examined. This course is required for the correctional officer vocational certificate. (F, Sp, Su)
This course has been designed to introduce the student to the history and role of the telecommunicator, equipment systems utilized in dispatching, the correct spelling of police/fire/medical terminology, stress management, legal issues, reference sources, emergency plans, history of police/fire/EMS services, and hazardous materials. (F, Sp)	CJUS 251 Correctional Clients 3
CJUS 171 Emergency Dispatching II 4	Semester Prerequisite: CJUS 131/Concurrently
Semester Prerequisite: CJUS 170	Emphasis is placed on the needs, identities and development of the recipient of correctional services. Students will gain insight into the behavior and motivations of the corrections client and learn intervention strategies. This course is required for the correctional officer vocational certificate. (F, Sp, Su)
This course has been designed to introduce the student to effective communication skills, dispatch techniques, first aid and CPR techniques, telephone techniques, call-intake processing, and emergency medical dispatching. Simulation exercises are included. (F, Sp)	CJUS 255 Human Relations in Criminal Justice 3
CJUS 201 Criminal Justice Organization and Administration 3	Semester Prerequisite: CJUS 101/CJUS 131/Concurrently
Semester Prerequisite: CJUS 101	This course focuses on understanding those aspects of interpersonal relations most directly linked to attainment of organizational and individual goals in work settings. This course is required for the correctional officer vocational certificate. (F, Sp, Su)
Examines the primary concepts of criminal justice organization and administration emphasizing processes and theories, communications, leadership, personnel, budgeting, planning, information management, and community relations. (F, Sp, Su)	CJUS 256 Interpersonal Communication in Jails 1
	Semester Prerequisite: CJUS 130, CJUS 255, Approval Required
	This course introduces students to the IPC model developed specifically to work with prisoners. Three basic components of the model will be taught, including the primary components of sizing up a situation, observing an encounter, and using application skills to control behavior of prisoners. (F, Sp)

CJUS 260 Criminal Investigation and Procedures	3
Semester Prerequisite: Departmental Approval	
Designed for hands-on, practical instruction in the following areas: crime scene processing, on-scene preliminary investigation, witness interviewing, suspect identification, latent prints, photography, child abuse, sexual assault, narcotics, and preparation for court. (F, Sp, Su)	
CJUS 261 Michigan Criminal Law and Procedure	3
Semester Prerequisite: Departmental Approval	
Designed for hands-on, practical instruction in criminal law and procedure as it pertains to law enforcement in the state of Michigan. Topics include crimes against persons and property, regulatory crimes, public order crimes, juvenile law, admissions/confessions, laws of arrest, search and seizure, and suspect identification. (F, Sp, Su)	
CJUS 262 Patrol Procedures and Tactics	3
Semester Prerequisite: Departmental Approval	
The course is designed to identify and utilize proper patrol techniques and procedures necessary for a police officer to function safely and effectively. Topics include preparation for patrol, types of patrol, responding to crimes in progress, road-blocks, civil process, handling abnormal persons, and officer survival. (F, Sp, Su)	
CJUS 263 Standard First Aid	2
Semester Prerequisite: Departmental Approval	
Designed to identify the roles and responsibility of a law enforcement officer at the scene of a medical emergency based upon American Red Cross standard first aid and CPR training. (F, Sp, Su)	
CJUS 264 Report Writing in Law Enforcement	1
Semester Prerequisite: Departmental Approval	
Designed to prepare the student to effectively and efficiently write a proper police report that will serve as a basis for the issuance of a warrant and court prosecution. Topics include obtaining information, basic English skills, criminal justice terminology, and proper formatting. (F, Sp, Su)	
CJUS 265 Highway Traffic Operations	3
Semester Prerequisite: Departmental Approval	
This course is designed to familiarize the student with the proper procedures for traffic control and enforcement. Emphasizes state motor vehicle laws and procedures, arrests and citations, O.U.T.L., and accident investigation. (F, Sp, Su)	
CJUS 266 Basic Police Science	3
Semester Prerequisite: Departmental Approval	
This course is concerned with technical and physical techniques employed in the investigation of crime. The course involves traditional classroom as well as field experiences. (F, Sp)	
CJUS 267 Law Enforcement Physical Training	2
Semester Prerequisite: Departmental Approval	
Designed to assist law enforcement students in developing and improving their physical fitness. The course includes running, aerobics, calisthenics, and stretching. (F, Sp, Su)	
CJUS 268 Precision Driving	3
Semester Prerequisite: Departmental Approval	
The course is designed to identify and utilize proper driving techniques and procedures using the principles of precision driving. Course involves both classroom and hands-on driving. (F, Sp)	
CJUS 281 Directed Independent Study	1
Semester Prerequisite: Departmental Approval	
Sixteen hours of study and research are assigned per credit. Students are given criminal justice related research assignments which will introduce them to research procedures and resources. (F, Sp, Su)	
CJUS 282 Directed Independent Study	2
Semester Prerequisite: Departmental Approval	
Sixteen hours of study and research are assigned per credit. Students are given criminal justice related research assignments which will introduce them to research procedures and resources. (F, Sp, Su)	
CJUS 285 Law Enforcement Internship	2
Semester Prerequisite: Departmental Approval	
Sixteen eight-hour shifts are scheduled with an approved police department. Written reports are required. (F, Sp, Su)	

CJUS 286 Juvenile Internship I	3
Semester Prerequisite: CJUS 106/Concurrently	
The student will be placed in a local program dealing with young people from at risk populations. A classroom component includes preparation for job interviews and other skill-building exercises for working in the juvenile justice field. Written reports are required. (F, Su)	
CJUS 287 Juvenile Internship II	3
Semester Prerequisite: CJUS 106, CJUS 286	
The student will be placed in a residential facility with juveniles who have been adjudicated by the court to be detained in a secure environment for treatment and rehabilitation purposes. (F, Sp, Su)	
CJUS 288 Corrections Internship	3
Semester Prerequisite: Departmental Approval	
The student will be placed in a local or state corrections facility that will allow him or her to experience many facets of correction operations. Weekly written reports are required and periodic meetings are mandatory. A minimum of 160 hours is required. (F, Sp, Su)	

CNCP - COMPUTERIZED NUMERICAL CONTROL PROGRAM

CNCP 101 PC Applications for Technology	3
Semester Prerequisite: None	
An introduction to PCs as used in a technical-industrial setting. Students will learn how computer hardware is set up. Windows-NT along with word processing, spreadsheet, computer graphic, and presentation software will be covered. Students will extensively use the Internet to obtain assignments, turn in homework, and research projects. (F, Sp, Su)	
CNCP 105 Basic Machining Processes	3
Semester Prerequisite: MATH 114/TECH 101, CNCP 101/TECH 130	
Basic Skills Prerequisite: Reading Level: Writing Level: Math Level (See Course Schedule)	
This course is designed for non-machinist/Computerized Numerical Control (CNC) programming majors who need an introduction to machining processes and systems. Topics covered will include conventional machining processes, basic CNC programming, and Computer-Aided Manufacturing (CAM) operations. (F, Sp, Su)	
CNCP 110 Foundations of CNC Programming	4
Semester Prerequisite: CNCP 101/TECH 130, DTDS 110, MATH 114/ TECH 101, MACH 105	
Basic Skills Prerequisite: Reading Level: Writing Level: Math Level (See Course Schedule)	
This course lays the foundation for all other Computerized Numerical Control (CNC) courses. Methods of CNC programming including linear, circular and helical interpolation, z-axis cycles, roughing and pocketing cycles, tool diameter compensation, macros, and subroutines are examined. Students will write programs for 3-axis and 5-axis mills, 3-axis lathe, and 4-axis wire EDM. (F, Sp, Su)	
CNCP 130 Machine Controls and Setup	4
Semester Prerequisite: CNCP 110	
Focuses on the set-up and operation of a variety of CNC machines ranging from simple 3-axis to sophisticated 5-axis conversational controls. Topics will include proper machine start-up and shut-down, tool data management, fixture alignment, and program loading and editing. (F, Sp)	
CNCP 194 Computerized Numerical Control Project Lab	4
Semester Prerequisite: Departmental Approval	
Further skills are pursued involving modern concepts of numerical control of machine tools, including the interrelationship of these new manufacturing methods in the various departments of a company. (F, Sp, Su)	
CNCP 210 SMART-CAM	4
Semester Prerequisite: CNCP 110	
SMART-CAM is a powerful graphics based programming software for CNC machine tools. SMART-CAM software is designed to generate CNC programs from mechanical CAD drawings. Students will use SMART-CAM to solve CNC programming problems in both 2-D and 3-D environments and run selected programs on CNC equipment. (F, Sp)	
CNCP 215 CAMAND	4
Semester Prerequisite: CNCP 110	
CAMAND is an advanced 3-D surface design and CNC software. This course will cover surface creation including Bezier and Nurbs, primitives such as cones and toroids, and surface filleting. Full 5-axis CNC programs will be created, run, and checked on a coordinate measuring machine. (F, Sp)	

COOP - COOPERATIVE EDUCATION**COOP 210 Cooperative Education (Technology) 3****Semester Prerequisite:** Departmental Approval

Provides technical students with professional and practical work experience in their career field. The student works for a co-op employer as a paid, temporary, part-time employee trainee in a planned, structured, and supervised work experience. Students apply knowledge and skills learned in academic courses to real-world situations. (F, Sp, Su)

CPSC - COMPUTER SCIENCE**CPSC 120 Introduction to Computers 3****Semester Prerequisite:** None**Basic Skills Prerequisite:** Reading Level; Writing Level; Math Level
(See *Course Schedule*)

In this survey course, the student learns of the application of computers in society, considers their social and economic implications, examines questions of privacy and security, and considers recent advances in computer technology. In addition, the student is exposed to beginning instruction and practice in word processing, spreadsheet and database applications, programming, and user networks. (F, Sp, Su)

CPSC 150 FORTRAN 3**Semester Prerequisite:** MATH 122/MATH 126**Basic Skills Prerequisite:** Reading Level (See *Course Schedule*)

Structured programming techniques are applied in the design of algorithms and their implementation in FORTRAN 77. Topics included are stepwise refinement outlines, control structures, functions and subroutines, input and output procedures with text files, data types, arrays, and string processing. (F, Sp, Su)

CPSC 170 Pascal 3**Semester Prerequisite:** MATH 122/MATH 126**Basic Skills Prerequisite:** Reading Level (See *Course Schedule*)

Structured programming techniques are applied in the design of algorithms and their implementation in Pascal. Topics included are stepwise refinement outlines, control structures, procedures and functions, recursion, input and output operations with text files and binary files, data types, arrays, string processing, and pointer variables. (F, Sp, Su)

CPSC 230 Algorithms and Computing With C++ 4**Semester Prerequisite:** MATH 151**Basic Skills Prerequisite:** Reading Level (See *Course Schedule*)

This course is designed to establish an understanding of fundamental computational procedures required for continuing study in computer science. Techniques of structured design are applied in the implementation of algorithms in C++. Topics included are program development, control structures, functions, procedures, recursion, file operations, data types, arrays, string processing, pointer variables, and linked lists. (F, Sp, Su)

CPSC 260 Discrete Structures in Computer Science 4**Semester Prerequisite:** MATH 151, CPSC 150/CPSC 230**Basic Skills Prerequisite:** Reading Level (See *Course Schedule*)

Introduction to logical and algebraic structures and techniques required for further study in computer science. Topics include statement logic and proof techniques, relations, functions, directed and undirected graphs and their matrix representations, Boolean algebras and logic networks, regular expressions, finite-state machines, and Turing machines. (Sp)

CPSC 280 Data Structures 4**Semester Prerequisite:** CPSC 230**Basic Skills Prerequisite:** Reading Level (See *Course Schedule*)

Advanced techniques and related theory for representation and access of information. Algorithms concerning sorting, searching, hashing, and graph representation are included. Program analysis and abstract data types including stacks, queues, and trees are also studied. (F, Su)

CPSC 295 Independent Study in Computer Science 1**Semester Prerequisite:** Departmental Approval

An independent study in some area of computer science not covered by an existing course. The student works independently under the supervision of a faculty member. The student devotes three or more hours per week to this study in addition to his or her work with the assigned instructor. (F, Sp, Su)

CPSC 296 Independent Study in Computer Science 2**Semester Prerequisite:** Departmental Approval

An independent study in some area of computer science not covered by an existing course. The student works independently under the supervision of a faculty member. The student devotes six or more hours per week to this study in addition to his or her work with the assigned instructor. (F, Sp, Su)

CPSC 297 Independent Study in Computer Science 3**Semester Prerequisite:** Departmental Approval

An independent study in some area of computer science not covered by an existing course. The student works independently under the supervision of a faculty member. The student devotes nine or more hours per week to this study in addition to his or her work with the assigned instructor. (F, Sp, Su)

CPSC 298 Independent Study in Computer Science 4**Semester Prerequisite:** Departmental Approval

An independent study in some area of computer science not covered by an existing course. The student works independently under the supervision of a faculty member. The student devotes 12 or more hours per week to this study in addition to his or her work with the assigned instructor. (F, Sp, Su)

CUAI - CREDIT UNION ACCOUNTING AND INSURANCE**CUAI 102 Credit Union Accounting 3****Semester Prerequisite:** Departmental Approval

This course emphasizes those areas of financial accounting relevant to external reporting by credit unions. (Sp)

CUMA - CREDIT UNION MANAGEMENT**CUMA 100 Introduction to Credit Union Operations 3****Semester Prerequisite:** None

This course provides students with an overview of the credit union movement, its position in the financial services industry, and basic credit union operating procedures. Directed toward staff, management, and elected officials of credit unions who wish to increase their knowledge of both the credit union movement and operations. (F)

CUMA 200 Credit and Collections 3**Semester Prerequisite:** None

This course covers the basic fundamentals of the credit/collection industry. Emphasis on learning the basics of the credit decision and the collection of past due loans. The course is designed for credit union personnel who want to better understand the relevant laws and regulations of credit union credit and collections. (Sp)

CUMA 201 Credit Union Financial Counseling 2**Semester Prerequisite:** None

This course is an overview of financial counseling techniques and skills for credit union employees. Emphasis is placed on skill-building exercises to enable students to develop a basic understanding of financial alternatives available to their customers. (Sp)

CUMA 215 Business Law for Credit Unions 3**Semester Prerequisite:** None

Covers fundamental principles of law applicable to credit union personnel. This course will prepare students to perform the legal responsibilities of their jobs more knowledgeably. Course content includes study of contracts, personal and real property, torts, crimes, and the nature and sources of law as related to credit union operations. (F)

DADH - DENTAL ASSISTANT/DENTAL HYGIENE**DADH 128 Dental Radiography 4****Semester Prerequisite:** (DAST 111, DAST 112, DAST 114)/(DHYN 110, DHYN 112, DHYN 114)

Lectures discuss production and emission of dental X-radiation, indications for exposure, technics of exposure, processing, evaluation, and interpretation of dental radiographs. Individualized laboratory sessions provide students practice in exposing, processing, mounting, and evaluating radiographs. (Sp)

DANC - DANCE

- DANC 100 Introduction to Dance** 2
Semester Prerequisite: None
 This course is designed for the student with no dance experience. Students will explore the basic techniques of the core dance forms including ballet, modern, tap, and jazz. Different aspects of dance are covered, including dance as art, the choreographer, the dancer, the viewer, dance production, dance in education, and dance careers. (F)
- DANC 101 Beginning Ballet I** 2
Semester Prerequisite: None
 This course is designed for the student with no dance experience. Included are basic alignment principles, ballet vocabulary and steps, and elementary combinations of ballet technique for the beginning dance student. Basic barre and center floor combinations will be included. (F, Sp, Su)
- DANC 102 Beginning Modern Dance I** 2
Semester Prerequisite: None
 This course is designed for the students with no dance experience. Included are basic alignment training techniques, spatial relationships, and elementary combinations. Some improvisation will be used throughout the course to assist in developing kinesthetic, spatial, cognitive, and physical awareness. (F, Sp, Su)
- DANC 103 Beginning Jazz I** 2
Semester Prerequisite: None
 This course is designed for the student with no dance experience. Included are basic alignment, warm-up, and isolations in jazz dance technique for beginning dance students. Spatial relationships and rhythm are emphasized. (F, Sp)
- DANC 104 Beginning Tap I** 2
Semester Prerequisite: None
 This course is designed for the student with no dance experience. Included are basic tap origins, vocabulary, steps, combinations, and rhythms. Basic alignment training techniques, spatial relationships, and elementary combinations are explored. (F, Sp)
- DANC 105 Jazz Beginning I - Summer** 1
Semester Prerequisite: None
 This course includes basic alignment, warm-up, and isolation in jazz dance technique for beginning dance students. Spatial relationships and rhythm are emphasized. (Su)
- DANC 106 Tap Beginning I - Summer** 1
Semester Prerequisite: None
 This course includes basic tap origins, vocabulary, steps, combinations, and rhythms for the beginning dance students. Basic alignment training techniques, spatial relationship, and elementary combinations are explored. (Su)
- DANC 110 High School Dance Workshop** 3
Semester Prerequisite: Audition Approval
 This course is designed for the talented high school student. It is an intensive course of study in basic tap, ballet, modern, and jazz. This includes basic alignment training techniques, spatial relationships, and elementary combinations. Some improvisation used to develop kinesthetic, spatial, cognitive, and physical awareness. Basic performance skills are developed using all dance disciplines. (Su)
- DANC 111 Beginning Ballet II** 2
Semester Prerequisite: DANC 101
 Designed for the student who has successfully completed Beginning Ballet I, this course includes a continuation of movement theory, alignment, increased training practices, vocabulary, and longer combinations. The student will begin to explore the aspects of building a personal movement style. (Sp, Su)
- DANC 112 Beginning Modern Dance II** 2
Semester Prerequisite: DANC 102
 This course includes a continuation of movement theory, alignment, increased training practices, spatial relationships, vocabulary, and longer combinations. Improvisation will be used to develop kinesthetic, spatial, cognitive, and physical awareness. The student will begin to explore the aspects of building a personal movement style. (Sp, Su)
- DANC 113 Beginning Jazz II** 2
Semester Prerequisite: DANC 103
 This course includes a continuation of alignment, vocabulary, jazz movement theory, increased training practices, and longer combinations. A more comprehensive use of body isolations and movement rhythms will be explored. The student will begin to explore the aspects of building a personal movement style. (Sp)
- DANC 114 Beginning Tap II** 2
Semester Prerequisite: DANC 104
 Designed for the student who has successfully completed Beginning Tap I, this course includes a continuation of tap vocabulary, steps, combinations, and rhythms. Emphasis is placed on increased complexity in rhythms and combinations. The students will begin to explore the aspects of building a personal movement style. (Sp)
- DANC 115 Jazz Beginning II - Summer** 1
Semester Prerequisite: DANC 103
 Emphasis is placed on beginning to develop a personal style of movement in preparation for performance. Course includes a continuation of alignment, warm-up, and isolations in addition to various rhythms and combinations. (Su)
- DANC 116 Tap Beginning II - Summer** 1
Semester Prerequisite: DANC 104
 Emphasis is placed on increased complexity in rhythms and combinations. Course includes a continuation of tap vocabulary, steps, combinations, and rhythms. (Su)
- DANC 123 Choreography** 3
Semester Prerequisite: DANC 124
 This course is designed to acquaint the student with basic choreographic techniques. Improvisation is utilized to explore ideas. Dance elements of time, space, and energy will be explored in addition to the mechanical and gestural aspects of movement. The concept of language and symbol system is studied. (Sp)
- DANC 124 Dance Improvisation** 2
Semester Prerequisite: DANC 101/DANC 102/DANC 103
 This course is designed for the major and non-major. It provides students with opportunities to discover the skills of critical and creative thinking, as well as convergent and divergent thinking through problem-solving exercises. Spatial, kinesthetic, and emotional awareness are uncovered, as well as the discovery of movement qualities. (F)
- DANC 132 Spanish Dance** 2
Semester Prerequisite: None
 This course is designed for the beginning level student. It is an introduction to the origins and techniques of Spanish dance as performed in Spain. Included are traditional music, footwork, body work, costumes, customs, and use of castanets. (Sp)
- DANC 134 African Dance** 2
Semester Prerequisite: None
 This course is designed for the Beginning II level student. It is an introduction to the origins and techniques of African dance as performed in various African countries. Included are traditional music, footwork, body work, costumes, and customs. (F, Sp)
- DANC 161 Ballet Repertory** 1
Semester Prerequisite: Departmental Approval
 This course is designed for the student who has reached a minimum of the Beginning Ballet II level. The student participates in the process of auditions, rehearsals, and public performances in the ballet genre and concentrates on memorization, projection, and musicality. (Sp)
- DANC 162 Modern Dance Repertory** 1
Semester Prerequisite: Departmental Approval
 This course is designed for the student who has reached a minimum of Modern Beginning II to gain performance experience in a controlled setting. The student participates in the process of auditions, rehearsals, and public performances in the modern dance genre and concentrates on memorization, projection, and musicality. (Sp)
- DANC 163 Jazz Repertory** 1
Semester Prerequisite: Departmental Approval
 This course is designed for the student who has reached a minimum of Beginning Jazz II to gain performance experience in a controlled setting. The student participates in the process of auditions, rehearsals, and public performances in the jazz genre and concentrates on memorization, projection, and musicality. (F)

DANC 164 Tap Repertory 1	DANC 211 Intermediate Ballet II 3
Semester Prerequisite: Departmental Approval This course is designed for the student who has reached a minimum of Beginning Tap II to gain performance experience in a controlled setting. The student participates in the process of auditions, rehearsals, and public performances in the tap genre and concentrates on memorization, projection, and musicality. (F)	Semester Prerequisite: Departmental Approval This course includes a continuation of movement theory, alignment, increased training practices, vocabulary, and longer combinations. Emphasis is placed on dance dynamics and continued development of a personal movement style. Performance skills are sharpened and include: projection, musicality, flow, articulation, clarity of intent, motivation, phrasing, and gesture. Pointe shoes are optional. (F, Sp, Su)
DANC 165 Video Dance Repertory .5	DANC 212 Intermediate Modern Dance II 3
Semester Prerequisite: Departmental Approval This course is designed for the student who has reached the intermediate level or above. Students learn choreography, staging and performance, specifically designed for video production. A short-term rehearsal process culminates in a finished video performance. A maximum of one credit in video dance can be used for degree requirements. (F, Sp, Su)	Semester Prerequisite: Departmental Approval This course includes a continuation of Intermediate Modern I. Emphasis is placed on center floor transitional techniques, dance dynamics, examination and practice of movement qualities, and continued development of a personal movement style. Performance skills are sharpened and include projection, musicality, flow, articulation, clarity of intent, motivation, phrasing, and gesture. (F, Sp, Su)
DANC 191 Dance History 3	DANC 225 Advanced Jazz - Summer 1.5
Semester Prerequisite: None This course is a dance history overview commencing with the origins of ballet to the present. Important developments and contributors in the field of American dance education will be interwoven with the important developments and contributors of Western dance forms. (F)	Semester Prerequisite: Departmental Approval Emphasis is placed on learning different styles of jazz dance appropriate to different performance needs. Course includes continuation of alignment, warm-up, and isolations in addition to more complex rhythms and combinations. (Su)
DANC 193 Dance Anatomy 3	DANC 244 Pointe Technique Beginning 2
Semester Prerequisite: DANC 101/DANC 102/DANC 103 This course is an introduction to basic anatomy as it applies to dance. Terminology, practical application, theory of movement, nutrition, and injury prevention and care will be incorporated. Emphasis will be placed on major muscles, muscle groups, and skeletal structure. (Sp)	Semester Prerequisite: DANC 111/Higher Level Course This course is designed for the intermediate level and above ballet student. Pointe technique continues the development of strength, flexibility, coordination, and balance. Emphasis is placed on elementary pointe technique exercises to strengthen ankles, calves, legs, and lower back for pointe work. (F, Su)
DANC 201 Intermediate Ballet I 3	DANC 295 Directed Studies I 1
Semester Prerequisite: Departmental Approval This course includes a continuation of movement theory, alignment, increased training practices, vocabulary, and longer combinations. Emphasis is placed on center floor transitional techniques, dance dynamics, and development of a personal movement style in preparation for performance. Pointe shoes are optional. (F, Sp, Su)	Semester Prerequisite: Departmental Approval Working under the guidance of an approved instructor, the student will pursue studies not otherwise available through scheduled course offerings. (F, Su)
DANC 202 Intermediate Modern I 3	DANC 296 Directed Studies II 2
Semester Prerequisite: Departmental Approval This course includes a continuation of alignment training, spatial relationships, improvisation techniques, movement theory, increased training practices, movement symbols, vocabulary, and longer combinations. Emphasis is placed on center floor transitional techniques, dance dynamics, examination and practice of movement qualities, and development of a personal movement style in preparation for performance. (F, Sp, Su)	Semester Prerequisite: Departmental Approval Working under the guidance of an approved instructor, the student will pursue studies not otherwise available through scheduled course offerings. (F)
DANC 203 Intermediate Jazz 3	DANC 297 Directed Studies III 3
Semester Prerequisite: Departmental Approval This course includes a continuation of alignment training, movement theory, increased training practices, isolations, and longer combinations. Emphasis is placed on jazz dance dynamics, center floor transitional techniques, and development of a personal movement style in preparation for performance. (F, Sp)	Semester Prerequisite: Departmental Approval Working under the guidance of an approved instructor, the student will pursue studies not otherwise available through scheduled course offerings. (Sp)
DANC 204 Intermediate Tap 3	
Semester Prerequisite: Departmental Approval This course includes a continuation of tap vocabulary, steps, combinations, and rhythms. Emphasis is placed on increased complexity in rhythms and combinations, and development of a personal movement style in preparation for performance. (F, Sp)	
DANC 205 Intermediate Jazz - Summer 1.5	
Semester Prerequisite: Departmental Approval Emphasis is placed on developing a personal style of movement. Course includes a continuation of alignments, warm-up, and isolations in addition to more complex rhythms and combinations. (Su)	
DANC 206 Intermediate Tap - Summer 1.5	
Semester Prerequisite: Departmental Approval Emphasis is placed on increased complexity of rhythms and combinations in order to develop a personal style in preparation for performance. (Su)	
	DAST - DENTAL ASSISTING
	DAST 110 Dental Instruments 1
	Semester Prerequisite: Admission to Program Lecture and practical experience will introduce the student to dental instruments and equipment for tray setups and the use and maintenance of these items for dental procedures. (F)
	DAST 111 Preclinic Dental Assisting 3
	Semester Prerequisite: DAST 110, DAST 114 Through lecture and simulated clinical experience the student will be introduced to these dental procedures: four-handed chairside assisting, charting, management of clinical records, and taking and recording vital signs. (F)
	DAST 112 Dental Anatomy 4
	Semester Prerequisite: Admission to Program Study of nomenclature, morphologic characteristics, and physiologic relationships of human primary and permanent teeth. Head and neck anatomy and the histologic and embryologic development is included with a review of basic oral pathology for the dental assistant. Laboratory activities develop observation and dexterity skills while studying this information. (F)
	DAST 114 Preventive Dentistry and Procedures 3
	Semester Prerequisite: Admission to Program An introduction to the dental operator, aseptic technique, and oral hygiene procedures for preventing dental diseases. Dental emergency prevention, protocol, care, and OSHA regulations are reviewed. (F)

<p>DAST 116 Dental Materials 3</p> <p>Semester Prerequisite: Admission to Program</p> <p>Lecture and laboratory sessions address the properties, selection, manipulation, and evaluation of materials used in dentistry. Practice is provided in the preparation, manipulation, and delivery of the materials most often handled by the dental assistant. (F)</p>	<p>DHYN 120 Clinical Dental Hygiene I 6</p> <p>Semester Prerequisite: DHYN 110, DHYN 112, DHYN 114, DHYN 116, EMSB 102</p> <p>Initial clinical practice of basic dental hygiene services: recognition and recording of oral conditions, medical history, oral health education, prophylaxis fluoride treatment, sterilization, radiography, and desk procedures. Skills are developed further in treatment planning, periodontal examination, caries detection, instrument sharpening, emergency recognition/prevention/care, and clinical photography. (Sp)</p>
<p>DAST 118 Dental Assisting Principles 1</p> <p>Semester Prerequisite: Admission to Program</p> <p>Various aspects of the dental profession are discussed to prepare the student dental assistant for entry to the health team. Subjects include dental law, ethics, liability, health profession organizations, employment, and current health care issues. (F)</p>	<p>DHYN 122 Principles of Periodontics 2</p> <p>Semester Prerequisite: DHYN 110, DHYN 112, DHYN 114, DHYN 116</p> <p>Study of anatomy, physiology, and histology of the periodontal tissues as they relate to the identification, etiology, prevention and treatment of periodontal disease, and occlusal disorders. Evaluation of disease status, diagnosis, patient management, and disease prevention is presented relative to the hygienist's role as a co-therapist in private practice. (Sp)</p>
<p>DAST 120 Clinical Dental Assisting I 6</p> <p>Semester Prerequisite: DAST 111, DAST 112, DAST 116, DAST 118, EMSB 102</p> <p>A study of the clinical practice of four-handed chairside dental assisting with emphasis on general restorative and dental specialty procedures. Sessions correlate clinical procedures and practice with private practice and field experience participation. (Sp)</p>	<p>DHYN 124 Nutrition and Oral Health 1</p> <p>Semester Prerequisite: DHYN 110, DHYN 112, DHYN 114, DHYN 116, EMSB 102</p> <p>Discussion of the identification, function, metabolism, and sources of specific nutrients required for normal growth, development, and repair of tissues. Application of principles to the individual's nutritional needs, providing nutritional counseling and diet information to special needs patients, and the relationship of nutrition to oral health are emphasized. (Sp)</p>
<p>DAST 126 Registered Dental Assistant Procedures for Dental Assistants 3</p> <p>Semester Prerequisite: DAST 110, DAST 111, DAST 112, DAST 114, DAST 116</p> <p>A study of the intra-oral functions delegated to the licensed registered dental assistant in the State of Michigan. Laboratory time is provided for the student to learn the techniques and gain proficiency in those procedures that will be performed during clinic rotations. (Sp)</p>	<p>DHYN 126 Dental Materials and Methods 3</p> <p>Semester Prerequisite: DHYN 110, DHYN 112, DHYN 114, DHYN 116</p> <p>Study of terminology, selection, manipulation, and evaluation of materials used in dentistry. Activities emphasize dental materials and procedures utilized by the dental hygienist. Students are prepared in the knowledge needed to educate patients regarding the benefit of certain restorative procedures for good oral health. (Sp)</p>
<p>DAST 130 Clinical Dental Assisting II 2</p> <p>Semester Prerequisite: DAST 120, DAST 126, DADH 128</p> <p>Lecture sessions teach basic communication, psychology, and effective dental office management skills for dental assistants. Students practice these skills during laboratory simulations. Field experience assignments provide on-site practice and integration of dental assisting chairside, specialty, RDA, and team skills. (Sp)</p>	<p>DHYN 210 Clinical Dental Hygiene II 6</p> <p>Semester Prerequisite: DADH 128, DHYN 120, DHYN 122, DHYN 124, DHYN 126</p> <p>A continuation of clinic, perfecting comprehensive treatment planning, and advanced prophylaxis techniques: deep scaling, root planing, nutritional counseling, ultrasonic scaling, and the use of chemotherapeutic agents. This course coordinates the periodontal case study, advanced patient care and management, and a review of ethical case studies. (F)</p>
<p>DAST 140 Clinical Dental Assisting III 4</p> <p>Semester Prerequisite: DAST 130</p> <p>Basic communication, writing, and psychology skills needed for effective patient management, dental office management, chairside assisting, and the employment process are emphasized. Computer application and field experience assignments provide preparation, practice, and integration of these skills to the dental office setting. (Su)</p>	<p>DHYN 212 Advanced Dental Hygiene Procedures 4</p> <p>Semester Prerequisite: DADH 128, DHYN 120, DHYN 122, DHYN 124, DHYN 126</p> <p>The study of advanced clinical dental hygiene procedures with emphasis on the hygienist's role as co-therapist in performing root planing, ultrasonic instrumentation, nutritional counseling, and applying chemotherapeutic agents. Students complete a periodontal case study to demonstrate appropriate implementation of their periodontal knowledge and therapy skills. (F)</p>
DHYN - DENTAL HYGIENE	
<p>DHYN 110 Preclinical Dental Hygiene 6</p> <p>Semester Prerequisite: Admission to Program</p> <p>Through lecture and simulated clinical experience the student is introduced to the clinical practice of dental hygiene: operator preparation, oral examinations and assessment, oral prophylaxis procedures, oral health practices and patient education, and an orientation to the profession. Students will also learn success maintenance of their own oral health. (F)</p>	<p>DHYN 214 Clinical Oral Pathology 1</p> <p>Semester Prerequisite: DADH 128, DHYN 120, DHYN 122</p> <p>Case histories are presented in which the student's objective is to formulate a differential diagnosis of an unknown oral lesion and propose a rational approach for evaluation and treatment of the patient. (F)</p>
<p>DHYN 112 Oral Anatomy 4</p> <p>Semester Prerequisite: Admission to Program</p> <p>Study of nomenclature, morphologic characteristics, and physiologic relationships of human primary and permanent teeth. Head and neck anatomy and the histologic and embryologic development is also studied and related to the clinical practice of dental hygiene. Laboratory activities develop observation and dexterity skills while studying this information. (F)</p>	<p>DHYN 216 Dental Public Health and Education 2</p> <p>Semester Prerequisite: DADH 128, DHYN 120, DHYN 122, DHYN 124, DHYN 126</p> <p>Students review scientific literature, dental epidemiology, principles of public health, and health care delivery systems. Further study includes human behavior, growth and development, attitudes, learning skills, teaching methodologies, interpersonal relations, group dynamics, and communication skills relating to patient education, motivation, and acceptance of health care. (F)</p>
<p>DHYN 114 Oral Pathology 2</p> <p>Semester Prerequisite: Admission to Program</p> <p>Study of the diseases affecting oral tissues, including the principles of inflammation and repair, developmental disturbances, stains and accretions, diseases of the teeth and supporting structures, oral infection, injuries, and neoplasms. (F)</p>	<p>DHYN 220 Clinical Dental Hygiene III 7</p> <p>Semester Prerequisite: DHYN 210, DHYN 212, DHYN 214, DHYN 216</p> <p>Performing comprehensive dental hygiene care in a timely manner is emphasized. The management and care of elderly patients and persons challenged with physical, mental, social/emotional, and selected medical conditions is presented and coordinated with clinical practice. Employment preparation and legal and professional ethic issues are reviewed. (Sp)</p>
<p>DHYN 116 Dental Pharmacology 2</p> <p>Semester Prerequisite: Admission to Program</p> <p>A study of the administration, use, action, and effects of drugs most commonly used by patients and their relationship to dental treatment and dental hygiene procedures. (F)</p>	<p>DHYN 222 Community Oral Health 4</p> <p>Semester Prerequisite: DHYN 210, DHYN 212, DHYN 214, DHYN 216</p> <p>Students implement a program plan for a community project utilizing assessment, planning, implementation, and evaluation processes. Dental specialties and the dental hygienist's role in recognizing specialty care needed by patients is presented. Each student participates in a variety of community health projects and observing in dental specialty practices. (Sp)</p>

DHYN 224 Testing Styles and Inventory 2

Semester Prerequisite: DHYN 210, DHYN 212, DHYN 214, DHYN 216
An introduction to dental hygiene licensure exam testing techniques, test construction, and item analysis. Students inventory their current knowledge of dental hygiene and through self-evaluation and planning, establish study skills while recognizing their personal study needs for national boards and licensing exams. (Sp)

DHYN 230 Registered Dental Assistant Procedures for Dental Hygienist 3

Semester Prerequisite: DADH 128, DHYN 210, DHYN 212
A specially designed course for dental hygiene students wishing to learn auxiliary dental assistant procedures and those intraoral functions delegated only to the licensed registered dental assistant in the State of Michigan. Instruction is emphasized in the laboratory setting to prepare the student for practical application of these procedures. (Sp)

DTDS - DRAFTING AND DESIGN

DTDS 100 Basic Drafting 3

Semester Prerequisite: None
This course focuses on basic concepts in orthographic projection, including sketching of both orthographics and pictorials. Lettering techniques are stressed with a brief introduction to dimensioning techniques. Students will complete a set of drawings to demonstrate understanding of the concepts presented. (F, Sp, Su)

DTDS 101 Drafting I 4

Semester Prerequisite: DTDS 100/Placement
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)
This is an introductory course in drafting concepts. Instruction includes orthographic projection, auxiliary views, sections, dimensioning techniques, and secondary auxiliary view projections. Students will complete a series of drawings to demonstrate understanding of the concepts presented. (F, Sp, Su)

DTDS 102 Drafting II 4

Semester Prerequisite: DTDS 101
This course covers advanced drafting and design techniques needed to project successive auxiliary views from various orthographic views. Layout and design concepts will also be stressed. Students will complete practical design projects in problem solving and creativity applicable to the automotive, industrial, and/or aerospace industries. (F, Sp, Su)

DTDS 103 Geometric Tolerancing 2

Semester Prerequisite: DTDS 101/Concurrently
This course covers the principles and methods of dimensioning and tolerancing for specific design requirements on engineering drawings. Uniform practices for stating and interpreting these requirements will be stressed. Content includes use and understanding of the symbolic method of specification relating to tolerances being applied using ASME/ANSI M14.5Y 1994 standards. (F, Sp, Su)

DTDS 104 Descriptive Geometry 4

Semester Prerequisite: DTDS 102/Concurrently
This course covers the solution of space problems through the practice of advanced orthographic projection. Content includes points, lines and planes, parallelism, perpendicularity, developments, and intersections. Students will complete projects relating to architectural, civil, and industrial engineering situations. (F, Sp, Su)

DTDS 110 Industrial Blueprint Reading 3

Semester Prerequisite: DTDS 100
This course covers basic concepts in orthographic projection, with emphasis on interpretation of engineering drawings. Areas also covered include measurement systems, technical sketching, dimensioning, sectional and auxiliary views, and tolerancing. (F, Sp, Su)

DTDS 131 AutoCAD Basic 2-D 4

Semester Prerequisite: CNCP 101/TECH 130/Concurrently, DTDS 101
This course gives an introduction to AutoCAD software. Creation of 2-D multiview mechanical drawings with dimensions and notes will be the main focus. Use of AutoCAD's layer, block, plot commands, and isometric views will also be covered in this course. (F, Sp, Su)

DTDS 132 AutoCAD Advanced 3-D 4

Semester Prerequisite: DTDS 131
This course builds on DTDS 131. In addition to learning how to use attributes, more complex drawings will be assigned. Students will also learn to write macros to customize AutoCAD to the user's needs and learn how to use 3-D drawing features to complete product design drawings. (F, Sp, Su)

DTDS 180 Unigraphics I 4

Semester Prerequisite: DTDS 101
This is the first of a three-semester course sequence that covers the fundamentals of the Unigraphics System of interactive design. This course covers Comprehensive CAD concepts of 2-D and 3-D construction and basic solid modeling, as well as some of the concepts of drafting. (F, Sp, Su)

DTDS 181 Unigraphics II 4

Semester Prerequisite: DTDS 180, DTDS 102/Concurrently
This is the second course of a three-semester course sequence. The course covers the construction of solid parts with assemblies and components constructed using primitives, extrusions, and bodies of revolution as well as surfaces. The solid models constructed will be dimensioned and plotted as drawings in class. (F, Sp, Su)

DTDS 182 Unigraphics III 4

Semester Prerequisite: DTDS 102, DTDS 103, DTDS 181
This is the third of a three-semester course sequence that covers the design and construction of sophisticated solid models of complex assemblies and components, and the production of dimensioned and toleranced engineering drawings of those components. Advanced concepts of Unigraphics modeling will be discussed and utilized in class projects. (F, Sp, Su)

DTDS 202 Die Design and Construction 4

Semester Prerequisite: DTDS 101
This course will emphasize the proper steps to designing a die, the ability to read sheet metal die design layouts, tolerancing and clearance fits as they apply to this area of learning. Also covered will be the names of various die components and students will be expected to understand and explain their workings. (F, Sp)

DTDS 204 Jigs and Fixture Design 4

Semester Prerequisite: DTDS 101
Detailing techniques and dimensioning will be emphasized through the development of working drawings. These drawings will be extracted from a design concept or assembly type drawing. Familiarization with standard components will also be stressed. Students will be responsible for being familiar with and understanding various jig and fixture components. (F, Sp)

DTDS 209 Industrial Drafting Lab 2

Semester Prerequisite: Instructor Approval
Gives additional lab time to industrial drafting students to fulfill extra requirements. This lab must be taken in conjunction with a drafting class. (F, Sp, Su)

DTDS 233 AutoCAD Solids 4

Semester Prerequisite: DTDS 132
Students will learn how to use the solid modeling features of AutoCAD. Product design drawings will be used to develop skills. Students will learn how to construct a solid model library of parts. (F, Sp, Su)

DTDS 280 Drafting Project Lab 4

Semester Prerequisite: Approval Required
This course is intended to give the advanced drafting and design student an opportunity for more experience through mutual agreement between student and instructor. Students will complete advanced projects and research in a variety of design application situations. (F, Sp, Su)

DTDS 285 CADD Project Lab 2

Semester Prerequisite: Approval Required
This course is intended to give advanced drafting and design students an opportunity, through mutual agreement between student and instructor, to complete project(s) on one of several available CAD systems. (F, Sp, Su)

ECON - ECONOMICS

ECON 120 Power, Authority, and Exchange 4

Semester Prerequisite: None
A comparative study of primitive social economies and modern political systems. An emphasis will be placed on the evolution of economic organization in human society. (F, Sp, Su)

ECON 140 Current Economic Issues 3

Semester Prerequisite: None
An introductory course focusing on economic problems and issues within the American economy. It provides an overview of economic analysis. Topic areas relate to an overall look at the economic system, government policy, prices and their application, money, income, and national income accounts of the United States. (F, Sp, Su)

ECON 201 Principles of Economics - Micro 3
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
 (See *Course Schedule*)

This course is designed to develop objective consideration of economic issues and provides information and understanding of how resources are allocated by prices. Topics for study include price theory, consumer demand, cost and market structure, the role of government in the market, resource pricing, and international trade. (F, Sp, Su)

ECON 202 Principles of Economics - Macro 3
Semester Prerequisite: ECON 201/Departmental Approval
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
 (See *Course Schedule*)

This course addresses the theory of national income, employment and the price level, and government fiscal and monetary policies designed to influence aggregate economic activity. It also addresses exchange rates, international financial relationships, and economic growth. (F, Sp, Su)

ECON 213 Economic/Business History of the U.S. 3
Semester Prerequisite: None

This course provides a survey of American economic and business history, change, and growth since the colonial period. Topics include an overview of business organization, the role of government and technological change, American industrial development, labor unions, and capitalization patterns. (F, Sp, Su)

EDUC - EDUCATION

EDUC 201 Education Practicum I 2
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)

Beginning practical experience and training in the field for individual students. The student is placed with an educational institution. (F, Sp, Su)

EDUC 220 Introduction to Education 3
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)

An introduction to education as a teaching profession including an overview of the foundations, philosophy, history, current issues and trends, and organization of education as a human endeavor. Also included are the use of audiovisual materials, school records, safety, discipline, dramatic play, and storytelling. (F, Sp, Su)

ELCT - ELECTRONICS TECHNOLOGY

ELCT 100 Schematic Drawing 1
Semester Prerequisite: None

A nonmathematical beginning course in electronics covering electronic component recognition, reading schematics, freehand and computer drawing of schematic diagrams, and relating schematic diagrams to electronic circuits. The students will etch and drill a printed circuit board of a circuit that will be assembled during the soldering class. (F, Sp, Su)

ELCT 101 Analog Problems 4
Semester Prerequisite: High School Algebra
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
 (See *Course Schedule*)

This course provides circuit analysis problem practice for both DC and AC circuits. Topics include algebraic manipulation and solution of electronic formulas and basic trigonometric solutions of AC circuits using complex notation. A scientific calculator is required for polar to rectangular conversion and binary, octal, and hexadecimal calculations. (F, Sp)

ELCT 105 Solar Electrical Systems .5
Semester Prerequisite: None

An introductory course in producing and storing electricity generated by sunlight. Topics include photovoltaics, batteries, charge controllers, inverters, efficient electrical appliances, and system installations. (Su)

ELCT 109 DC Circuits 3
Semester Prerequisite: ELCT 101/Concurrently

A half semester beginning DC circuit analysis course that uses resistors, power supplies, and digital multimeters. Lecture and laboratory topics include resistor color code, series, parallel, series-parallel circuits, Kirchoff network laws, superposition, and Thevenin theorems. (F, Sp, Su)

ELCT 110 AC Circuits 3

Semester Prerequisite: ELCT 101, ELCT 109/Concurrently/Approval
 A half semester AC circuit analysis course using complex numbers and trigonometry to analyze series and parallel RCL circuits. RC filter networks and series and parallel resonant circuits are also covered. AC generators, oscilloscopes, and frequency counters are used in laboratory experiments. (F, Sp, Su)

ELCT 112 Transistors 6

Semester Prerequisite: ELCT 110/ELCT 111, ELCT 101/Approval
 A lecture and laboratory course dealing with diodes in power supply and regulator circuits, bipolar and field effect transistor biasing, and single and multistage amplifier circuits. Circuits are covered from the analysis, design, and troubleshooting standpoints. (F, Sp)

ELCT 120 Programming Preparation 2

Semester Prerequisite: None
 The student will learn software that provides preparation for machine or high-level language programming. Software used is DOS, Windows, a text editor, and a flowcharting program. Emphasis is placed on developing flowcharts for electronics-related problems that can be programmed on a computer. (F, Sp, Su)

ELCT 121 BASIC for Electronics 3

Semester Prerequisite: ELCT 110/ELCT 111, ELCT 120
 The student will write and execute programs in the BASIC language for electronic circuit analysis. Program problems will range from simple series circuits to transistor amplifiers. A student-designed programming project is used as part of the lab evaluation. (F, Sp, Su)

ELCT 130 Machine Language Programming 2

Semester Prerequisite: ELCT 110/ELCT 111, ELCT 120
 Covers the fundamentals of machine language programming for the MC6802MPU: computer math, instruction set, addressing modes, branching, stack operations, subroutines, interrupts, and programming of PIA. Laboratory work includes writing programs in machine language. (F, Sp, Su)

ELCT 131 Digital Basics 2

Semester Prerequisite: ELCT 110/ELCT 111
 Introduces digital electronics: basic gates, combinational logic, and functions of combinational logic such as decoders and code converters. It also introduces sequential logic: latches, flip-flops, timers, counters, and shift registers. Laboratory work includes the analysis, construction, and troubleshooting of small digital circuits and circuits constructed for ELCT 251 class using TTLICs. (F, Sp, Su)

ELCT 151 Computer Troubleshooting I 3

Semester Prerequisite: ELCT 171/Concurrently
 This is a troubleshooting and repair course intended for students in the Computer Repair Certificate Program and the Computer Technician Associate Degree Program. Course topics include basic troubleshooting techniques, unit and board swap computer troubleshooting, and computer preventive maintenance. (Sp)

ELCT 160 Logic Problems Analysis I 3

Semester Prerequisite: None
 A fundamental analysis course intended for students in the Computer Repair Certificate Program and the Computer Technician Associate Degree Program. Course topics include manipulation of formulas used in electronics, basic gate operation, and truth tables, Boolean algebra, binary, octal, and hexadecimal base number systems. (F, Su)

ELCT 161 Soldering/Desoldering 1

Semester Prerequisite: None
 A basic soldering course. Course topics include soldering electronic components to printed circuit boards, cable construction, and surface mount soldering. Desoldering components using solder wick, vacuum desoldering tools and equipment, and printed circuit board repair. Students assemble a digital multimeter as a final course project. (F, Sp, Su)

ELCT 170 Computer Repair Electronics I 6

Semester Prerequisite: ELCT 100/Concurrently/Approval
 A basic electronics course intended for students in the Computer Repair Certificate Program and the Computer Technician Associate Degree Program. This course begins with basic electricity concepts and continues with topics through transistor circuits and basic digital electronics. (F)

ELCT 171 Computer Repair Electronics II	5	ELCT 242 Computer Interfacing and Peripherals	5
Semester Prerequisite: ELCT 170 A digital electronics and computer systems course intended for students in the Computer Repair Certificate Program and the Computer Technician Associate Degree Program. Course topics include semiconductor, magnetic and optical memory, computer system operation, microprocessors, peripheral adapters, and microcomputer systems. (Sp)		Semester Prerequisite: ELCT 230, ELCT 231 This course covers 80X86MPU pins, address decoding, interfacing of static and dynamic memories and IO adapters. Serial and parallel data transfer, interfacing of keyboard, display, floppy disk, modem, LAN network cards, and motor control hardware will also be covered. Laboratory work involves construction of hardware and writing programs in Assembly and C languages. (Sp)	
ELCT 180 Computer Test Equipment I	3	ELCT 251 Digital Troubleshooting I	1
Semester Prerequisite: ELCT 170/Concurrently/Approval A basic test equipment course intended for students in the Computer Repair Certificate Program and the Computer Technician Associate Degree Program. This course introduces the student to the operation of electronics test equipment including VOM, DMM, oscilloscopes, storage oscilloscopes, and basic digital test equipment. (F)		Semester Prerequisite: ELCT 112, ELCT 131 This is a half-semester lab course designed to give the student hands-on experience in troubleshooting digital circuits involving combinational logic, multiplexers, decoders, display and display drivers, flip-flops, counters, timing circuits, shift registers, and other digital circuitry. Class demonstrations and videotapes are used for instruction. (F)	
ELCT 181 Computer Test Equipment II	2	ELCT 252 Digital Troubleshooting II	3
Semester Prerequisite: ELCT 180, ELCT 171/Concurrently An advanced test-equipment course intended for students in the Computer Repair Certificate Program and the Computer Technician Associate Degree Program. Course topics include software diagnostic routines, signature and data analysis, and computer troubleshooting equipment. (Sp)		Semester Prerequisite: ELCT 230, ELCT 231, ELCT 251 This course is a systematic approach to troubleshooting microprocessor-based systems and using test equipment. The student gains hands-on experience by drawing timing diagrams, troubleshooting flowcharts, writing or using diagnostic programs, and using test equipment to locate faults on MPU, memory, video, I/O, and floppy disk controller boards. (Sp)	
ELCT 206 Project Lab	1	ELCT 261 Consumer Product Systems	3
Semester Prerequisite: ELCT 112, Approval A guided independent study of a topic of interest within the area of electronics. The student will write a research paper or construct an electronic device that has the prior approval of a faculty member. (F, Sp, Su)		Semester Prerequisite: ELCT 112 Common electronic consumer product operation is explained through block diagrams and schematic diagrams. Systems include AM and FM stereo radio, black-and-white and color television, and videotape recorders. Lab work will involve measurements and alignments of normally operating systems. (Sp)	
ELCT 207 Project Lab	2	ELCT 271 Communications I	4
Semester Prerequisite: ELCT 112, Approval A guided independent study of a topic of interest within the area of electronics. The student will write a research paper or construct an electronic device that has the prior approval of a faculty member. (F, Sp, Su)		Semester Prerequisite: ELCT 112/Approval This course covers a review of resonant circuits, LC filter networks, radio frequency amplifiers, oscillators, amplitude modulation transmitting, and receiving circuits and systems. (F)	
ELCT 211 Linear Circuits I	4	ELCT 272 Communications II	4
Semester Prerequisite: ELCT 112 Solid state devices such as the JFET, MOSFET, and op-amps are studied. Applications of op-amps and comparators are examined using active filters, summing and differential amplifiers, window comparators, and DC motor control circuits. (F)		Semester Prerequisite: ELCT 271/Approval The student will learn frequency modulation transmitting and receiving circuits and systems, transmission lines, antennas, and microwave devices. (Sp)	
ELCT 212 Linear Circuits II	4	ELCT 281 Biomedical Instrumentation	4
Semester Prerequisite: ELCT 211 Linear devices such as PLL, VCO, waveform generators, and voltage regulator circuits are studied. A unit on printed circuit board design is included. The student will design a printed circuit layout and construct a bipolar power supply. (Sp)		Semester Prerequisite: ELCT 112 Preparation for the certified biomedical electronics technician examination begins here. The student will be introduced to biomedical safety standards and regulatory agencies as well as measurement of physiological signals with biomedical equipment. Lab exercises include safety testing and performance testing of biomedical equipment. (F)	
ELCT 230 Advanced Microprocessor	5	ELCT 290 Biomedical Internship	3
Semester Prerequisite: ELCT 112, ELCT 121, ELCT 130 This course covers advanced topics in microprocessor: 80X86MPU instructions, addressing modes, interrupts, BIOS, MSDOS functions (for keyboard, monitor, mouse, disk drives), serial and parallel IO, ADC, and DAC. Laboratory work involves writing external and resident interactive programs in Assembly and C languages. (F)		Semester Prerequisite: ELCT 281/Approval This course will allow students to be placed in hospital biomed repair shops and earn credit for satisfactory work performance. The students' occupational interests are considered along with their background or related courses to determine placement. (F, Sp, Su)	
ELCT 231 Advanced Digital Electronics	5	ELTE - ELECTRICAL TECHNOLOGY	
Semester Prerequisite: ELCT 112, ELCT 121, ELCT 131 Covers advanced topics in digital electronics: adders, comparators, code converters, ALUs, non-sequential and shift register counters, display systems, and solid-state memories. It also covers SIPO, PISO, SIGNATURE, and D/A and A/D circuits. Laboratory work includes the analysis, design, construction, and troubleshooting of digital circuits using SSI, MSI, and LSI ICs. (F)		ELTE 100 Electrical Safety Practices	1
ELCT 232 Digital Project	3	Semester Prerequisite: None This course covers basic electrical safety practices in the home, in the electrical laboratory, and in construction and industry. Included are state and federal standards and practices. This course is a prerequisite for, or to be taken concurrently with, all ELTE courses that have a lab. (F, Sp, Su)	
Semester Prerequisite: ELCT 130, ELCT 231 This course deals with the design of a microcomputer-based programmable monitoring and control system designed around the MC68HC11 and the use of an emulator to verify the design. Laboratory work includes a microcomputer-based design project, preferably using the MC68HC11 with a keyboard, LED/LCD display, and sensors. (Sp)		ELTE 110 Practical Electricity	3
ELCT 241 Analog Troubleshooting	1	Semester Prerequisite: ELTE 100/Concurrently Basic Skills Prerequisite: Reading Level, Writing Level, Math Level (See Course Schedule) This course introduces the student to electricity on a practical level. The student will learn to use meters to measure electrical quantities, do basic circuit calculations, install basic household electrical wiring, and investigate the behavior of motors and transformers. Reviews electrical codes and standards. (F, Sp, Su)	
Semester Prerequisite: ELCT 112 Basic troubleshooting principles will be applied to diode, bipolar, and field effect transistor circuits. Laboratory work will be based on computer-simulated troubleshooting exercises. (F)			

ELTE 112 Basic Wiring Installation 2
Semester Prerequisite: ELTE 110
 This course covers installation of a variety of wiring systems in wood frame and masonry construction. Students will practice installing nonmetallic sheathed cable, flexible metal conduit, electrical metallic tubing, and rigid conduit. (F, Sp)

ELTE 121 Analyzing Electric Circuits 5
Semester Prerequisite: MATH 050, ELTE 110/Approval
 This course utilizes concepts in basic algebra, vector algebra, and trigonometry to solve DC and AC electric circuit problems. Topics will include units, Ohm's law, network analysis, series, parallel and combination DC and AC circuits, inductance, and capacitance. (F, Sp)

ELTE 122 Industrial Control Electronics 5
Semester Prerequisite: ELTE 110, ELTE 121, INAU 100/Approval
 This course introduces the student to solid-state circuitry used in industry. Students will study diodes, transistors, SCRs, triacs, optical isolators, transducers, power circuits, etc. Laboratory will include oscilloscope usage. The course also includes an introduction to Boolean algebra and digital circuits. (Sp)

ELTE 123 Motors and Transformers 4
Semester Prerequisite: ELTE 121
 This course begins with three-phase circuits, including three-phase power measurement. Contains practical introduction to single- and three-phase transformers, motors, and alternators. Brief coverage of DC machines. (F)

ELTE 131 Introduction to Machine Control 4
Semester Prerequisite: ELTE 110
 Covers relay logic and controls using industrial standards. Use of correct symbols and standard construction of wiring and ladder diagrams is emphasized. Laboratory exercises include wiring three-phase motor control circuits utilizing two- and three-wire control and machine control circuits utilizing limit and proximity switches, timers, relays, etc. (F, Sp)

ELTE 141 National Electrical Code I 4
Semester Prerequisite: ELTE 110/Equivalent
 An introductory course designed for individuals with little or no knowledge of the electrical code. Students will study the structure and scope of the National Electrical Code, and learn how to locate often used code sections: Ohm's law, voltage drop, wire and conduit sizing, and installation methods. (F, Sp)

ELTE 142 National Electrical Code II 4
Semester Prerequisite: ELTE 141/ELTE 145/Approval
 This course is for individuals with field experience and basic electrical training who need a review for the State Journey Examination. Students will review the code with focus on locating and interpreting the National Electrical Code. In addition to the NEC, State of Michigan electrical rules will be reviewed. (F, Sp)

ELTE 143 National Electrical Code III 4
Semester Prerequisite: ELTE 142/Departmental Approval
 For individuals with a journey electrician's license who need to review for the State Master's Exam. Students will cover the code using the index method, discuss interpretation of the code, study State of Michigan electrical and construction code rules, and discuss topics appropriate to the Electrical Contractors Exam. (F)

ELTE 145 Electrical Prints for Buildings 4
Semester Prerequisite: ELTE 110/Approval
 Covers construction prints emphasizing standard and nonstandard symbols and interpretation of prints. Uses the National Electrical Code to calculate branch circuit, feeder, motor circuit, and service sizes. Other topics include uninterruptible power supplies, signaling, and safety systems. (Sp)

ELTE 147 National Electric Code Changes 1
Semester Prerequisite: ELTE 141/Equivalent
 Covers the changes to the National Electric Code and state codes in the most recent code cycle. (F, Sp, Su)

ELTE 150 Electric Motor Maintenance 2
Semester Prerequisite: ELTE 110
 Students learn to diagnose and test electric motors. Students will learn to identify and repair common problems in motors using meters, test equipment, and appropriate tools. An introduction to rewinding and metal working procedures is also included. (Sp)

ELTE 232 Industrial Control Design 3
Semester Prerequisite: ELTE 131
 This course is a continuation of ELTE 131, covering more components and larger more complex machine control diagrams, including automation interlocking and automatic continuous cycling of machinery. Students will be taught to design the control circuits for more complex machines in conformance with industry standards. (F)

ELTE 240 Electrical Estimating 3
Semester Prerequisite: ELTE 112, ELTE 145/Approval
 Basics of preparing accurate, competitive electrical estimates for the building trades. Topics include take-off procedure using electrical, mechanical and architectural prints; lighting design; labor and materials cost; evaluation techniques and specifications. Students should have wiring experience, practice in the use of NEC rules, and electrical prints before enrolling. (F)

ELTE 260 Introduction to Programmable Logic Controllers 4
Semester Prerequisite: ELTE 131
 This course covers programmable logic controllers with focus on common operating principles. Topics include the capabilities, similarities and differences among controllers, programming (examine on/off, timers, counters), and connecting external devices to Allen-Bradley, Modicon, and Omron. (F, Sp)

ELTE 261 Allen-Bradley PLC-5 Advanced 6
Semester Prerequisite: ELTE 260
 This course covers programming and connections for Allen-Bradley PLC-5 controllers. Focus on math, subroutine, file, block transfer, sequencers, logic, and bit manipulation instructions. Students will learn logic for machine control, programming and utilizing intelligent cards, ASCII, analog input/output, and system documentation. (Sp)

ELTE 291 Project Lab: 1 Credit 1
Semester Prerequisite: ELTE 110, Approval Required
 A guided study of topics of interest in electrical technology. The student will prepare a summary report of activities and demonstrate results of laboratory experiences. (F, Sp, Su)

ELTE 293 Project Lab: 3 Credits 3
Semester Prerequisite: ELTE 110, Approval Required
 A guided study of topics of interest in electrical technology. The student will prepare a summary report of activities and demonstrate results of laboratory experiences. (F, Sp, Su)

ELTE 294 Project Lab: 4 Credits 4
Semester Prerequisite: ELTE 110, Approval Required
 A guided study of topics of interest in electrical technology. The student will prepare a summary of activities and demonstrate results of laboratory experiences. (F, Sp, Su)

EMSA - EMERGENCY MEDICAL SERVICES

EMSA 100 First Aid and CPR 2
Semester Prerequisite: None
 Designed to provide the knowledge and skills necessary to respond to and treat emergency situations until professional medical help is obtained. First aid and CPR certificates issued upon successful completion. (F, Sp, Su)

EMSB - EMERGENCY MEDICAL SERVICES SEMINARS

EMSB 101 CPR for Bystanders/Heartsaver .25
Semester Prerequisite: None
 This seminar is designed for CPR instruction of the general public and adheres to American Heart Association guidelines. Content includes adult one-person CPR and foreign body airway obstruction. Also includes information about heart disease, risk factors, prudent heart living, and heart and lungs physiology. (F, Sp, Su)

EMSB 102 CPR for Health Care Professionals .5
Semester Prerequisite: Health Professional
 This seminar is designed for CPR instruction of health care providers and adheres to American Heart Association guidelines. Content includes one- and two-rescuer CPR, child and pediatric CPR, adult, child, pediatric foreign body airway obstruction, information about heart disease, risk factors, and physiology of the heart and lungs. (F, Sp, Su)

EMSB 103 CPR Recertification .25
Semester Prerequisite: Current Provider "C" Card
 This seminar is designed for CPR instruction for individuals who have previously obtained instruction in the basics of cardiopulmonary resuscitation and foreign body airway obstruction. The participants must have a current provider card for CPR. The curriculum and testing consists of recertification techniques for CPR. (F, Sp, Su)

EMSB 104 CPR Instructor .75
Semester Prerequisite: Basic Cardiac Life Support, Current Provider "C" Card
 The CPR Instructor's seminar is to provide the opportunity and forum to acquire knowledge and skills to accurately instruct and test the Basic Life Support Provider's courses according to American Heart Association guidelines. (F, Sp, Su)

EMSB 106 Infant/Child CPR .25
Semester Prerequisite: None
 This seminar provides instruction of CPR for special situations or groups. Infant and child CPR and foreign body airway obstruction for babysitters and parents would fall under this curriculum. (F, Sp, Su)

EMSB 110 First Aid and CPR Seminar .5
Semester Prerequisite: None
 This seminar offers adult CPR including airway obstruction and four hours of basic first aid. Red Cross certification is given to those successfully completing both components. (F, Sp, Su)

EMTA - EMERGENCY MEDICAL TECHNOLOGY

EMTA 100 Medical First Responder 3
Semester Prerequisite: None
 A course to provide the student with the knowledge and skills necessary to manage ill or injured victims at the scene of an emergency until the arrival of ambulance personnel. Successful completion enables the student to apply for state licensure as a medical first responder. (F, Sp, Su)

EMTA 101 Basic EMT I 4
Semester Prerequisite: EMTA 102 Concurrently
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 First in a sequence of five courses to prepare the student as a basic EMT. Emphasis is placed on didactic material including airway management, patient assessment, CPR soft tissue injuries, head, chest, and abdominal injuries, and proper use of equipment in the delivery of basic emergency care. (F, Su)

EMTA 102 Basic EMT II 2
Semester Prerequisite: EMTA 101/Concurrently
 Second in a sequence of five courses to prepare the student as a basic EMT. Emphasis is placed on practical skills including patient assessment, bandaging, splinting, backboarding, oxygen delivery equipment, CPR, and airway management in the delivery of basic emergency care. (F, Su)

EMTA 103 Basic EMT III 4
Semester Prerequisite: EMTA 101, EMTA 102
 The third in a sequence of five courses to prepare the student as a basic EMT. Emphasis is placed on didactic material including the recognition and management of environmental and medical emergencies; verbal, written and radio communications; triage, emergency childbirth; and pediatric emergencies. (Sp, Su)

EMTA 104 Basic EMT IV 2
Semester Prerequisite: EMTA 103/Concurrently
 The fourth course in a sequence of five to prepare the student as a basic EMT. Emphasis is placed on the overall delivery of basic emergency care through simulated emergencies. Successful completion of the course and the clinical component enables the student to apply for licensing as a basic EMT. (Sp, Su)

EMTA 105 Ambulance Driving 1
Semester Prerequisite: EMT/EMT Student
 A course to provide the EMT with the knowledge and practical experience in the operation of an ambulance. The course will focus on safety, defensive driving techniques, and specialized driving maneuvers. (F)

EMTA 108 Legal Issues in Emergency Medical Services 2
Semester Prerequisite: EMT/EMT Student
 A course to assist the EMT in understanding the legal system and legal principles as they apply to emergency pre-hospital care. Emphasis is placed on the evaluation of legally sound report writing skills, deposition delivery, and legal testimony. (Sp)

EMTA 112 Basic EMT Clinical 2
Semester Prerequisite: EMTA 103, EMTA 104 Concurrently
 The fifth course in a sequence of five to prepare the student as a basic EMT. Includes required OSHA standards, hospital clinicals, ambulance clinicals, and community service component teaching accident/sudden illness prevention and immediate first aid treatment to community. (Sp, Su)

EMTA 114 Rescue, Extrication, and Dangerous Situations 3
Semester Prerequisite: EMT/Fire Personnel
 A course to provide EMS or rescue personnel with skills in light and heavy vehicle extrication, industrial rescue techniques, extrication from farm machinery, and other specialized rescue techniques. Emphasis is placed on patient and rescuer safety. (F, Sp)

EMTA 200 EMT Specialist 5
Semester Prerequisite: Basic EMT
 A course to provide the basic EMT with knowledge and skills necessary for licensure as an EMT specialist. Emphasis is placed on intravenous therapy, advanced airway skills, and patient assessment skills. Successful completion requires passing written and practical exams and the supervised clinical component. (F, Sp)

EMTA 222 EMS Instructor Coordinator 6
Semester Prerequisite: Three Years EMS Experience
 A Michigan Department of Public Health approved course for EMS personnel interested in becoming an instructor coordinator. Includes teaching and testing methods, lesson plan development, writing performance objectives, course administration, MDPH application for course approval, and meeting state requirements. Student teaching required. (F)

EMTA 223 Advanced EMS I: Critical Care EMS 8
Semester Prerequisite: Departmental Approval
 Prepares the student to become a critical care transport specialist and perform new expanded scope of practice skills. Topics include ventilators, 12-lead ECGs, IV pumps, pharmacology, invasive lines, and complications of transport. Successful completion requires passing written and practical exams plus the supervised clinical component. (F)

EMTA 224 Advanced EMS II: Hospital Paramedic 8
Semester Prerequisite: Departmental Approval
 This course will prepare the paramedic to work in a hospital or walk-in clinic environment. Hospital procedures, pharmacology, documentation, and assessment will be covered. Successful completion requires passing written and practical exams plus the supervised clinical component. (Su)

EMTA 225 Medical Hazardous Material 4
Semester Prerequisite: Departmental Approval
 An advanced course in EMS designed to provide the skills and understanding necessary for paramedics to safely manage Haz-Mat exposed patients. Key topics include safety, scene operations, hazard identification, patient assessment, treatment such as specialized pharmacology, and transport. (Sp)

EMTA 226 Emergency Medical Services Management 5
Semester Prerequisite: EMS Personnel
 This course is designed to provide the student with knowledge and understanding of current EMS management issues. The course will explore the EMS specific aspects of human resources, administration, operations, finance, clinical management, medical control authority, system design, and public relations. (F)

ENGL - ENGLISH

ENGL 122 Writing about Literature and Ideas 4
Semester Prerequisite: 2.0 Minimum in WRIT 121
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 An alternative to WRIT 122. ENGL 122 introduces the students to various literary forms and develops analytical skills in reading, writing, and research techniques. Writing assignments begin with short essays and conclude with an extensive literary research paper. (F, Sp, Su)

ENGL 132 Honors Writing about Literature and Ideas 4
Semester Prerequisite: Departmental Approval
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 An alternative to WRIT 122. ENGL 132 is an introduction to various literary forms, in addition to the development of analytical reading and writing skills and research techniques leading to a literary research paper. (Same as ENGL 122 but taught on an advanced level.) (Sp)

ENGL 201 Introduction to Poetry 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 An introduction to the content, form, style, and technique of poetry; its structural types: metrical, blank, and free verse; its thematic types: lyric, narrative, and dramatic; and its effects or purposes. The course emphasizes poetry written in English but includes English translations of representative poetry from other languages and cultures. (Su)

ENGL 202 Introduction to Drama 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Introduces drama and its literary techniques and conventions. Attention is given to principles and theory, but understanding of the plays is emphasized. Representative plays from Greek, European, English, and American dramatists. (Sp)

ENGL 203 Introduction to Prose 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 This course introduces students to selected prose genres that have evolved in cultural history. Students consider how different forms reflect the diverse functions of language in developing human societies. In addition to essays, novels, and short stories, works studied may include folk tales, epistles, prose poems, (auto)biographies, satires, or documentaries. (Sp)

ENGL 211 World Literature I 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 A selective survey of the literatures of major world cultures reflecting the diversity of the continents of Africa, the Americas, Asia, and Europe to approximately the 17th century. Explores the historical, ethnic, aesthetic, political, economic, and thematic elements of their respective cultures through narrative prose fiction, poetry, and drama. (F)

ENGL 212 World Literature II 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 A survey of the literatures of major world cultures reflecting the diversity of the continents of Africa, the Americas, Asia, and Europe from approximately the 17th century through the present. Explores the historical, ethnic, aesthetic, political, economic, and thematic elements of their cultures through narrative prose fiction, poetry, and drama. (Sp)

ENGL 220 Science Fiction 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 ENGL 220 is an introductory course which explores significant issues in science fiction. Novels and/or stories will be the main focus, although works from other media also may be studied. The course's emphasis transcends entertainment to include understanding, interpretation, and analysis as well. (F)

ENGL 240 The Film as Art 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 This course will introduce film as an art form capable of making perceptive comments on our civilization. Thematic analysis of 12 to 15 motion pictures of recognized merit will emphasize the filmmaker's visual and aural techniques as well as conventions more commonly associated with literature. (F, Sp, Su)

ENGL 245 Popular Culture and Mass Media 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 A study of the popular culture distributed by mass media (newspapers, radio, film, television, magazines, and music videos) and how the media and popular culture reflect and shape our cultural beliefs. Extensive use of multimedia. (F)

ENGL 255 American Literature I 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 Provides a perspective on the evolution of traditional American literature beginning with the writings of the first European explorers and Native American oral tradition. Features selected essays, autobiographical writings, poems, fiction, and drama from the mid-15th century to 1865, including the work of women and ethnic minorities, which have contributed to American thought. (F, Sp)

ENGL 256 American Literature II 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 Provides a perspective on the further development of traditional American literature from 1865 (the Realism period) to contemporary literature. Features selected essays, autobiographical writings, poems, fiction, and drama from the end of the Civil War to the literature of the late 12th century, including the work of women and ethnic minorities, which have profoundly shaped American literature. (F, Sp)

ENGL 260 African-American Literature 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 This course introduces the African-American literary tradition as seen in the literature of the Americas, including the Caribbean. Selections explore the black experience in autobiography, essay, fiction, poetry, and drama. Themes of slavery, colonialism, and the Black Diaspora are discussed. Reading selections include the Harlem Renaissance and contemporary texts. (Sp)

ENGL 265 Japanese Literature 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 Arranged chronologically, this course draws heavily on many different genres of Japanese literature. The basis for selection of works to be read rests on the insight that each work gives to the Japanese society which produced it, and upon its universal characteristics. (Sp)

ENGL 266 British Literature I 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 British Literature I surveys the poetry, prose, and drama of the major British writers from Chaucer (14th Century) to the Satirists (18th Century). The works are selected to reflect the attitudes and values of British culture and the perception of the world from a British point of view. (F)

ENGL 267 British Literature II 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 British Literature II surveys the poetry, prose, and drama of the major British writers from the Romantics (19th Century) to late 20th Century. The works are selected to reflect the attitudes and values of British culture and the perception of the world from a British point of view. (Sp)

ENGL 270 Literature by Women 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 A study of selected works by English and North American women writers. Designed to increase understanding of the themes, images, issues, and modes of expression of women writers. (Su)

ENGL 290 Shakespeare 4
Semester Prerequisite: WRIT 121 (ENGL 122 Recommended)
 Introductory course in the dramatic works of William Shakespeare. Students will read 9 to 12 plays representative of the author's comedies, histories, and tragedies. (F)

ENGL 295 Independent Study 1
Semester Prerequisite: Departmental Approval
 Special research projects and/or individual readings in English. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade-point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)

ENGL 296 Independent Study 2
Semester Prerequisite: Departmental Approval
 Special research projects and/or individual readings in English. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to Honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)

ENRI - ENRICHMENT

ENRI 005 Academic Preparation Laboratory 0
Semester Prerequisite: None
 Arranges the days and times when students will attend enrichment lab. Students must register for both an enrichment lab course, such as ENRI 109, and a section of ENRI 005. (Sp)

ENRI 098 Success Workshop .5
Semester Prerequisite: None
 Mini-workshop intended to introduce and/or review reading-related techniques essential for academic survival and success. Sessions cover time management, establishing frame of reference, scientific skimming, main idea identification, organized study procedures, enhancing comprehension, note-taking through "mapping," and keys to improving objective test scores. Includes much practical, hands-on activity. (Sp)

- ENRI 101 Individualized English I** 1
Semester Prerequisite: Departmental Approval
 Individualized instruction in one of several language areas: writing; editing; vocabulary development, including pronunciation; and reading. Editing instruction may include spelling, standard English grammar, organizational strategies, or punctuation. Students and instructors select instructional materials and design an individualized study program. (May repeat for credit three times.) (Sp)
- ENRI 102 Individualized English II** 2
Semester Prerequisite: Departmental Approval
 Individualized instruction in one of several language areas: writing, editing, vocabulary, pronunciation, and reading. Editing instruction may include spelling, grammar, organizational strategies, or punctuation. Students and instructors select instructional materials and design an individualized study program. Best for self-motivated students with independent study habits. (May repeat for credit three times.) (Sp)
- ENRI 103 Individualized English III** 3
Semester Prerequisite: Departmental Approval
 Individualized instruction in one of several language areas: writing, editing; vocabulary development, including pronunciation; and reading. Editing instruction may include spelling, standard English grammar, organizational strategies, or punctuation. Students and instructors select instructional materials and design an individualized study program. (May repeat for credit three times.) (Sp)
- ENRI 105 Life Learning Portfolio** 1
Semester Prerequisite: Departmental Approval
 This course provides the opportunity for students to create a portfolio that will document learning acquired through work, volunteer, and/or life experience. The finished portfolio can then be submitted to the LCC Registrar's Office to request college credit for knowledge and skill—learning outcomes—that correspond to LCC courses. (Sp)
- ENRI 109 Academic Preparation I** 6
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Offers a unified and collaborative approach to learning basic language skills. Emphasizes reading, writing, speaking, listening, and thinking skills. Students assist one another in exploring topics of their choice from various academic disciplines. Requires enrollment in ENRI 005. (Sp)
- ENRI 152 Orientation Workshop: College Reading Survival Skills** 1
Semester Prerequisite: None
 Designed for beginning college students, whether recent high school graduates or returning adults. Develops college reading survival skills. Concentrates on reading speed and flexibility, study techniques, concentration and memory, note-taking, test-taking, and vocabulary expansion. (Su)
- ENRI 162 Orientation Workshop: College Writing Skills** 1
Semester Prerequisite: None
 This course is designed for new and returning students, as well as others from the community. It helps students to develop their writing skills, including the study of writing for various disciplines, the writing process, and the basics of grammar, sentence style, and punctuation. (Su)

ENVR - ENVIRONMENTAL SCIENCE

- ENVR 121 Environmental Rules and Regulations** 3
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 An overview of federal and some state environmental regulations (i.e., Clean Air Act, Clean Water Act, OSHA) and agency rules that control pollution by regulating discharges to air, water, and land. The emphasis is on those regulations that apply to the handling, treatment, storage, and disposal of hazardous materials. (F)
- ENVR 122 Environmental Sampling and Instrumentation** 4
Semester Prerequisite: CHEM 151, CHEM 161
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See *Course Schedule*)
 An introduction to a variety of sampling and monitoring procedures and the instrumentation to accomplish the task. Students will learn how to take samples of ground water, surface water, air, soil, sludges, drums, and tanks. Appropriate sampling protocol, records, quality assurance, safety, and decontamination are stressed. (Sp)

- ENVR 131 Industrial Processes and Pollution Prevention** 3
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 A nontechnical introduction to general manufacturing processes with emphasis on waste reduction and pollution prevention strategies, functions within facilities, and selected unit operations widely used in industry. Examples and case studies of specific industries will be examined with respect to their basic processes, materials flow, worker health and safety, waste reduction, and pollution prevention. (F)

ESLP - ENGLISH AS A SECOND LANGUAGE

- ESLP 011 English for Practical Purposes** 6
Semester Prerequisite: Placement Test, Departmental Approval
 This course is designed for high beginning level non-native speakers of English who have basic literacy skills. Emphasis is on reading and vocabulary skill-building activities designed to enable student to communicate in everyday situations. An integrated skills format allows language use, speaking/listening, and writing activities to be combined using themes. (F, Sp)
- ESLP 012 Composition I** 4
Semester Prerequisite: Placement Test, Departmental Approval
 This course is designed for high beginning level non-native speakers of English. Students will master the use of simple sentences and will write a variety of paragraphs using simple and progressive verb forms. A process approach to writing will be used and students will learn basic word processing skills. (F, Sp)
- ESLP 013 Oral/Aural Communication I** 4
Semester Prerequisite: Placement Test, Departmental Approval
 This course is designed for high beginning level non-native speakers of English. Students will build awareness of American English pronunciation and will focus on troublesome pronunciation features. Students will practice speaking English and will improve basic listening comprehension in a variety of contexts, including academic, social, and professional settings. (F, Sp)
- ESLP 021 English in American Society and Culture I** 5
Semester Prerequisite: 2.0 Minimum in ESLP 011/Placement Test, Departmental Approval
 This course is designed for low intermediate level non-native speakers of English. Emphasis is on reading and vocabulary skill-building activities designed to enable students to communicate in a variety of academic, social, and professional situations. An integrated skills format allows language use, speaking/listening, and writing activities to be combined using themes. (F, Sp)
- ESLP 022 Composition II** 4
Semester Prerequisite: 2.0 Minimum in ESLP 012/Placement Test, Departmental Approval
 This course is designed for low intermediate level non-native speakers of English. Students will master the use of compound sentences and will understand complex sentences in writing paragraphs and essays. A process approach to writing will be used and students will learn more advanced word processing skills. (F, Sp)
- ESLP 023 Oral/Aural Communication II** 4
Semester Prerequisite: 2.0 Minimum in ESLP 013/Placement Test, Departmental Approval
 This course is designed for low intermediate level non-native speakers of English. Students will build awareness of certain pronunciation points and will do related pronunciation exercises. Emphasis will be given to improving language use, listening comprehension, and speaking in a variety of contexts, including academic, social, and professional settings. (F, Sp)
- ESLP 031 English in American Society and Culture II** 6
Semester Prerequisite: 2.0 Minimum in ESLP 021/Placement Test, Departmental Approval
 This course is designed for high intermediate level non-native speakers of English. Emphasis is on reading and vocabulary skill-building activities designed to enable students to communicate in a variety of more complex academic, social, and professional situations. An integrated skills format allows language use, speaking/listening, and writing activities to be combined using themes. (F, Sp)
- ESLP 032 Composition III** 4
Semester Prerequisite: 2.0 Minimum in ESLP 022/Placement Test, Departmental Approval
 This course is designed for high intermediate level non-native speakers of English. Students will be instructed in complex sentences, quoted and reported speech, perfect tenses, and other key grammatical structures used in writing essays. A process approach will be used and students will practice more advanced word processing skills. (F, Sp)

- ESLP 033 Oral/Aural Communication III** 4
Semester Prerequisite: 2.0 Minimum in ESLP 023/Placement Test, Departmental Approval
 This course is designed for high intermediate level non-native speakers of English. Students will do pronunciation exercises to improve intelligibility. Emphasis will be given to improving listening comprehension and basic note-taking in academic and professional settings, and speaking English in a variety of more sophisticated academic, social, and professional settings. (F, Sp)
- ESLP 101 Vocational Preparation** 4
Semester Prerequisite: 2.0 Minimum in ESLP 031/Placement Test, Departmental Approval
 This course is designed for advanced level non-native speakers of English who wish to pursue a certificate program or improve their English for work-related goals. Work-related topics will be used to foster the development of language skills. Emphasis will be on improving listening comprehension, oral communication, and reading comprehension. (F, Sp)
- ESLP 102 Composition for Business and Technical Purposes** 4
Semester Prerequisite: 2.0 Minimum in ESLP 032/Placement Test, Departmental Approval
 This course is designed for advanced level non-native speakers of English who will use English for business or technical purposes using a variety of complex sentences and grammatical structure. Students will use a process approach to produce business letters of various types, short reports, and memos. (F, Sp)
- ESLP 103 Focus on Pronunciation** 4
Semester Prerequisite: 2.0 Minimum in ESLP 033/Placement Test, Departmental Approval
 This course is designed for advanced level non-native speakers of English who wish to improve the intelligibility of their speech. Students will have an individual speech profile. Emphasis will be on building awareness of and practicing American English stress, intonation, and rhythm patterns, and clear pronunciation of individual sounds. (F, Sp)
- ESLP 111 Academic Reading Skills** 4
Semester Prerequisite: 2.0 Minimum in ESLP 031/Placement Test, Departmental Approval
 This course is designed for advanced level non-native speakers of English who wish to pursue an academic degree or transfer program. Emphasis is on vocabulary building and on developing reading strategies and skills, including critical reading, to improve overall comprehension. Students will practice using technology to enhance their learning. (F, Sp)
- ESLP 112 Composition for Academic Purposes** 4
Semester Prerequisite: 2.0 Minimum in ESLP 032/Placement Test, Departmental Approval
 This course is designed for advanced level non-native speakers of English who wish to complete an academic degree or transfer program. Students will use a process approach to writing to produce various types of essays for academic purposes using a variety of complex sentences and grammatical structure. (F, Sp)
- ESLP 113 Academic Listening/Notetaking** 4
Semester Prerequisite: 2.0 Minimum in ESLP 033/Placement Test, Departmental Approval
 This course is designed for advanced level non-native speakers of English who wish to pursue an academic degree or transfer program. Emphasis will be on improving overall listening comprehension, identifying the organizational structure of academic lectures, taking effective notes from a variety of sources, and improving vocabulary. (F, Sp, Su)

ESLW – ENGLISH AS A SECOND LANGUAGE WORKSHOP

- ESLW 020 ESL Summer Workshop** 6
Semester Prerequisite: 2.0 Minimum in ESLP 011/ESLP 012/ESLP 013/Placement Test, Departmental Approval
 This integrate skills course is designed for low to high intermediate non-native speakers of English who wish to improve their oral-communication, writing, and reading skills through in-class activities, guest lecturers, and field trips. Student in this class will form cooperative learning groups to work on a variety of projects. (Su)

FIRE – FIRE SCIENCE

- FIRE 100 Introduction to Fire Fighting** 3
Semester Prerequisite: None
 An introduction to fire fighting with an overview of fire chemistry, fire fighting equipment and safety, types of department, apparatus, special techniques of rescue, future of fire service, customer service, fire prevention, and public education. (F, Sp, Su)
- FIRE 101 Michigan F.F.T.C. Basic Fire Training Level I A and B** 9
Semester Prerequisite: Admission to Program
 Level I is basic training required for all firefighters in the State of Michigan. Training is certified by the Michigan Fire Fighters Training Council and includes the basics of fire suppression, apparatus operation, life safety, and physical fitness. (F, Sp, Su)
- FIRE 102 Michigan F.F.T.C. Basic Fire Training Level II C and D** 4
Semester Prerequisite: FIRE 101
 Level II is basic training required for all career firefighters in the State of Michigan. Training is certified by the Michigan Fire Fighter's Training Council and includes advanced fire suppression, aerial operation, life safety, and physical fitness. (F, Sp, Su)
- FIRE 110 Fire Prevention and Law** 3
Semester Prerequisite: None
 This course involves applicable statutes of Michigan Law as they relate to the Fire Service. Covers selected portions of NFPA 101, the Life Safety Code, appropriate portions of BOCA, and other building codes. Focuses on the importance of an aggressive fire prevention plan in communities. (F)
- FIRE 115 Building Construction for the Fire Service** 4
Semester Prerequisite: None
 This course involves the essentials of building design and construction for the fire service with emphasis on life safety, evacuation, fire extension, and collapse. (F)
- FIRE 120 Chemistry of Hazardous Materials** 3
Semester Prerequisite: None
 A college-level chemistry course focusing on hazardous materials encountered by fire fighters. Contains specific elements of NFPA 741, 742 and OSHA CFR 1041.120. Topics include atomic and molecular theory, bonding property of elements, oxidation and reduction reactions, kinetic-molecular theory, solutions, and electrochemistry. Includes Michigan Haz-Mat First Responder Certification. (F)
- FIRE 125 Fire Protection Systems and Equipment** 4
Semester Prerequisite: None
 Identifies fixed systems typically encountered by fire fighters responding to industrial complexes or specialized environments. Emphasizes selected portions of detection and alarm (NFPA 72-85), sprinklers and standpipes (NFPA 13 and 1964), and special systems and design. (F)
- FIRE 130 Hydraulics and Pump Operations** 4
Semester Prerequisite: TECH 100/MATH 050
 Describes the fundamentals of hydraulics, including water supply problems, standards and pump requirements, and practical application of knowledge to fire fighting problems. Includes selected portions of NFPA 1901 and 1002. (Sp)
- FIRE 150 Fire Command and Operations** 4
Semester Prerequisite: None
 This course centers on the initial fireground attack from a company officer's perspective. Deals separately with Engine and Truck Company Operations including initial assignments, use of resources, rescue, streams, and salvage. Covers selected portions of NFPA 1002, 1410, 1904, and 1961. Covers the National Fire Academy Incident Command System. (Sp)
- FIRE 210 Fire Investigation** 4
Semester Prerequisite: FIRE 101/Firefighter/Sworn Police Officer
 This course investigates fire behavior, importance of determining cause and origin, accidental, incendiary, or arson type fires. Describes methods of recognizing and identifying motivation for arson and covers applicable laws and court procedures. (Sp)
- FIRE 220 Hazardous Materials in the Fire Service** 4
Semester Prerequisite: FIRE 120
 Explores the concepts and methods of detection, control, and mitigation of hazardous materials incidents. Contains specific elements of NFPA 741, 742, and OSHA CFR 1041.120. Includes Michigan Haz-Mat Operations Level Certification. (Sp)

FIRE 250 Fire Administration 4
Semester Prerequisite: Fire Command/Departmental Approval
 This course provides the student with a better understanding of motivation and the proper reaction from management. Covers labor relations and collective bargaining, fiscal management, and political interaction. Presents modern approaches to the challenges which face today's fire executives. (Sp)

FREN - FRENCH

FREN 115 Conversational French I 3
Semester Prerequisite: None
 Students learn how to communicate orally in everyday life situations and in travel abroad. Emphasis is on the development of ability to communicate in French. French culture is explored. (F, Sp, Su)

FREN 116 Conversational French II 3
Semester Prerequisite: FREN 115/Equivalent
 Continuation of FREN 115. Designed for advanced beginners who wish to improve their speaking ability in the context of daily living. Emphasis is placed on contemporary vocabulary, essentials of grammar, and pronunciation through class discussions conducted in French. Students will continue to explore different aspects of life and culture in the francophone world. (F, Sp, Su)

FREN 121 Elementary French I 4
Semester Prerequisite: None
 Introductory course open to students with little or no knowledge of French. Students are introduced to basic patterns and structures of French, enabling them to develop listening, speaking, reading, and writing skills. Emphasis is placed on contemporary vocabulary, essentials of grammar, and pronunciation. (F, Sp, Su)

FREN 122 Elementary French II 4
Semester Prerequisite: FREN 101/FREN 121/Equivalent/Approval
 Second course of a two-semester sequence. Introduction to more complex structures and patterns, and more active use of spoken and written French. (Sp)

FREN 201 Intermediate French I 4
Semester Prerequisite: FREN 102/FREN 122/Equivalent/Approval
 First course of a two-semester sequence. Course provides grammar review, vocabulary building, listening comprehension, composition writing, group discussions, and readings of literary and cultural texts, short stories, and news articles for a better understanding of the francophone world. (F)

FREN 202 Intermediate French II 4
Semester Prerequisite: FREN 201/Equivalent/Approval
 Second course of a two-semester sequence. Course includes a review of more complex grammar topics, readings of cultural and literary texts, short stories, and newspaper articles for a better understanding of the francophone world. Students will improve fluency through listening-comprehension, writing, and discussions in the target language. (Sp)

GEOG - GEOGRAPHY

GEOG 120 Introduction to Geography 3
Semester Prerequisite: None
 An introductory course designed to provide contemporary geographic ideas and techniques to study the interaction between people and their physical environment. (F)

GEOG 121 Physical Geography 3
Semester Prerequisite: None
 Emphasizes landforms, natural vegetation, weather and climatic elements, and soils. Offers an extensive study of these forces, noting their ecological principles and their effects on human life. Includes mapping techniques, land site analysis, and air-photo interpretation. Field trips will be an integral part of the course. (F, Sp, Su)

GEOG 200 World Regional Geography 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 This course describes and analyzes human relationships with the natural and cultural environment and examines the physical and cultural aspects of the major regions of the world. International interdependency is examined to promote global awareness. (F, Sp, Su)

GEOG 202 Geography of North America 3
Semester Prerequisite: None
 A study of the human and physical aspects of North America. This course will identify some of the factors that influence the quality of life and give character to each of the various subregions. (Sp)

GEOG 203 Economic Geography 3
Semester Prerequisite: None
 The study of the distribution of economic activities throughout the world. Emphasizes agriculture, resources, population, industry, urbanization, and trade. (Sp)

GEOG 295 One-Credit Independent Study in Geography 1
Semester Prerequisite: Departmental Approval
 Independent project involving reading and research in geography. The project, chosen by the student, must be approved in advance by the department chair and be supervised by a faculty member. It must also meet specific academic goals. (F, Sp, Su)

GEOG 296 Two-Credit Independent Study in Geography 2
Semester Prerequisite: Departmental Approval
 Independent project involving reading and research in geography. The project, chosen by the student, must be approved in advance by the department chair and be supervised by a faculty member. It must also meet specific academic goals. (F, Sp, Su)

GEOG 297 Three-Credit Independent Study in Geography 3
Semester Prerequisite: Departmental Approval
 Independent project involving reading and research in geography. The project, chosen by the student, must be approved in advance by the department chair and be supervised by a faculty member. It must also meet specific academic goals. (F, Sp, Su)

GEOL - GEOLOGY

GEOL 200 Michigan Geology 3
Semester Prerequisite: Science Inventory Recommended
 Evidence from the rock and fossil record is used to reconstruct the sequence of events and changing environmental conditions of Michigan's past. Michigan's geologic resources (e.g., petroleum, natural gas, coal, iron, copper, salt, gypsum, surface groundwater, sand/gravel) and environmental issues (e.g., waste disposal, water pollution) are investigated. (Su)

GEOL 202 Geology of Western National Parks 2
Semester Prerequisite: None
 This course is a survey of the geological features, surface processes, and history of the western national parks and monuments. The geology of these sites is presented within the context of geologically defined regions and their sequence of origin. Emphasis is placed on video and slide presentations accompanying lecture. (Su)

GEOL 210 Geology Field Studies 1
Semester Prerequisite: Geology Course/Geology Course Concurrently
 Opportunities to gain geology field experience through application of skills learned in the classroom. One-day and extended overnight excursions are offered. (Destination examples: Michigan gypsum mines, Michigan Upper Peninsula iron and copper country, Cincinnati fossil beds, Grand Ledge quarries, Western U.S. regional geology, etc.) (Su)

GEOL 212 Geology Field Studies 2
Semester Prerequisite: Departmental Approval
 Opportunities to gain geology field experience through application of skills learned in the classroom. One-day and extended overnight excursions are offered. (Destination examples: Michigan gypsum mines, Michigan Upper Peninsula iron and copper country, Cincinnati fossil beds, Grand Ledge quarries, Western U.S. regional geology, etc.) (Su)

GEOL 214 Geology Field Studies 3
Semester Prerequisite: Departmental Approval
 Opportunities to gain geology field experience through application of skills learned in the classroom. One-day and extended overnight excursions are offered. (Destination examples: Michigan gypsum mines, Michigan Upper Peninsula iron and copper country, Cincinnati fossil beds, Grand Ledge quarries, Western U.S. regional geology, etc.) (Su)

GEOL 221 Earth Materials and Processes: Physical Geology 4
Semester Prerequisite: 2.0 Minimum in ISCI 110/Science Inventory Recommended
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See *Course Schedule*)
 This course investigates the dynamic physical earth using a cause-effect theme, and emphasizes relationships of geologic cycles (tectonic/hydrologic) to modifications of earth's crust (e.g., volcanism, mountain building, rivers, glaciers) with introduction to environmental topics and earth resources. Laboratory includes mineral and rock identification, topographic and geologic map interpretation, and plate tectonics exercises. (F)

GEOL 222 Earth and Life Through Time: Historical Geology 4
Semester Prerequisite: 2.0 Minimum in ISCI 110/Science Inventory Recommended
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See *Course Schedule*)
 Plate tectonics is used to integrate crustal and organic evolution in the dynamic global system. Includes methods of geologic inquiry and critical evaluation of evidence. Laboratory stresses interpretation of the rock and fossil records, reconstruction of past ecosystems, geologic maps, and plate tectonics' influence on the environment. (Sp)

GEOL 230 Environmental Geology 4
Semester Prerequisite: 2.0 Minimum in ISCI 110/Science Inventory Recommended
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See *Course Schedule*)
 Concepts of physical geology are applied to human interaction with the environment. Geologic resources (e.g., minerals, energy, and water) and hazards (e.g., earthquakes, landslides, and flooding) are explored. Laboratory includes rock and mineral identification, map reading and interpretation, evaluation of land use alternatives, and problem-solving activities related to environmental issues. (Sp)

GERO - GERONTOLOGY

GERO 100 Introduction to Human Aging 3
Semester Prerequisite: None
 This course provides a basic orientation to the field of gerontology, with emphasis on social aspects: demography, physiology, psychology, sociology, economics, environment, death and dying, and community and government programs. (F, Sp)

GERO 101 Programs and Services for the Aging 3
Semester Prerequisite: GERO 100 Recommended
 This course provides a description of the organization and functions of the aging services network, its relationship to the broader human services system, and how the services worker can use or develop community resources for the benefit of older adults. (Sp)

GERO 119 The Aging Process: Facts, Myths, Changes, and Resources .25
Semester Prerequisite: None
 This course includes an overview of facts and myths associated with older adults, including normal physical changes and their implications; social/emotional aspects of aging, including communication issues; and federal, state, and local resources for the older adult. (F, Sp)

GERO 131 Planning for Older Adults with Developmental Disabilities .5
Semester Prerequisite: None
 This course presents an overview of the older adult with developmental disabilities, including characteristics, demographics, public policy issues, and functional assessment. Michigan program initiatives are discussed and case studies are presented. (F, Sp)

GERO 141 Gerontological Practices: Case Assessment and Intervention .5
Semester Prerequisite: None
 This course presents an overview of the case management pathway in providing direct services to individual older adult clients from intake through service termination. It includes a focus on issues that have added impact on the older person and techniques that are effective in case management for that population. (F, Sp)

GERO 161 Issues of Aging: Sexuality .25
Semester Prerequisite: None
 This course presents an overview of issues relating to sexuality and older persons. Topics are societal attitudes, sexual behavior patterns, physiological changes, psychological responses, and special situations, such as institutional settings. (F, Sp)

GERO 164 Medication and Alcohol Use Among Older Adults .5
Semester Prerequisite: None
 This course examines medication and alcohol use among older adults including prescription and nonprescription medicines, side effects, drug interactions, and strategies for using medicines wisely. Students learn to identify a substance abuse situation and how to make appropriate referrals. (F, Sp)

GERO 165 Dementia: Concepts and Causes .5
Semester Prerequisite: None
 This course is an introduction to current concepts of dementia (Alzheimer's disease and related disorders) in older persons. It provides an overview of social, physical, psychological, and environmental factors resulting in dementia. Relationships to depression, techniques for communicating with older persons with dementia, family dynamics, and community resources are discussed. (F, Sp)

GERO 169 Legal Rights of Older Adults: Disability and Consent .5
Semester Prerequisite: None
 This course focuses upon issues such as guardianship, conservatorship, power of attorney, the living will, joint tenancy, nursing home residency, and civil commitment, including actual and perceived choices a person has as aging and illness occur. (F, Sp)

GERO 170 Depression: Recognition and Treatment .5
Semester Prerequisite: None
 This course provides an examination of depression in later life. Symptoms, causes, "masks" diagnosis, and assessment of depression are introduced, including information on distinctions between depression and dementia. Basic techniques and guidelines for working with depressed older persons are presented. (F, Sp)

GERO 171 Techniques for Caring for Persons with Dementia .75
Semester Prerequisite: None
 This course provides an introduction to techniques for working with older adults with Alzheimer's disease and related disorders. The psychosocial needs of individuals and their families are a primary focus. Communication techniques, programming approaches, handling problem behaviors, a task breakdown approach, environmental adaptations, and role of the family are discussed. (F, Sp)

GERO 173 Activities: Older Adults with Alzheimer's/Related Disorders .5
Semester Prerequisite: None
 This course provides an overview of planning principles and processes effective in designing meaningful activities for older adults with Alzheimer's disease and related disorders. Practice opportunities are included. (F, Sp)

GERO 191 Seminar: Special Subjects .25
Semester Prerequisite: None
 This course consists of a series of seminars which address the most current issues in the field of gerontology. The seminars are designed to provide the most up-to-date information on selected, high-interest subjects concerning human aging. (F, Sp, Su)

GERO 192 Seminar: Special Subjects .5
Semester Prerequisite: None
 This course consists of a series of seminars which address the most current issues in the field of gerontology. The seminars are designed to provide the most up-to-date information on selected, high-interest subjects concerning human aging. (Fa, Sp, Su)

GERO 202 Mental Health and Aging 2
Semester Prerequisite: GERO 100 Recommended
 This course presents skills and adaptations for maintaining good mental health in late life. It explores family and social factors; personality; stress and loss; assessment, treatment, and care of older persons with mental disorders; and response of the mental health system and aging services network. It includes communication skills for interacting with older adults. (Sp)

GERO 204 Aging and Health 2
Semester Prerequisite: GERO 100 Recommended
 This course examines aging and health from an applied perspective for the human services provider, including implications of normal/pathological changes in body systems and strategies used in working with health systems on behalf of older adults. Emphasis is on the assessment and maintenance of function, and benefits of lifelong health promotion. (F)

GERO 282 Gerontology Practicum I 4

Semester Prerequisite: SOWK 203, Departmental Approval
This course combines classroom training with field placement (10 hours per week) at a community agency or institution serving older persons. Students apply learning about structure, funding, and organization of aging services; explore community resources; demonstrate appropriate work habits; assess their attitudes and career skills in gerontology, and relate current aging research to practice. (F)

GERO 284 Gerontology Practicum II 4

Semester Prerequisite: GERO 282, Departmental Approval
This course provides advanced field placement experience at a community agency or institution serving older persons (10 hours per week), combined with classroom training in practice concepts related to service delivery to older persons. Students learn resources and systems, develop networking skills, mobilize resources on behalf of older individuals or groups, and demonstrate their suitability for a career in gerontology. (Sp)

GRET - GEOGRAPHIC RESOURCE AND ENVIRONMENTAL TECHNOLOGY**GRET 203 MicroStation Beginning 3**

Semester Prerequisite: LAND 282/Departmental Approval
This entry-level, computer-aided design and drafting course uses MicroStation software on an Intergraph workstation or PC. Students will create 2-D drawings using basic graphic tools and procedures. (F, Sp)

GRET 204 MicroStation Graphic Environment 3

Semester Prerequisite: GRET 203
This course explores the MicroStation graphic environment using the Intergraph Workstation. The analysis package, MGA, will be utilized as well. The development of a prototype Geographic Information System will be a highlight of this course. (F, Sp)

GRET 205 Principles of Geographic Information Systems 3

Semester Prerequisite: None
This course describes the components of a basic GIS and how they are assembled. Requisition of data, maps, and other information used to build a database will be highlighted. A basic pilot project will be demonstrated step-by-step through various applications in GIS. (F, Sp, Su)

GRET 208 Advanced Techniques in GIS 3

Semester Prerequisite: GRET 204
This course expands upon the techniques, methods, and processes involved in developing a full GIS program. Different GIS software packages will be explored, as well as related databases and completed projects. (F, Sp)

GRET 209 Applications in Geographic Information Systems 3

Semester Prerequisite: GRET 205, GRET 208
This course specifically deals with all of the possible application areas for GIS, both present and future. Applications such as toxic materials, traffic flow, mining, forestry, natural resource, energy, and communication will be highlighted. A semester-long application project of your choice will be developed on the computer. (Sp)

GRET 210 Principles of Global Positioning Systems 3

Semester Prerequisite: None
This course covers the basic principles necessary to set up, operate, and run a Global Positioning System (GPS) receiving station, as well as collect information with a receiver. Data collection will be incorporated into a computer database program. The information link with Geographic Information Systems (GIS) and the use of GPS in GIS will be demonstrated. (F, Sp)

GRET 211 GIS Mapping Systems 3

Semester Prerequisite: None
This course covers the basics of computer mapping systems and how they relate to computer design, graphics, and GIS. C-Map, Map Info., and Mapping Office will be presented. Students will produce a variety of maps as they relate to daily activities, land planning, environmental geography, and information systems. (F, Sp)

GRET 213 Advanced MicroStation 3

Semester Prerequisite: GRET 203
This course is an advanced application of the MicroStation Software and deals with 3-D and other advanced aspects of this computer-aided drafting and design package. A basic understanding and/or beginning MicroStation class is necessary for success in this class. (F, Sp)

GRET 214 G.R.A.S.S. Beginning 3

Semester Prerequisite: GRET 205
This computer-based course will explore the Geographical Resource Analysis Support System (G.R.A.S.S.) software package developed by the U.S. Army Corp. of Engineers. The specific functions of the software will be explored as it relates to the world of Geographic Information Systems. This is a beginning course. (F)

GRET 216 Introduction to MicroStation 2

Semester Prerequisite: None
This is a course to introduce the student to the basics of MicroStation. MicroStation supports a range of commands for placing and manipulating elements in the design file. A student can apply these commands for either a MicroStation personal computer setup or the INFOMIX-SQLnd Base II plus database packages. The course is designed for Intergraph Workstation lab use, as well as the MicroStation PC. (F, Sp, Su)

GRET 218 GIS Design Systems 5

Semester Prerequisite: None
Database design entails identification of relevant data sources, applying cartographic standards, and managing a tabular database scheme that will relate to cartographic layers in the GIS. Tools and techniques for data identification and composition are presented in the context of an example design for a municipal GIS, with emphasis on geodetic reference frame, base map, and cadastral overlay. (F, Sp)

GRET 220 Hydrological Systems 3

Semester Prerequisite: None
This course will cover the various aspects of water resources as they pertain to the geographic information system environments. Water systems, natural and man-made, will be emphasized. The evaluation, analysis, and environmental impacts of various water features as they pertain to environmental research and development will be highlighted. (F)

GRET 221 Landforms and Soil Systems in GIS 3

Semester Prerequisite: None
This course will discuss the important classifications of landform and soil systems. The relevance of these systems in the GIS environment will be highlighted. The importance of these systems in the information processing, land use, land planning, site design, and landscape form arenas will be emphasized. (Sp)

GRET 223 Environmental Resource Management 3

Semester Prerequisite: None
This course will cover the broad spectrum of environmental resources such as forestry, agriculture, mining, soils, vegetation, and their impact and management in current computer information systems. Resources in the land planning disciplines will be highlighted as to their function in the present environmental processes, both public and private. (Sp)

GRET 240 Basic Map Orientation and Construction 3

Semester Prerequisite: None
The basic principles, functions, and origins of maps will be discussed. The student will construct various types of maps. Computer-offered map planning and design along with how to read, print, and design maps will also be covered. (F)

GRET 241 Air Photo Interpretation 3

Semester Prerequisite: GRET 240/Departmental Approval
This course will include the development of skills necessary for basic interpretation of aerial photography data, how it is collected, and the ability to analyze maps created from the data collected in this method. The current technology and GIS relationship will be highlighted. (Sp)

GRET 243 ORACLE for Geographic Information Systems 3

Semester Prerequisite: None
This course will cover the components of ORACLE needed to build a database for GIS applications. This is a hands-on computer course. Sample databases will be demonstrated. Students will construct several databases that apply to the GIS coverage layers. (F, Sp)

GRET 248 GIS Analysis Systems 3

Semester Prerequisite: None
MicroStation Analyst (MGA) is an advanced software package dealing with GIS MGA, which generates topologically-structured files from design files for use in performing spatial analysis. It will also cover system query sets and answers to questions posed to topological files. (F, Sp)

GRET 253 Basics of ARC/VIEW	1
Semester Prerequisite: None	
This course is an overview and introduction to the ARC/View software. Also covered are the basic components of a viewing program and its applications in GIS. Various demonstrations will be presented and project examples highlighted. Hands-on computer exercises will be completed. (F, Sp)	
GRET 255 Beginning ARC/INFO	3
Semester Prerequisite: LAND 282/Departmental Approval	
This course will be an introduction to the use of the ARC/INFO software. ARC/INFO is a leading product used in the design of Geographic Information Systems. Basic product use and modeling will be demonstrated. There will be hands-on experience in the lab. (F, Sp, Su)	
GRET 256 Advanced ARC/INFO	3
Semester Prerequisite: GRET 255	
This course advances the techniques acquired in the beginning ARC/INFO class. The student will learn additional modules and advanced application of modules such as GRID and TIN. The student will also develop projects using data sets. Students will develop a complete GIS project utilizing the full ARC/INFO module. (F, Sp)	
GRET 295 GRET Independent Study	3
Semester Prerequisite: Instructor Approval	
The independent study is designed for students who wish to pursue a specialty area in GIS beyond that which is offered in our curriculum. Inquiry through research and design of landscapes is required. (F, Sp, Su)	
GRET 296 GRET Project Lab	4
Semester Prerequisite: instructor Approval	
This project lab is designed for students who wish to pursue a specialty area in GIS beyond that which is offered in our curriculum. Inquiry through research and design of landscapes is required. (F, Sp, Su)	
GRET 297 GRET Project Lab	2
Semester Prerequisite: Instructor Approval	
This project lab is designed for students who wish to pursue a specialty area in GIS beyond that which is offered in our curriculum. Inquiry through research and design is required. (F, Sp, Su)	

GRMN - GERMAN

GRMN 115 Conversational German I	3
Semester Prerequisite: None	
The first course in a two-semester sequence for persons with little or no knowledge of German. Emphasizes listening and speaking skills. Students learn correct pronunciation, essential language structures, and a practical vocabulary applied in conversational exchanges. Aspects of German culture are introduced through multimedia presentations. (F, Sp, Su)	
GRMN 116 Conversational German II	3
Semester Prerequisite: GRMN 115/Equivalent	
The second course in a two-semester sequence for persons with little or no knowledge of German. Emphasizes listening and speaking skills. Students learn correct pronunciation, essential language structures, and a practical vocabulary applied in conversational exchanges. Aspects of German culture are introduced through multimedia presentations. (F, Sp, Su)	
GRMN 121 Elementary German I	4
Semester Prerequisite: None	
First course of a two-semester sequence in elementary German. This course offers systematic practice in the four basic language skills: listening comprehension, speaking, reading, and writing. Communicative approach is combined with a solid grammar foundation, as well as familiarization with contemporary life and culture in Germany, Austria, and Switzerland. (F)	
GRMN 122 Elementary German II	4
Semester Prerequisite: GRMN 101/GRMN 121/Equivalent/Approval	
Second course of a two-semester sequence in elementary German. This course offers more advanced practice in the four basic language skills: listening comprehension, speaking, reading, and writing. Communicative approach is combined with more complex structure as well as familiarization with contemporary life and culture in Germany, Austria, and Switzerland. (Sp)	

GRMN 201 Intermediate German I	4
Semester Prerequisite: GRMN 102/GRMN 122/Equivalent/Approval	
First course of a two-semester sequence in intermediate German. Students receive intensive practice in the basic skills: speaking, listening comprehension, reading, and writing. Course includes a thorough review of German grammar, 20th century short story readings, composition writing, and German culture. Class is taught mainly in German. (F)	
GRMN 202 Intermediate German II	4
Semester Prerequisite: GRMN 201/Equivalent/Approval	
Second course of a two-semester sequence in intermediate German. Students receive advanced practice in the basic skills: speaking, listening comprehension, reading, and writing. Course includes a thorough review of advanced structures, short story readings, a short novel, composition writing, and German culture. Class is taught mainly in German. (Sp)	

HIST - HISTORY

HIST 150 African-American History	4
Semester Prerequisite: None	
Traces the developments which led to the African slave trade, the slave systems in North and South America, the cultural heritage of the African American in the Americas, and the problems of race in North American culture. (Sp)	
HIST 210 Studies in American History	4
Semester Prerequisite: None	
Covers problems of research, writing, philosophy, and interpretation of history, involving a detailed examination of a particular area of American history. (Sp)	
HIST 211 U.S. History to 1877	4
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
A history of the United States from colonial beginnings through reconstruction. (F, Sp, Su)	
HIST 212 U.S. History: 1877 to the Present	4
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
A history of the United States from the end of reconstruction to the present. (F, Sp, Su)	
HIST 214 African History	4
Semester Prerequisite: WRIT 121 (ENGLWRIT 122 Recommended)	
Surveys African history with emphasis on precolonial and colonial Africa, nationalism and the struggle for independence, colonialism and economic development/underdevelopment, and cultures and traditions as factors in development. Covers some of these topics in three other countries of the Third World (e.g., Brazil, Pakistan, and Indonesia). (F)	
HIST 220 Michigan History	4
Semester Prerequisite: WRIT 121 (ENGLWRIT 122 Recommended)	
A survey of the political, economic, and social development of Michigan from pre-colonial times to the present. (F)	
HIST 230 British History	4
Semester Prerequisite: WRIT 121 (ENGLWRIT 122 Recommended)	
A survey of the political, economic, legal, constitutional, and social forces which shaped British history and society from earliest times to the present with special emphasis on the interactions of British and American institutions, values, and ideas. (Sp)	
HIST 240 Latin American History	4
Semester Prerequisite: 2.0 Minimum in WRIT 121	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
A survey of the history and culture of Latin America from pre-Columbian civilizations to the present. This course will examine political, social, and cultural developments in Latin America and assess the role of colonialism, nationalism, and world economic trends in shaping Latin American countries. (Sp)	

HIST 250 History of Modern Asia	4	Semester Prerequisite: 2.0 Minimum in WRIT 121 Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>) This course will survey political, social, and economic developments as well as principal cultural trends in the major civilizations of Asia (excluding Western Asia) from approximately the 17th Century to the present. The course will also include an examination of the interactions among Asian societies and between Asia and the West. (F)
HIST 260 Conflict and Revolution in Southern Africa	4	Semester Prerequisite: WRIT 121 (ENGL/WRIT 122 Recommended) Study of historical-cultural origins and contexts of conflicts in Zimbabwe and Southern Africa with emphasis on socioeconomic causes of conflicts, cultural differences and conflicts, problems of development as sources of conflicts. Inter-African conflicts, settler-African conflicts, international dimensions of conflicts, and solutions to conflicts. (Sp, Su)
HIST 263 Seminar: Russia and the CIS	3	Semester Prerequisite: None A survey of Russia and its people from the Russian Revolution of 1917 to the present. Also examined will be the multinational character of the former USSR and the forces that shaped Soviet history, society, and politics, including U.S.-Soviet relations. (Su)
HIST 265 Seminar: The American Legal Tradition	3	Semester Prerequisite: None A historical survey of the origins, growth, and development of the American legal-constitutional process. The legal system is studied in the context of American culture by examining the leading cases, philosophies, scholars and institutions, and approaches to the study of law. (Su)
HIST 295 Independent Study	1	Semester Prerequisite: Departmental Approval Special research projects and/or individual readings in history. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)
HIST 296 Independent Study	2	Semester Prerequisite: Departmental Approval Special research projects and/or individual readings in history. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)
HMFS - HOTEL/MOTEL AND FOOD SERVICE OPERATIONS		
HMFS 101 Introduction to Hospitality and Food Service Operations	3	Semester Prerequisite: None Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>) Introduction to the hotel-motel-food service industry explaining the individual roles of the various departments in food service and lodging operations. (F, Sp, Su)
HMFS 105 Hotel and Restaurant Human Resource Management	3	Semester Prerequisite: None This course is a survey of principles and practices for managing human resources in the hospitality industry. Includes such topics as staffing, discipline, hiring, termination, and their corresponding rules and regulations. (F, Sp)
HMFS 110 Food Service Sanitation	2	Semester Prerequisite: None Sanitation is essential to the success of a food service business. This course covers food spoilage, pathogenic and nonpathogenic bacteria, Hazardous and Critical Control Points Laws, cross-contamination, safe food handling, time-temperature controls, and maintenance of equipment and facilities. Upon successful completion the student will receive National Institute of Food Industries Certification and State of Michigan Certification. (F, Sp, Su)
HMFS 131 Food and Beverage Management	4	Semester Prerequisite: None The objective of this course is to enable the student to achieve a comprehensive educational foundation in food and beverage management. This course will provide the student with academic theory through class discussions and lectures emphasizing food preparation, equipment operations, and managerial procedures. Laboratory preparation required. (F, Sp, Su)
HMFS 132 Food Production	4	Semester Prerequisite: HMFS 131 This course is designed to strengthen students' knowledge in food service management. Emphasis will be placed on the needs of potential managerial personnel and established hospitality industry employees in formulating the structure for sound business management in the hospitality field. This course will also provide practical laboratory experience emphasizing food preparation. (F, Sp)
HMFS 134 Nutrition	2	Semester Prerequisite: None Discusses basic nutrition, RDAs, energy balance, weight control, variety of diets and dietary guidelines, food processing, natural and organic foods, and fast and fast foods. (F, Sp)
HMFS 135 Quantity Food Purchasing	3	Semester Prerequisite: None This course is the study of standards in quality and quantity of food, beverages, china, glass, silver, linen, furnishings, and supplies. It will also cover writing specifications and establishing procurement policies. This course describes how to develop and implement an effective purchasing program. It focuses on issues pertaining to supplier relations and selection, negotiation, and evaluation. It includes in-depth material regarding major categories of purchases. (F)
HMFS 137 Food Service Catering	4	Semester Prerequisite: None This course is designed to acquaint the student with social catering. The student will learn how to begin a catering business. He or she will learn how to purchase products, prepare menus, costing and pricing, equipment requirements, equipment maintenance, on/off premise functions, sanitation, and contractual agreements. The student will also be required to do a field project. (Su)
HMFS 190 Internship and Seminar	3	Semester Prerequisite: Courses in HMFS Program An internship available to hotel-restaurant students who have completed or are approaching 400 hours of work experience in the hospitality industry. A semester project is required. (F, Sp, Su)
HMFS 203 Hotel-Restaurant Law	3	Semester Prerequisite: None To create an awareness of the responsibilities and rights which the law imposes upon and grants to the innkeeper; recognition of potential legal problems so as to minimize legal action against the property. (F, Sp)
HMFS 204 Human Relations/Supervisory Development	3	Semester Prerequisite: None A human relations course covering the role of management in the hospitality industry; specific emphasis on the supervisor's role as a leader, recruiter, trainer, and personnel manager. (F, Sp)
HMFS 205 Hospitality Management	3	Semester Prerequisite: None A survey of management principles and practices in the hospitality industry. Includes topics such as theory of management, the management process, and management problems in key hospitality areas. (F, Sp)
HMFS 206 Front Office Management	3	Semester Prerequisite: None Organization, control, and operation of the front office in the reservation and sale of rooms, and in service. Keeping of accurate accounts and presenting bills and receipts of payment. (F, Sp)
HMFS 207 Financial Control and Management I	4	Semester Prerequisite: None A systematic, integrated study of hotel-motel and food institutional activities. Principles, problems, and practices related to financial management will be presented. Financial statements, front office procedures, and the interpretation of accounts and statements unique to the hospitality industry will be included. (F, Sp)
HMFS 208 Financial Control and Management II	2	Semester Prerequisite: HMFS 207 A course designed to integrate the varied elements of the HMFS program into a cohesive package that demonstrates how a business is established and operated. A term project involving the hypothetical establishment of a business of the student's choice will be the primary learning tool. (F, Sp)

HMFS 214 Supervisory Housekeeping 2
Semester Prerequisite: None
 Provides an overview of the fundamentals of housekeeping management. This course describes the management functions, tools, and practices required in today's lodging and institutional housekeeping departments. (Sp)

HMFS 215 Hospitality Sales/Marketing 3
Semester Prerequisite: None
 This course is designed to provide the student with a working knowledge and practical experience which will enable them to develop and implement strategic marketing plans for hospitality properties. (F, Sp)

HMFS 229 Convention and Meeting Management 3
Semester Prerequisite: None
 Convention management is an integral part of today's hospitality industry. This course provides insight into convention marketing, salesmanship, detail, execution, communication, and management. A comprehensive study of methods and techniques for better service. (F)

HMFS 232 Food and Labor Cost Control 3
Semester Prerequisite: None
 This course covers the essential principles and procedures to control food, beverage, and labor cost. Sales, income, and resources within the food service industry are also analyzed. (Sp, Su)

HMFS 251 Wine Appreciation 1
Semester Prerequisite: None
 The student will be familiarized with the five basic types of wine; a short history of wine and how wines are made; a mastery of the presentation and serving of wines; and judging for appearance, bouquet, and taste. The class will learn how to choose and store wines. (F)

HMFS 252 Wines of America 1
Semester Prerequisite: None
 A survey of wine growing areas of the United States with emphasis on the varietal selections of California, New York, Michigan, and Ohio. A study of wine making, comparative tasting, and field trips are used to acquaint the student with the wine industry in America. (Sp)

HMFS 254 Mixology 4
Semester Prerequisite: None
 This course provides the student with a mastery of over 150 mixed beverages. It teaches the combination of the arts of efficient mixology and hospitality with control that distinguishes the "mixologist" from the ordinary bartender. Mixology emphasizes the need of incorporating accuracy in the preparation of beverages. (F, Sp)

HMFS 260 Gourmet Basic Cookery 2
Semester Prerequisite: None
 This course is designed to teach the beginner about the basics in menu planning, shopping, preparation, service, and cleanup involved in a meal. The student will become familiar with shopping lists, costs, recipes, measuring, and weighing; nutritional information will be given as necessary. The student will be preparing foods for consumption. (F)

HMFS 261 Gourmet Italian Cookery 2
Semester Prerequisite: None
 This course is designed to explore regional and national foods from Italy. The instructor will develop specialty menus for each region. Students will learn to plan Italian meals, purchase, and prepare foods from the meals served. The student will be preparing food for consumption. This course covers basic cookery techniques within regional areas of Italy. Local talent and community Italian experts contribute to the culinary bill of fare. (F)

HMFS 263 Gourmet American Cookery 2
Semester Prerequisite: None
 This course is designed for the working person and explores four great cuisines: Regional American, French, Italian, and German. The course will include planning, preparing, costing, serving, and eating gourmet meals. Special attention will be provided for budgeted low-cost preparation of restaurant gourmet entrees. (F)

HMFS 264 Gourmet Barbecue Cookery 2
Semester Prerequisite: None
 This summer-oriented course explores innovative techniques of preparing food outside. Meat, vegetables, hors d'oeuvres, salads, and desserts are prepared by the student throughout the semester. (Su)

HMFS 266 Gourmet Chinese Cookery 2
Semester Prerequisite: None
 Chinese cooking is noted for its diversity of taste, texture, and aroma. Chinese dishes to be prepared by the student include sweet and sour pork, chicken almond ding, and egg rolls, which will accentuate these characteristics through the use of sauteing and "red" cooking techniques. (F, Sp)

HMFS 268 Middle Eastern Gourmet Cookery 2
Semester Prerequisite: None
 This course is designed for the person who would enjoy traveling through Mideastern countries via the foods prepared in the lab experience. The course covers various ethnic, cultural, and speciality food items from Middle Eastern countries. Students will help prepare a meal each class session. Sampling is part of the course. (F, Sp)

HMFS 273 Gourmet Cajun Cookery 2
Semester Prerequisite: None
 Identification of various regional influences and cuisines which form the Cajun style, including Creole Cajun and Louisiana cookery, identification of indigenous ingredients, seasonings, and basic cooking techniques used in Cajun cookery. Discussions in class will cover historical as well as contemporary perspectives on these original American cuisines. (Sp)

HMFS 274 Lean Gourmet Cookery 2
Semester Prerequisite: None
 Basic cookery using less fat and salt, fresh herbs, spices, and chicken broth instead of cream. The focus of this course is on the food we eat. The student will learn the composition of food and why some foods make better choices for our diets than other foods. (F, Sp, Su)

HMFS 275 Bakery Products 2
Semester Prerequisite: None
 A course designed to expose the student to various bakery products including pastries and bread. Demonstrations as well as student preparation in the diverse areas of the fine art of baking highlight this course. (F, Su)

HMFS 276 Ice Carving Seminar .5
Semester Prerequisite: None
 This course is designed to expose the student to the tools, techniques, and skills required to carve a block of ice. The student will be carving from a block of ice before the conclusion of the course. This is a hands-on course. (Sp)

HMFS 280 Food Decorating Garnishes 3
Semester Prerequisite: None
 A basic course in the decoration and presentation of cold foods. This course will introduce the student to cold food specialization, vegetable carving, hors d'oeuvres, canapes, the use of spices, sauces, dressings, and complete buffet setup. Garde manger is the showcase for the artistic presentation of foods. Student preparation. (Sp)

HMFS 281 Soups and Sauces 3
Semester Prerequisite: None
 A basic course in decorating and presenting foods using classical and modern techniques. Students will prepare cold food specializations, vegetable carvings, hors d'oeuvres, canapes, spices, sauces, and dressings. Students will receive edible art education along with knowledge of proper garnishes for appetizers, soups, salads, entrees, and desserts. (Sp)

HONR HONORS

HONR 151 Honors Colloquy I 1
Semester Prerequisite: Honors Program Approval
 An interdisciplinary forum for students and faculty of the Honors Program. Consists of presentations by recognized experts in such fields as science, humanities, mathematics and computer science, communication, education, and the social sciences, followed by discussion and interchange of ideas. Requires follow-up written reports. (F)

HONR 152 Honors Colloquy II 1
Semester Prerequisite: Honors Program Approval
 An interdisciplinary forum for students and faculty of the Honors Program. Consists of presentations by recognized experts in such fields as science, humanities, mathematics and computer science, communication, education, and the social sciences, followed by discussion and interchange of ideas. Requires research writing using methodologies of the Liberal Studies disciplines. (F)

HONR 155 Service Learning Practicum 1**Semester Prerequisite:** Honors Program Approval

A practicum course requiring a minimum of 32 hours of volunteer service with a community agency of the student's choice and attendance at three classroom discussion sessions. Students will develop practical skills and evaluate their service in terms of its relevance to the community and their educational, career, and life goals. (Sp)

HORT - HORTICULTURE**HORT 100 Field Experiences in Horticulture 2****Semester Prerequisite:** None

This course will introduce the student to various aspects of the horticulture profession through discussion, videos, slides, field trips, and guest speakers. Topics will include greenhouse operators, bedding plant growers, nursery growers, sod producers, floral shop operators, retail garden centers, and garden suppliers wholesalers. (F, Sp)

HORT 102 Introduction to Ornamental Horticulture 2**Semester Prerequisite:** None

An introductory course involving botanical and horticultural principles and practices. Basic plant structures and their functions as well as soil and plant nutrition are discussed. Job opportunities and the role of horticulture will also be covered. Field trips and laboratory experiments will highlight the course. (F, Sp)

HORT 105 Pests and Problems of Ornamental Plants 2**Semester Prerequisite:** None

This course is for the professional or homeowner interested in a knowledge of basic environmental and specific pest problems of trees and shrubs. Problems related to soil, light, water, planting, and fertilizer as well as insects, diseases, and vertebrates will be discussed. Integrated pest management and total plant health concepts will form the basis for problem management. (F, Sp)

HORT 107 Beginning Floral Design 2**Semester Prerequisite:** None

This is an introductory course for students interested in learning the principles of floral design. Tools and techniques as well as basic arrangement shapes are learned through hands-on experiences. Students will use fresh, silk, and dried flowers to create traditional and contemporary designs. (F, Sp, Su)

HORT 109 Contemporary Floral Design 2**Semester Prerequisite:** HORT 107/Departmental Approval

Contemporary floral designs are taught as well as theme arrangements, tools, and techniques. The basic principles of design are reviewed with the student transferring techniques to stylized arrangements. This is a hands-on course with participants working with floral materials each week. (F, Sp)

HORT 110 Wedding Floral Design 2**Semester Prerequisite:** HORT 107

This course is designed for the advanced floral designer who has demonstrated the ability to apply the principles of design. Wedding designs covered include colonial, cascade, crescent, and arm bouquets. This is a hands-on class with students working with floral materials each week. (F, Sp, Su)

HORT 143 Cut Flower, Foliage, and Potted Plant Identification 4**Semester Prerequisite:** None

The functional aspects of plant material commonly found in the floriculture industry will be covered. The identification of cut flowers, cut foliage, and potted and foliage plants will be required. A course that would benefit the floral designer, greenhouse grower, or landscape designer. (F, Sp, Su)

HORT 230 Plant Propagation and Nursery Operations 4**Semester Prerequisite:** HORT 102/Departmental Approval

This course will cover the basics of plant propagation and nursery operations. It will focus on the process of setup, planting, and follow-up maintenance. The tools and techniques of seed propagation, as well as cuttings, grafting, budding, and layering will be emphasized. Knowledge of plant selection, soils, pruning, harvesting, and marketing nursery products will be included. (F)

HORT 235 Greenhouse Structures and Environment 3**Semester Prerequisite:** None

This course is an introduction to the construction and operation of a commercial greenhouse. Types of greenhouses, including construction materials, are discussed. Environmental control such as heating, cooling, and irrigation practices and procedures are presented. In addition, methods of planting, fertilizing, and insect and disease control are also included to provide a basis of knowledge for greenhouse crop production. (F)

HORT 236 Greenhouse Ornamentals 3**Semester Prerequisite:** HORT 235

This is an advanced course for the greenhouse grower. The course will cover the production techniques for cut flowers, holiday crops, and other greenhouse ornamentals. Topics of discussion will include scheduling and timing crops, spacing, production costs, and cultural practices. (Sp)

HORT 237 Bedding Plant Production 3**Semester Prerequisite:** HORT 102

An advanced course for the greenhouse grower to produce healthy bedding plants at a profit. Topics will include scheduling, spacing, and production costs as well as cultural practices. New varieties will also be presented. (F)

HORT 238 Garden Center and Nursery Sales Management 3**Semester Prerequisite:** None

This course provides business principles for retail sales managers. A thorough discussion of management topics is presented. Emphasis is placed on planning and organizing a garden center, nursery, greenhouse, or florist operation. Effective pricing and merchandising strategies as well as advertising and display techniques are discussed. (Sp)

HORT 295 Landscape Independent Study 3**Semester Prerequisite:** Instructor Approval

This independent study is designed for students who wish to pursue a specialty area in horticulture beyond that which is offered in our curriculum. Inquiry through research is required. (F, Sp, Su)

HORT 296 Horticulture Project Lab 2**Semester Prerequisite:** Instructor Approval

This independent study is designed for students who wish to pursue a specialty area in horticulture beyond that which is offered in our curriculum. Inquiry through research is required. (F, Sp, Su)

HORT 297 Horticulture Project Lab 4**Semester Prerequisite:** Instructor Approval

This independent study is designed for students who wish to pursue a specialty area in horticulture beyond that which is offered in our curriculum. Inquiry through research is required. (F, Sp, Su)

HOMS - HUMANITIES**HOMS 120 Western Art and Music History 4****Semester Prerequisite:** None**Basic Skills Prerequisite:** Reading Level (See *Course Schedule*)

An introduction to the masterpieces of art and music from preliterary times to the 20th century. Audio and visual material will be used to illustrate artistic and musical contributions of Europe and America to the development of Western culture. (F, Sp, Su)

HOMS 160 Mythology 4**Semester Prerequisite:** None

Classical Greek and Roman myths constitute the first half of the course with the remainder chosen from at least two of the following areas: African, American, Far Eastern, Medieval European, Near Eastern, or Norse. Reading and analysis of primary sources in translation and their cross-cultural comparison are emphasized. (F, Sp, Su)

HOMS 211 History of Art I 4**Semester Prerequisite:** None**Basic Skills Prerequisite:** Reading Level; Writing Level (See *Course Schedule*)

Surveys the history of painting, sculpture, and architecture of world civilizations in Africa, the Americas, Asia and Europe from preliterary times to the 15th century. Emphasizes analysis and comparison of artistic concepts, styles and techniques; and investigates how the arts reflect ideas, issues, and values of society and the individual. (F, Sp, Su)

HOMS 212 History of Art II 4**Semester Prerequisite:** None**Basic Skills Prerequisite:** Reading Level; Writing Level (See *Course Schedule*)

Surveys the history of painting, sculpture, and architecture of world civilizations in Africa, the Americas, Asia, and Europe from the 15th to the 20th century. Emphasizes analysis and comparison of artistic concepts, styles and techniques; and investigates how the arts reflect ideas, issues, and values of society and the individual. (F, Sp)

HUMS 213 World Civilizations I	4
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
Surveys the literature and art, science and technology, and the social and political systems of major civilizations in Africa, Asia, Europe, and the Americas to approximately the 17th century. Emphasizes the contributions of early civilizations to the creativity, richness, and diversity of the human condition. (F, Sp, Su)	
HUMS 214 World Civilizations II	4
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
Surveys the literature and art, science and technology, and the social and political systems of major civilizations in Africa, Asia, Europe, and the Americas from approximately the 17th century to the present. Emphasizes the contributions of modern civilizations to the creativity, richness, and diversity of the human condition. (F, Sp, Su)	
HUMS 215 American Civilization	4
Semester Prerequisite: WRIT 121 (ENGL/WRIT 122 Recommended)	
This course will explore the cultural foundations of the United States from the period of exploration to the present. This is an interdisciplinary course which examines central themes of American culture and their representation in history, literature, art, philosophy, and religion. (F, Sp, Su)	
HUMS 220 Japanese Civilization	4
Semester Prerequisite: None	
This course traces the development of Japan's cultural tradition with strong emphasis on history, religion, art, and literature. Further, this course demonstrates that modern Japan can best be understood in light of its distinctive cultural traditions. (F)	
HUMS 225 Great Lakes Native Americans: History and Tradition	4
Semester Prerequisite: None	
Surveys the Great Lakes Native American culture and people, the differences in oral tradition and written histories of the Great Lakes Anishnaabek (First People), the Talking Circle for community problem solving, and an introduction to the language. (F, Sp, Su)	
HUMS 260 Seminar: Ancient Egypt	4
Semester Prerequisite: 2.0 Minimum in WRIT 121	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
This course explores the achievements of one of the earliest and most successful of world civilizations. Developments in Egyptian art, architecture, and literature will be emphasized and the roles of religion, kingship, and geography will be studied. Great discoveries and discoverers of Egyptian archaeology will also be featured. (F)	
HUMS 265 Seminar: Ethical Issues in Medicine	3
Semester Prerequisite: None	
This course will present some of the ethical dilemmas which arise in relation to health care and develop a framework for ethical decision-making with which to deal with these and other related problems. It is designed for both health care professionals and others who are interested in these issues. (F, Su)	
HUMS 295 Independent Study	1
Semester Prerequisite: Departmental Approval	
Special research projects and/or individual readings in humanities. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)	
HUMS 296 Independent Study	2
Semester Prerequisite: Departmental Approval	
Special research projects and/or individual readings in humanities. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)	

HUSE - HUMAN SERVICES

HUSE 100 Introduction to Human Services: Resources and Interventions	3
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
This course presents an overview of the basic programs and social institutions which provide human services. It provides the student with an orientation to and overview of methods and problem-solving skills used by human service workers in a variety of settings. (F, Sp, Su)	

HUSE 101 Personal Dimensions of Human Services	2
Semester Prerequisite: None	
This course explores the nature and development of personal dimensions of human services, including knowledge, values, and skills needed by people who are preparing for careers in the helping professions. The potential impact and influence of these skills on the helping process are also explored. (F, Sp)	
HUSE 110 Introduction to Child Abuse and Neglect	3
Semester Prerequisite: None	
This course reviews the history and scope of child abuse and neglect, including socioeconomic and psychological factors. This course explores the world of abnormal rearing, roles of community agencies and disciplines, approaches to treatment and prevention, coordination of cases and services, and legal aspects and the law. (F, Sp, Su)	
HUSE 111 Introduction to Mental Health: Prevention and Interventions	3
Semester Prerequisite: None	
This course presents an overview of the field of mental health with an emphasis on an historical review; psycho-social stages of development; definition of mental illness, causes and treatment; prevention; current service delivery systems; and the role of the mental health associate. (F)	
HUSE 112 Introduction to Substance Abuse	3
Semester Prerequisite: None	
This course reviews substance abuse and use from a historical, sociological, and psychological perspective. It includes drug classifications, street terminology, causes of abuse, and also examines present and past legislation regarding substance abuse and use. (F, Sp, Su)	
HUSE 120 Introduction to Domestic Violence	2
Semester Prerequisite: None	
This course provides an overview of the historical, socioeconomic, cultural, and psychological factors associated with family violence emphasizing battered women. Child abuse, woman abuse, elder abuse, and sibling violence are discussed as well as the resources available, intervention techniques, and the role of law enforcement agencies, legislative bodies, and social service agencies. (F)	
HUSE 240 Substance Abuse: Special Populations and Adolescent Addiction	3
Semester Prerequisite: HUSE 112	
This course surveys substance abuse in various populations including adolescents, older adults, women, individuals with physical or psychological disabilities or challenges, as well as various ethnic groups including African Americans, Native Americans, and Hispanics. Commonalities and areas of uniqueness for each is examined. Reasons for abuse, dependency dynamics, and treatment considerations are explored. (F)	
HUSE 241 Substance Abuse Prevention and Intervention	3
Semester Prerequisite: HUSE 112	
This course provides a developmental framework for a better understanding of the factors contributing to substance abuse prevention. It facilitates students' abilities to critique existing programs, identify current community needs, and address the growing demand for consultation and assistance in the field of substance abuse prevention. (Sp)	
HUSE 242 The Chemically Dependent Family	3
Semester Prerequisite: HUSE 112 Recommended	
This course provides a conceptual framework within which to understand, assess, and effectively intervene/interact in a counseling fashion with the chemically dependent family. Specific subgroups and issues within or resulting from the chemically dependent family are explored. (F)	
HUSE 244 Substance Abuse Agencies, Treatment, Addiction Patterns	3
Semester Prerequisite: HUSE 112	
This course covers the addiction cycle of alcoholics and drug abusers, personality and interactional patterns of addiction, and casework and group work techniques. It provides an analysis of current models of treatment within programs, including review of inpatient, outpatient, halfway houses, and occupational programs. (F)	
HUSE 282 Human Services Practicum I: Organizational Systems	4
Semester Prerequisite: SOWK 203, Departmental Approval	
This course combines classroom training with beginning field experience in a community-based human services agency. Emphasis is on knowledge of the community power structure, funding bases, and the internal working of human services organizations. Opportunities in the labor force, certification requirements, and approaches to networking are explored. (F)	

HUSE 284 Human Services Practicum II: Service Delivery Skills 4**Semester Prerequisite:** HUSE 282, Departmental Approval

This course provides classroom training on principles of human services delivery with advanced practical experience in a community-based human services agency. Emphasis is on identifying systems and resources to link the systems with the people and how to mobilize the systems and the people. (Sp)

HUSE 286 Substance Abuse Practicum I: Organizational Systems 4**Semester Prerequisite:** SOWK 203, Departmental Approval

This course combines classroom training with field placement at a community agency specializing in substance abuse. Content focuses on the community power structure, funding bases, and the internal workings of substance abuse agencies. It explores opportunities in the labor force, certification requirements, and approaches to networking. (F)

HUSE 288 Substance Abuse Practicum II: Service Delivery Skills 4**Semester Prerequisite:** HUSE 286, Departmental Approval

This course provides advanced field placement experience at a community agency specializing in substance abuse, combined with classroom instruction in concepts related to service delivery. Students identify systems and resources to link the systems with the people receiving services and how to mobilize the systems and the people. (Sp)

HUSE 297 Human Services Area Independent Study: 1 Credit 1**Semester Prerequisite:** Learning Contract, Departmental Approval

This course includes special research, directed study, or service-learning projects in human services areas, such as child development, gerontology, social work, substance abuse, or related areas. It requires at least 32 hours of laboratory work or 64 hours of fieldwork. A learning contract is required. (F, Sp, Su)

HUSE 298 Human Services Area Independent Study: 2 Credit 2**Semester Prerequisite:** Departmental Approval

This course includes special research, directed study, or service-learning projects in human service areas, such as child development, gerontology, social work, substance abuse, or related areas. It requires at least 64 hours of laboratory work or 128 hours of fieldwork. A learning contract is required. (F, Sp, Su)

HUSE 299 Human Services Area Independent Study: 3 Credit 3**Semester Prerequisite:** Departmental Approval

This course includes special research, directed study, or service-learning projects in human service areas, such as child development, gerontology, social work, substance abuse, or related areas. It requires at least 96 hours of laboratory work or 192 hours of fieldwork. A learning contract is required. (F, Sp, Su)

HVAC - HEATING, VENTILATING, AND AIR CONDITIONING**HVAC 100 Fundamentals of Heating, Ventilating, and Air Conditioning 3****Semester Prerequisite:** None**Basic Skills Prerequisite:** Reading Level, Writing Level, Math Level
(See *Course Schedule*)

This course is an introduction to the mechanical refrigeration cycle and its individual components. Compressors, evaporators, condensers, and metering devices as well as their functions are covered in detail. Also covered are exercises in psychrometrics and an introduction to system design. (F, Sp, Su)

HVAC 105 Sheet Metal Fabrication and Installation 2**Semester Prerequisite:** None

Designed to aid the installer in the skills and techniques for installation of residential heating and cooling systems. Covered will be sheet metal layout, identification of sheet metal fittings, insulated duct, and general furnace installation procedures. (F, Sp)

HVAC 110 Applied Electricity I 2**Semester Prerequisite:** None

An introduction to basic electricity (AC and DC) using both theory and applied study methods. Topics will include electrical components, symbols, basic schematic diagrams, Ohm's Law applied to series and parallel circuits, and motor types and usages. In conjunction with lab exercises, meters and their proper usage will be covered. (F, Sp, Su)

HVAC 111 Applied Electricity II 2**Semester Prerequisite:** HVAC 130/Concurrently

The study of motors with emphasis on theory, troubleshooting, and servicing. Motor controls, control circuits, protection devices, and discussion of energy conservation as related to motors will be covered in detail. (F, Sp)

HVAC 120 Heating I 4**Semester Prerequisite:** HVAC 100, HVAC 110

Basic construction and function of components in residential gas and oil fired furnaces with detail on theory, application, troubleshooting, and servicing standard heating systems. Installation procedures and codes are also covered. Additional equipment studied will include humidifiers, air cleaners, and vent dampers. (F, Sp)

HVAC 130 Air Conditioning I 4**Semester Prerequisite:** HVAC 100, HVAC 110

Fundamentals and principles of residential air conditioning systems. Students will learn soldering and brazing of tubing, wiring, component testing, evacuation procedures, charging and maintenance of both split systems, as well as small packaged units. (F, Sp)

HVAC 201 Mechanical Code 4**Semester Prerequisite:** HVAC 120, HVAC 130/Approval

A fundamental course designed to acquaint the student with the methods and techniques used in field inspection of mechanical systems. Both the Uniform Mechanical Code and the Building Officials and Code Administrators (BOCA) Code will be discussed. (F, Sp)

HVAC 211 Schematics 3**Semester Prerequisite:** HVAC 120, HVAC 130

An in-depth study into the cause and effect aspects of schematic diagrams. The student will learn to simplify complicated schematics to obtain the sequence of operation necessary for the proper troubleshooting of heating, ventilation, and air conditioning equipment. (F, Sp)

HVAC 220 Heating II 4**Semester Prerequisite:** HVAC 211

Fundamentals and principles of electronic ignition systems including troubleshooting and servicing. The major emphasis is placed on high efficiency and condensing furnaces to include sequence of operation, troubleshooting, servicing, and proper installation. (F, Sp)

HVAC 221 Introduction to Hydronics 3**Semester Prerequisite:** HVAC 120

Covers hot water and steam residential heating systems, piping and all accessories, safety controls, expansion tanks, zone valves, installation procedures, and codes. Students perform testing, troubleshooting, adjusting, and servicing of components to insure maximum efficiency. (F, Sp)

HVAC 230 Air Conditioning II 4**Semester Prerequisite:** HVAC 130

Advanced air conditioning, light commercial equipment, water cooled units, cooling towers, and wiring both control and line voltage circuitry. The latest in test equipment and meters will aid the student in becoming proficient in servicing and maintenance of commercial equipment. (F, Sp)

HVAC 231 Heat Pump 4**Semester Prerequisite:** HVAC 230

This course deals entirely with heat pumps (air-to-air, water-to-air) and their installation, servicing, proper application of heat pump components, and extensive wiring schematics. (F, Sp)

HVAC 240 Refrigeration I 4**Semester Prerequisite:** HVAC 130

The student will study domestic and light commercial refrigeration systems with an emphasis on controls operation and adjustment. (F, Sp)

HVAC 241 Refrigeration II 4**Semester Prerequisite:** HVAC 240

The student will learn servicing of commercial units, heat load calculations for component selections, special valve applications, and piping procedures. (F, Sp)

HVAC 250 Pneumatic Control 3**Semester Prerequisite:** HVAC 230/Approval

Basic concepts of pneumatic controls for HVAC equipment in commercial structures; adjustment and calibration of pneumatic equipment. (F, Sp)

IDMS - DIAGNOSTIC MEDICAL SONOGRAPHY

- IDMS 200 Sonographic Introduction** 2
Semester Prerequisite: Admission to Program
 Introduction to sonography including equipment history, criteria, limitations of ultrasound, and sonographer ethics. General information provided regarding patient preparation, history/clinical correlation, and basic nursing care specific to ultrasound. Strong emphasis on terminology and abbreviations most commonly used with ultrasound. (F)
- IDMS 201 General Sonography I: Abdomen** 4
Semester Prerequisite: Admission to Program
 Provides the student with cross-sectional anatomy and pathology as it relates to sonographic scanning of the abdomen, vascular system, thyroid, prostate, scrotum, breast, and neurology of the neonate. (F)
- IDMS 202 OB/GYN Sonography I** 4
Semester Prerequisite: Admission to Program
 Provides the student with cross-sectional anatomy and pathology as it relates to gynecological and obstetrical sonography. Fetal cardiac anatomy and appearance will be presented. (F)
- IDMS 219 Sonographic Imaging** 1
Semester Prerequisite: Admission to Program
 This course will provide the soon-to-graduate sonographer with an update of positioning, physics, instrumentation, and interpretation knowledge. In addition, the use of a comprehensive test will assess the student's level of knowledge in sonographic subjects. (Su)
- IDMS 234 Sonographic Physics** 2
Semester Prerequisite: Admission to Program
 The student will study the fundamental principles of acoustical physics, how sound is produced and manipulated, and how it reacts in various mediums. (F)
- IDMS 245 Sonographic Instrumentation** 2
Semester Prerequisite: IDMS 234
 The student will be introduced to the mechanics of A-Mode, M-Mode, Doppler, and Real-time equipment. Accessory equipment such as the camera, transducer, and cathode ray tube will be presented. Methods of quality assurance will also be presented. (Sp)
- IDMS 265 General Sonography II: Abdomen and Small Parts** 4
Semester Prerequisite: IDMS 201
 The student will be presented with the identification of and interpretation of anatomy and pathology on sonographic exams as it relates to the abdomen, vascular system, and small parts. (F)
- IDMS 266 OB/GYN Sonography II** 3
Semester Prerequisite: IDMS 202
 The student will be presented with the identification of and interpretation of anatomy and pathology on sonographic exams as it relates to the obstetric and gynecologic patient. (Sp)
- IDMS 280 Introduction to Clinical Experience I** 8
Semester Prerequisite: Admission to Program
 First course in a three-semester sequence of clinical application in diagnostic medical sonography. Clinical experience is provided under the direct supervision of an ARDMS Registered Sonographer. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (F)
- IDMS 281 Clinical Experience II** 9
Semester Prerequisite: IDMS 280
 Building on material presented in IDMS 280, this is the second course in a three-semester sequence in diagnostic medical sonography. Clinical experience is provided under the direct supervision of an ARDMS Registered Sonographer. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (Sp)
- IDMS 282 Clinical Experience III** 12
Semester Prerequisite: IDMS 281
 Based on material presented in IDMS 281, this is the third course in a three-semester sequence of clinical application in diagnostic medical sonography. Clinical experience is provided under the direct supervision of an ARDMS Registered Sonographer. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (Su)

IMAG - PHOTOGRAPHY TECHNOLOGY

- IMAG 101 Basic Photography for Non-majors** 2
Semester Prerequisite: None
 Students will learn to use camera controls, exposure controls, photographic composition, and lighting to make better photographs. Color film and commercial processing will be used. Designed for students with little or no previous still photography experience who do not plan to major in imaging technology. (F, Sp, Su)
- IMAG 102 Advanced Photo for Non-majors** 2
Semester Prerequisite: IMAG 101/Equivalent
 A continuation of IMAG 101. Students will learn to apply advanced design concepts, techniques, and accessories for problem solving and creative image making. Color film and commercial processing will be used. For students who do not plan to major in imaging technology. (F, Sp)
- IMAG 111 Introduction to Photographic Technology I** 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
 (See *Course Schedule*)
 Introduces students to photographic technology on both a theoretical and practical level. The student will learn camera types and related equipment, exposure controls, beginning and intermediate black-and-white film processing and printing, including contrast controls. This course is the first of a two-course sequence for imaging technology majors. (F, Sp, Su)
- IMAG 112 Design Fundamentals for Imaging Technologies** 3
Semester Prerequisite: IMAG 101/IMAG 111/Concurrently,
 Departmental Approval
 This course introduces students to design theory and its application to imaging technologies on both a practical and theoretical level. Students will learn and apply design elements and principles to their evolving work. (F, Sp, Su)
- IMAG 113 Lighting Concepts and Applications** 3
Semester Prerequisite: IMAG 101/IMAG 111/Concurrently,
 Departmental Approval
 Introduces the student to fundamental lighting concepts encountered in the studio and on location. Students will learn to apply their knowledge by identifying and solving common photographic lighting problems. Students will use professional continuous and electronic flash equipment to produce acceptable images. (F, Sp, Su)
- IMAG 114 Introduction to Photographic Color Technology** 3
Semester Prerequisite: IMAG 112, IMAG 113, Departmental Approval
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
 (See *Course Schedule*)
 Introduces the student to the theories and applications of contemporary color photographic materials and processes. Students will learn to produce acceptable color images by applying the concepts of film selection, film testing, color temperature, lighting, and color image design to their evolving work. (F, Sp, Su)
- IMAG 115 Color Directed Study** 1
Semester Prerequisite: IMAG 114 Concurrently, Departmental Approval
 Introduces student to practical applications of contemporary color photographic materials and processes. Student will learn through laboratory experiences, demonstrations, and other direct involvement with color imaging materials and equipment. Designed to increase the student's technical working knowledge and problem solving skills when working with currently available color photographic materials. (F, Sp, Su)
- IMAG 117 Introduction to Photographic Technology II** 4
Semester Prerequisite: IMAG 111, Approval Required
 Continuation of IMAG 111. Students will learn intermediate and advanced black-and-white exposure, developing, and printing controls and techniques. Students will acquire knowledge and skills to solve technical, aesthetic, and communication problems. Successful completion required for continuation in the Imaging Technology Program (Still Track) at the 200 level. (F, Sp, Su)
- IMAG 118 Film Production I** 4
Semester Prerequisite: None
 Introduces storytelling practices using sound and pictures. Students will learn to plan and produce short programs, developing basic skills in plot structure, staging scenes, photography, sound recording, editing, and audience evaluation. (F, Sp, Su)

IMAG 120 Photographic Technology Lab	3	IMAG 220 Intermediate Still Imaging Technology	4
Semester Prerequisite: IMAG 117/IMAG 118, Departmental Approval Designed for students whose lack of photographic competencies prevent their continuation in the Imaging Technology Program above the 100 level. Individualized learning objectives are formulated for each student. Successful completion of these objectives will allow the student to continue into the 200 level course sequence. (Sp, Su)		Semester Prerequisite: IMAG 114, IMAG 115, IMAG 117, Departmental Approval Introduces the still imaging student to large format and medium format imaging technologies and their diverse applications. Students will work in areas directly linked to the technical and expressive elements of these formats. Camera applications will include commercial illustration, fine art, and portrait techniques. (F, Sp)	
IMAG 121 Imaging Technology	2	IMAG 221 Advanced Still Imaging Technology	4
Semester Prerequisite: None A survey of the imaging technology field, including the role of the imaging professional, materials, processes, and new technology as related to advertising, communications, film/multimedia, illustration, portrait, and self-expression. Includes an overview of projected employment opportunities in imaging technology. (F)		Semester Prerequisite: IMAG 220, Departmental Approval Introduces students to techniques and practices of photojournalism, documentary photography, and public relations photography. Historical and contemporary photographic styles that reflect the program's areas of emphasis will be examined. Students will apply critical thinking processes and imaging technologies to produce a portfolio of work illustrating their areas of special interest. (F, Sp)	
IMAG 122 Imaging Technology Forum	1	IMAG 222 Intermediate Color Applications and Technology	3
Semester Prerequisite: None Students will learn through demonstration, laboratory experiences, and other direct involvement in imaging technologies. Includes presentations, demonstrations, and workshops that expose students to the current state of development in the areas of hybrid imaging and emerging technologies. (Sp)		Semester Prerequisite: IMAG 114 Concurrently, Departmental Approval Introduces the student to the contemporary materials and processes of the negative to positive color photographic print process. Students will learn to produce professionally acceptable prints from a wide variety of color negatives by applying color balancing and printing controls, print finishing techniques, and lab efficiency skills to their work. (F, Sp, Su)	
IMAG 201 Topics in Commercial Photography	3	IMAG 223 Advanced Color Applications and Technology	4
Semester Prerequisite: Departmental Approval (Approved Photo Credits) Exposes students to photography for commercial use. Students will explore various tools, techniques, methodologies, principles, and opinions as applied to commercial photography. Designed to sharpen students' technical and aesthetic knowledge and skills in order to better compete in the commercial photographic market. (F, Sp, Su)		Semester Prerequisite: IMAG 222, Departmental Approval A continuation of IMAG 222 that involves the advanced student with color as a critical communication tool. Students, individually and as team members, will learn to produce highly effective and professionally acceptable photographs with color transparency film. A high level of technical accomplishment and aesthetic development will be reached. (F, Sp)	
IMAG 202 Topics in Photographic Communication	3	IMAG 224 Emerging Image Technologies I	2
Semester Prerequisite: IMAG 114, IMAG 117, Departmental Approval (Approved Photo Credits) Designed for intermediate and advanced students to enhance their competencies and explore areas of interest using still photography in combination with words. Emphasis on communicating clear messages to mass media audiences through documentary photography, newspaper and magazine photojournalism, and public relations photography. (F, Sp, Su)		Semester Prerequisite: IMAG 121, IMAG 117/IMAG 118, Departmental Approval An intermediate-level course designed to expose imaging technology majors to the latest technological innovations affecting the areas of photography, imaging, and related fields. Course format will include lectures, discussion, demonstration, and hands-on experiences. (F, Sp)	
IMAG 203 Topics in Film/Multimedia	3	IMAG 225 Emerging Image Technologies II	2
Semester Prerequisite: Departmental Approval (Approved Photo Credits) Provides students with basic motion photographic skills, an opportunity for intensive study in selected aspects of motion picture production, or multimedia production. (F, Sp, Su)		Semester Prerequisite: Departmental Approval An advanced-level study that further explores the effects of new technologies and processes on the areas of photography and imaging. (Sp)	
IMAG 204 Topics in Imaging for Self-Expression	3	IMAG 226 Film Production II	4
Semester Prerequisite: IMAG 117/IMAG 118, Departmental Approval (Approved Photo Credits) An exploration of self-expression through various imaging technology-based tools, processes, and thought. Students will create process-based images and will research, discuss, critique, formulate opinions, and establish personal goals in order to better understand and practice personal style and expression. (F, Sp, Su)		Semester Prerequisite: IMAG 118 An intermediate-level course that exposes the student to advanced storytelling practices using sound and images. Hands-on production exercises help the student to develop skills in scriptwriting, storyboarding, production planning, photography, animation, editing, and sound track production. (F, Sp)	
IMAG 205 Topics in Hybrid Imaging	3	IMAG 227 Film Production III	4
Semester Prerequisite: ARTS 171, Departmental Approval (Approved Photo Credits) Designed for intermediate and advanced students to enhance their competencies and explore the areas of emerging hybrid imaging tools and techniques. (F, Sp, Su)		Semester Prerequisite: IMAG 226 A continuation of IMAG 226 for moving image majors. Hands-on production exercises help the student develop skills in scriptwriting, directing, working with dialogue shooting, and editing sync sound. Students work individually and as group members and apply critical thinking and problem-solving processes to produce creative, dramatic, and effective communications programs. (F, Sp)	
IMAG 206 End Technologies	3	IMAG 228 Independent Study	3
Semester Prerequisite: IMAG 117/IMAG 118, Departmental Approval Designed for intermediate and advanced students to enhance their competencies and knowledge in the area of currently available image output technologies. (F, Sp, Su)		Semester Prerequisite: IMAG 221/IMAG 227, Departmental Approval Allows advanced students to pursue study in areas not formally taught within the curriculum. Students will work in consultation with an instructor. Acceptable written proposal required prior to registration. (F, Sp, Su)	
IMAG 207 Imaging Issues	3	IMAG 229 Advanced Imaging Applications	1
Semester Prerequisite: IMAG 117/IMAG 118, Departmental Approval An exploration of historical, ethical, and aesthetic issues relating to imaging technology. Intended to help students better understand, appreciate, and make aesthetic judgments about historical, contemporary, and future imaging technology issues. (F, Sp, Su)		Semester Prerequisite: IMAG 221/IMAG 227, Departmental Approval Allows advanced students to work on improving skills or to enhance skills in an area of strength or interest. Students will work with an instructor in a directed learning experience. Acceptable written proposal required prior to registration. (F, Sp, Su)	
IMAG 208 Input Processes	3		
Semester Prerequisite: IMAG 117/IMAG 118, Departmental Approval Designed for intermediate and advanced students to enhance their competencies and knowledge in the areas of currently available image input and creation technologies. (F, Sp, Su)			

IMAG 230 Imaging Technology Major I 3

Semester Prerequisite: (IMAG 221, IMAG 223, IMAG 224)/ (IMAG 224, IMAG 227), Departmental Approval

An advanced-level major concentration course, the first of a two-course sequence. Students will create images that are professionally acceptable visual solutions to problems typical of their chosen field. Emphasis is on critical thinking, problem solving, and refining technical, aesthetic, and communication skills. (F)

IMAG 231 Imaging Technology Major II 3

Semester Prerequisite: IMAG 230, Departmental Approval

A continuation of IMAG 230. Continued emphasis on problem solving, critical thinking, and refining technical, aesthetic, and communication skills. Students will create professional quality images that may be included in the portfolio which is required for completion of the Imaging Technology Program. (Sp)

IMAG 232 Internship 3

Semester Prerequisite: IMAG 221/IMAG 227, Departmental Approval

Allows advanced students to work as an intern developing competencies in the technical, business, creative, and communicative aspects of photography, filmmaking, or electronic imaging. Acceptable written application and internship agreement required prior to registration. (F, Sp, Su)

IMAG 233 The Business of Photography: Practices and Directions 3

Semester Prerequisite: IMAG 224, Departmental Approval

Exposes the student to the general business practices and approaches used in the photographic marketplace. The student will learn to undertake market research, develop a marketing plan, understand and apply basic accounting and tax principles, prepare a business plan, and determine where their specialties and interests fit within the industry. (F, Sp)

IMAG 234 Portfolio Assembly and Degree Completion Activities 3

Semester Prerequisite: Portfolio Review, Departmental Approval

Concluding course for photo program associate degree. Finalizes the student's portfolio and immediate career plans. Students edit and assemble their best work into a cohesive, visual resume in order to secure employment or gain admission to another institution for continued studies. Students present portfolios in a public program. (Sp)

IMAG 238 Project Lab for Independent Study 3

Semester Prerequisite: IMAG 221/IMAG 227, Departmental Approval

Allows advanced students to pursue study in areas not formally taught within the curriculum when these studies require the use of the Photography Center facility. Students will work in consultation with an instructor. Acceptable written proposal required prior to registration. (F, Sp, Su)

IMAG 240 Internship 4

Semester Prerequisite: IMAG 221/IMAG 227, Departmental Approval

Allows advanced students to work as interns developing competencies in the technical, business, creative, and communicative aspects of photography, filmmaking, or electronic imaging. Acceptable written application and internship agreement required prior to registration. (F, Sp, Su)

INAU - INDUSTRIAL AUTOMATION

INAU 100 Introduction to Industrial Automation 4

Semester Prerequisite: None

This course provides a hands-on introduction to current manufacturing technology. Students will learn to use the MS/PC DOS computer including word processor, spreadsheet, and operating system applications. Students will experience the use of industrial robots, programmable logic controllers, machine vision, computer-aided design, discrete electronic components, and statistical process control. (F, Sp, Su)

INAU 101 Introduction to Industrial Computers 1

Semester Prerequisite: Departmental Approval

This course provides a hands-on introduction to current computer technology. Students will be introduced to the MS/PC DOS computer including word processor, spread sheets, and database managers. This course is restricted to apprentices only. (F, Sp)

INAU 200 Applied Automation 4

Semester Prerequisite: ELTE 122

Provides experience in the operation, programming, and set up of automated industrial equipment, including robots, vision equipment, and industrial software. (F)

INSU - INSURANCE

INSU 121 Property and Liability Insurance Principles 3

Semester Prerequisite: None

This course will cover the basic principles of insurance, an introduction to insurance contracts, and an overview of the nature and operation of the insurance business. (F)

INSU 122 Personal Insurance 3

Semester Prerequisite: INSU 121

This course will cover the basic personal loss exposures and how they can be met through insurance such as automobile, homeowners, life, health, and others. It will also discuss governmental insurance for personal loss and how personal insurance affects society. (F, Sp)

INSU 123 Commercial Insurance 3

Semester Prerequisite: INSU 121

This course will cover all major forms of commercial liability and property insurance. In addition to covering standard property and casualty forms, the course will also include boiler and machinery, farm, ocean marine, surety and excel, and surplus lines coverages. (F, Sp)

INSU 265 Principles of Risk and Insurance 3

Semester Prerequisite: None

At the completion of this course, the student will have a working knowledge of the theory of risk, insurance terminology, legal insurance contracts, and use of risk management. (F, Sp)

INTR - INTERIOR DESIGN

INTR 106 Interior Design Graphic Standards 3

Semester Prerequisite: None

This course covers theory and application of graphics for designers, with an emphasis on architectural lettering. Drafting equipment, media, reproduction methods, lines, small scale freehand pencil lettering, sketching, signage, and an introduction to lettering with computers are also included. (F, Sp)

INTR 110 Applied Design, Two-Dimensional and Color 3

Semester Prerequisite: None

A studio course in basic design theory. Includes basic principles and elements of color theory and application, and two-dimensional (2-D) and three-dimensional (3-D) design fundamentals as they relate to interior design. (F, Sp)

INTR 132 Design Presentation Techniques 3

Semester Prerequisite: INTR 106/Equivalent

This course is the study of visual and verbal presentation techniques. Students create perspective drawings and color renderings. The emphasis will be on production presentation boards. (Sp)

INTR 140 Interior Drafting and Detailing 3

Semester Prerequisite: INTR 106/Equivalent

Students will learn drafting techniques for interior design including floor plans, elevations, sections, axonometrics, cabinetry, and furniture detailing. Emphasis on developing residential construction documents for kitchens. (F)

INTR 151 Computer-Aided Kitchen Design 3

Semester Prerequisite: INTR 140/Equivalent

This course is an in-depth study of kitchen planning, design, and remodeling through computer software applications. Lecture/Lab. (F, Sp)

INTR 152 Kitchen Workshop .5

Semester Prerequisite: None

Basic awareness of kitchen and planning, designing, and remodeling developed through lecture, discussion, and recitation. (F, Sp, Su)

INTR 156 Interior Decorating for the Home 2

Semester Prerequisite: None

This course is a survey of interior decorations on a practical level. Emphasis is on residential furnishing and treatments. Field trips to local market resources for furniture, fixtures, furnishings, and finishes are included. (F, Sp, Su)

INTR 170 Introduction to Interiors	3	INTR 248 Non-Residential Interiors, Systems Furniture	4
Semester Prerequisite: None		Semester Prerequisite: INTR 175, INTR 240	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		This course is a study of contract and commercial design. It includes designing all types of nonresidential interiors; programming, problem solving, furniture, fixtures and equipment, and lighting, building codes, and barrier-free space planning with the use of systems furniture and computer-aided planning programs. (F)	
This course is a survey of the profession of interior design. Human needs are the focus of studio problems. Principles and elements of design are used to evaluate solutions to environmental design problems. Lecture/Lab. (F)			
INTR 175 Space Planning and Design Process	3	INTR 252 Construction Documents and Specifications	2
Semester Prerequisite: INTR 140/INTR 170/Equivalent		Semester Prerequisite: INTR 190, INTR 248/Concurrently	
This course is a study of the theory and application of interior design. Emphasis is on developing the creative problem-solving process through programming and space planning methodology using graphic written and verbal presentation. Lecture/Lab. (F, Sp)		This course is the study of practices and procedures of working drawings, interior materials, cost estimating, installation methods for furniture, cabinets, floor coverings, wall coverings, and window treatments. Emphasis on commercial specifications. (Sp)	
INTR 190 Materials for Interiors	3	INTR 254 Interior Design Certification Review	1
Semester Prerequisite: INTR 170/Concurrently/Equivalent		Semester Prerequisite: Second Year Majors Only	
Study of nonstructural interior finishes and materials, their methods of application and installation and their effect on the environment. Students will study kitchens, bathrooms, cabinets, ceilings, walls, floors, and paint. (Su)		This course is specifically intended to prepare interior design students with appropriate information plus practicum exercises which will enable them to prepare for the National Council for Interior Design Qualification Examination. (F, Sp)	
INTR 201 Cultural Diversity in the Built Environment	3	INTR 256 Interior Design Project Management	3
Semester Prerequisite: None		Semester Prerequisite: Second Year Majors Only	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		This course is an in-depth study of the business and professional practices of interior designers. Students prepare written communications, contract forms, and schedules. The study of marketing, ethics, and project management are included. For the final project, students prepare a project control book. (F)	
This multidisciplinary course is the study of how culturally diverse ideas, issues, values, and institutions in global societies have shaped the built environment and the political, social and economic impact this has on the individual and the group. (F)			
INTR 222 Computer-Aided Drafting and Design for Interiors	3	INTR 260 Three-Dimensional CAD Design for Interiors	3
Semester Prerequisite: INTR 151, INTR 140/Equivalent, CNCP 101		Semester Prerequisite: INTR 225/Equivalent	
Recommended		This is the third course in a series in the study of computer assisted drafting and design applications for interior design. Students will learn how to create 3D models, wire frames, and surfaces. (Sp)	
This first course in a series of three, introduces students to the basic principles of computer assisted drafting and design. Students use computer software to create and print one and two dimensional interior design drawings with dimensions and notes. Students are expected to have college drafting experience, and computer literacy. (F, Su)			
INTR 225 Computer-Aided Design for Space Planning	3	INTR 261 Design Project Laboratory	2
Semester Prerequisite: INTR 222, INTR 132/Equivalent		Semester Prerequisite: Approval Required	
This second course in a series of three, is the study of advanced computer assisted drafting and design applications. Manufacturers furniture symbol libraries will be used to create interior design and space planning drawings with systems furniture. (Sp, Su)		This course is a directed study of special projects not incorporated in regular course offerings. (F, Sp, Su)	
INTR 230 World Decorative Arts	3	INTR 262 Design Project Laboratory	4
Semester Prerequisite: INTR 110/INTR 132		Semester Prerequisite: Approval Required	
This course is a survey of the world decorative arts including furniture, interior architecture, textiles, and accessories from pre-historic African, Asian, and American periods to the seventeenth century western periods. (F)		This course is a directed study of special projects not incorporated in regular course offerings. (F, Sp, Su)	
INTR 231 Interior Design Period Research	3	INTR 263 Internship	3
Semester Prerequisite: INTR 110/INTR 132		Semester Prerequisite: Approval Required	
This course is a study of the decorative art periods including furniture, interior architecture, textiles, and accessories from the Italian Renaissance to the nineteenth century western industrial revolution. (F)		This course is a field study. Students will gain pre-career experience by working in a studio environment under the supervision of a professional architect or interior designer. Regular scheduled progress reports will be given and discussed with supervising faculty member. (Su)	
INTR 232 Twentieth Century Interior Design	3	INTR 270 Design Portfolio	2
Semester Prerequisite: INTR 110/INTR 132/Equivalent		Semester Prerequisite: INTR 132/Equivalent	
This course is a selective survey of interior design covering the history and philosophy of modern and international styles from the turn of the century to the 1990s. Student projects will include a colored sketchbook. (Sp)		The portfolio course is an opportunity for students to organize photographs, matte/frame, and display their visual works. At the completion of the course, the students will have developed a format for a portfolio. (Sp)	
INTR 240 Interior Lighting	3	IRAD - RADIATION THERAPY TECHNOLOGY	
Semester Prerequisite: INTR 132, INTR 140, INTR 170		IRAD 105 Introduction Radiation Therapy	3
This course introduces color and light as a design element for residential and commercial applications; creating reflected ceiling plans and power plans, and preparing calculations for lighting needs. (F)		Semester Prerequisite: Admission to Program	
INTR 244 Three-Dimensional Visual Display	3	Provides the student with an overview of radiation therapy and its role in medicine. Student responsibilities and benefits will be outlined. Students will be oriented to academic and administrative structure, key departments and personnel, and to the profession as a whole. (F)	
Semester Prerequisite: INTR 110, INTR 140, INTR 170		IRAD 106 Oncology Principles Patient Care	1
This course covers the development of display fundamentals in color, lighting, design, and materials for store windows, showrooms, and exhibits. (F)		Semester Prerequisite: Admission to Program	
INTR 246 Residential Interiors	4	Provides the student with the basic concepts of diagnostic process, pathophysiology, oncologic problems, oncologic emergencies, chemotherapy protocols, agents and side effects, bereavement, psychological aspects of disease, and specific case studies. (Sp)	
Semester Prerequisite: INTR 240, INTR 190/Concurrently			
This course examines the relationship of human needs to interior environmental design with emphasis on alternative housing design. (Sp)			

IRAD 204 Principles Oncology I	4
Semester Prerequisite: Admission to Program	
This course will provide the student with a review of anatomy and physiology, medical terminology related to oncology patients, and examination of attitudes toward dying, death, and cancer patients. (F)	
IRAD 205 Principles Oncology II	4
Semester Prerequisite: IRAD 204	
Provides the student with the fundamentals of clinical radiation oncology. Malignant conditions, their etiology, and methods of treatment are discussed. Attention is given to patient prognosis, treatment results, and the effects of combined therapies. (Sp)	
IRAD 220 Clinical Radiation Oncology	2
Semester Prerequisite: Admission to Program	
The student will identify malignant conditions, epidemiology, treatment methods, radiobiological effects, as well as treatment planning for specific anatomical sites, such as ovary, breast, etc. (F, Sp, Su)	
IRAD 231 Radiation Therapy Physics	3
Semester Prerequisite: Admission to Program	
Provides the student with specifics of ionizing radiation and principles of radioactivity. Details of production, interactions, and types of radiation, as well as medical uses of radioactive material and technical considerations of application are discussed. (F)	
IRAD 232 Advanced Therapy Physics	3
Semester Prerequisite: IRAD 231	
Provides the student with the specifics of ionizing radiation and the principles of radioactivity. Details of production, interactions, and types of radiation, medical uses of radioactive material, and technical considerations, as well as the application to the treatment of patients are discussed. (Sp)	
IRAD 234 Quality Assurance in Radiation Therapy	2
Semester Prerequisite: Admission to Program	
Upon completion of this course, the student will be able to discuss and identify the optimal parameters for a functioning radiation oncology department in line with the requirements of the J.C.A.H.O. standards in essential areas. (F)	
IRAD 235 Basic Dosimetry	3
Semester Prerequisite: MATH 112/Placement Test	
Provides the student with the basic concepts of clinical dosimetry and treatment planning. Various external beam techniques, depth dose data, and summation of simple isodose curves are discussed. Fundamental procedures in dose measurement and verification are included. (F)	
IRAD 270 Radiobiology	2
Semester Prerequisite: Admission to Program	
Provides the student with the principles of cell response to radiation. Factors which influence the effects of radiation, tissue sensitivity, and environmental factors are discussed. (Sp)	
IRAD 285 Clinical Experience I	3
Semester Prerequisite: Admission to Program	
An introductory course to clinical aspects of radiation therapy and oncology. First in a sequence of clinical applications in radiation therapy technology theory. This course is designed to present the student with an environment combining cognitive, psychomotor, and affective aspects of the radiation therapy profession. (F, Sp, Su)	
IRAD 286 Clinical Experience II	9
Semester Prerequisite: IRAD 285	
Second course in a sequence of clinical applications in radiation therapy technology theory. This course covers all phases of radiation therapy technology and is designed to present the student with an environment combining cognitive, psychomotor, and affective aspects of the radiation therapy profession. (F, Sp, Su)	
IRAD 287 Clinical Experience III	7
Semester Prerequisite: IRAD 286	
Third course in a sequence of clinical applications in radiation therapy technology theory. This course covers all phases of radiation therapy technology and is designed to present the student with an environment combining cognitive, psychomotor, and affective aspects of the radiation therapy profession. (F, Sp, Su)	

IRAD 288 Clinical Experience IV	6
Semester Prerequisite: IRAD 287	
Fourth course in a sequence of clinical applications in radiation therapy technology theory. This course covers all phases of radiation therapy technology and is designed to present the student with an environment combining cognitive, psychomotor, and affective aspects of the radiation therapy profession. (F, Sp, Su)	
IRAD 289 Clinical Experience V	8
Semester Prerequisite: IRAD 288	
Fifth course in a sequence designed to provide opportunity to explore advanced concepts in radiation therapy and oncology. Course includes competency-based education combined with cognitive, psychomotor, and affective aspects of the radiation therapy profession. (F, Sp, Su)	
IRAD 290 Advanced Clinical Skills	7
Semester Prerequisite: Admission to Program	
Designed to provide opportunity to explore advanced concepts in radiation therapy and oncology. Course includes competency-based education combined with cognitive, psychomotor, and affective aspects of the profession performed at the level of a staff radiation therapist. (F, Sp, Su)	

IRXT - RADIOLOGIC TECHNOLOGY

IRXT 100 Introduction to Imaging	4
Semester Prerequisite: Admission to Program	
Survey of the role of the radiographer in the health care industry. Explores the historical development of X-ray, medical, and legal ethics, radiation protection, patient-staff relationships, and other imaging technologies. A clinical component allows the new radiography student to correlate this material in the practical setting. (F, Sp)	
IRXT 111 Radiographic Positioning I	5
Semester Prerequisite: Admission to Program	
Student radiographers are introduced to radiographic positioning of the upper and lower extremity, chest, abdomen, bony thorax, pelvis, and spine. Associated topographic, skeletal, chest, and abdominal anatomy is studied. A laboratory experience is provided to evaluate the student skills in performing each position/projection. (F, Sp)	
IRXT 112 Radiographic Positioning II	4
Semester Prerequisite: IRXT 100, IRXT 111, 2.5 Minimum in AHCC 104	
A continued study of routine radiographic positioning with the addition of fluoroscopic procedures. Included are studies of the skull, G.I. tract, G.U. tract, myelography, and bronchography. In addition, various contrast media are studied. Laboratory experiences are provided to evaluate student skills in performing selected position/projections. (F, Sp)	
IRXT 113 Special Procedures	1
Semester Prerequisite: 2.5 Minimum in IRXT 112	
Special radiologic procedures are studied and some related imaging modalities surveyed. Procedures include neurologic, cardiovascular, arthrographic, mammographic, digital imaging, and tomographic studies. Special equipment/supplies used in these examinations are surveyed including needles, catheters, high pressure injectors, film changers, sterile trays, and contrast media. (F, Su)	
IRXT 114 Cross-Sectional Anatomy	3
Semester Prerequisite: IRXT 113/Departmental Approval	
Provides an overview of transverse, coronal, and sagittal cross-sectional anatomy of the human body. Special emphasis will be placed on the brain, thorax, and abdominal area. Correlations between cross-sectional anatomy, radiographs, and three-dimensional drawings will be explored. (F, Sp)	
IRXT 121 Radiographic Exposure I	3
Semester Prerequisite: Admission to Program	
The formation of the radiographic image is the focus of IRXT 121. Photographic and geometric variables are related to radiographic factors and their various interactions compared and contrasted. Finally, a study of the history of radiology, basics of radiation formation, and anatomy of the X-ray tube is discussed. (F, Sp)	
IRXT 122 Radiographic Exposure II	2
Semester Prerequisite: 2.5 Minimum in IRXT 121	
Various beam modifying devices are presented and their relation to formation of a radiographic image studied. Includes a study of manual processing and the theory of image formation. Dark room procedures, quality control, both radiographic and photographic, will also be explored. (F, Sp)	

- IRXT 131 Radiologic Physics** 3
Semester Prerequisite: MATH 112/Equivalent
 Basic physical principles are related to the radiologic process. A study of basic electricity and the operation of the X-ray circuit is presented. Finally, advanced topics regarding the formation of radiation, protection of the X-ray tube, and X-ray attenuation are studied. (F, Sp)
- IRXT 132 Radiobiology and Protection** 2
Semester Prerequisite: IRXT 131/Departmental Approval
 A focus on the reasons for good radiation hygiene and methods to implement protection of the patient and technologist. Current theories regarding the physiological effects of X-radiation are explored. (Sp, Su)
- IRXT 200 Introduction to Radiologic Pathology** 2
Semester Prerequisite: Admission to Program
 Emphasizes how disease processes are diagnosed radiographically and the relationship of the radiographic appearance of the disease to its anatomic, physiologic, and pathologic characteristics. The etiology, treatment, and resolution of each disease is discussed, with an attempt to relate more recent advances in these areas. (F, Sp)
- IRXT 210 Radiographic Department Management** 1
Semester Prerequisite: Admission to Program
 Designed to acquaint the student with the organization, function, supervision, and financial arrangements relative to departments of radiology, basic X-ray equipment for performing preventive maintenance, and detecting simple functioning difficulties. (Sp, Su)
- IRXT 212 Clinical Practice I** 5
Semester Prerequisite: IRXT 100, IRXT 111, IRXT 121, AHCC 104
 First in a two-semester sequence of clinical application in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the students progress. (Sp, Su)
- IRXT 213 Clinical Practice II** 5
Semester Prerequisite: IRXT 212
 Second course in a two-semester sequence of clinical applications in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (F, Su)
- IRXT 214 Comprehensive Experience I** 6
Semester Prerequisite: IRXT 213
 First in a three-semester sequence of clinical application in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (F, Sp)
- IRXT 215 Comprehensive Experience II** 6
Semester Prerequisite: IRXT 214
 Second in a three-semester sequence of clinical application in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (Sp, Su)
- IRXT 216 Comprehensive Experience III** 6
Semester Prerequisite: IRXT 215
 Third in a three-semester sequence of clinical applications in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (F, Su)
- IRXT 219 Imaging Update** 1
Semester Prerequisite: Allied Health Professional
 This course will provide the advanced imaging student with an update of positioning, exposure, and physics. In addition, the use of a comprehensive test will assess the student's level of knowledge in the imaging technology. (F, Sp, Su)

- IRXT 232 Clinical Practice I-S** 3
Semester Prerequisite: IRXT 111
 First in a two-semester sequence of clinical application in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (Su)
- IRXT 233 Clinical Practice II-S** 3
Semester Prerequisite: IRXT 212/IRXT 232
 Second course in a two-semester sequence of clinical applications in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (Su)
- IRXT 235 Comprehensive Experience II-S** 4
Semester Prerequisite: IRXT 214
 Second in a three-semester sequence of clinical application in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (Su)
- IRXT 236 Comprehensive Experience III-S** 4
Semester Prerequisite: IRXT 215/IRXT 235
 Third in a three-semester sequence of clinical applications in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (Su)

ISCI - INTEGRATED SCIENCE

- ISCI 110 Science Discovery: A Process** 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
 (See *Course Schedule*)
 Emphasizes reducing anxiety and improving reasoning skills necessary for participation in science courses. Methods to identify and reduce anxiety associated with science topics are presented. Science reasoning skills will be inventoried, including observation, experimental techniques, critical thinking, and communication. (F, Sp, Su)
- ISCI 121 Integrated Science for Education I** 4
Semester Prerequisite: 2.0 Minimum in ISCI 110/Science Inventory
 Recommended
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
 (See *Course Schedule*)
 The first of two general science courses focusing on important scientific discoveries and revolutions in their cultural and historical environment. Science processes, methods, and reasoning skills are emphasized throughout. Recommended for education majors. (F, Sp, Su)
- ISCI 122 Integrated Science for Education II** 4
Semester Prerequisite: 2.0 Minimum in ISCI 121
 The second of two general science courses focusing on important scientific discoveries and revolutions in their cultural and historical environment. Science processes, methods, and reasoning skills are emphasized throughout. Recommended for education majors. (F, Sp, Su)
- ISCI 131 Integrated Science-Physical: The Science of the Water Planet** 4
Semester Prerequisite: 2.0 Minimum in ISCI 110/Science Inventory
 Recommended
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
 (See *Course Schedule*)
 A general education course designed to provide students with a basic understanding of the methods and applications of science. Topics include basic chemistry, thermodynamics, the hydrologic cycle, climate, and weather. Critical thinking and problem-solving skills are applied to environmental issues. Laboratory activities illustrate and amplify lecture topics. (F, Sp, Su)

ISCI 132 Integrated Science-Biological: Life on the Water Planet 4

Semester Prerequisite: 2.0 Minimum in ISCI 131
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
 (See *Course Schedule*)

This course builds upon ISCI 131. Topics include ecosystems, population dynamics, evolution and origins, plate tectonics, and human interactions with the earth as a sustainable system. Critical thinking and problem-solving skills are applied to environmental issues. Laboratory activities illustrate and amplify lecture topics. (F, Sp, Su)

JAPN – JAPANESE**JAPN 115 Conversational Japanese I 3**

Semester Prerequisite: None
 First course in conversational Japanese. Designed for people with little or no knowledge of Japanese who wish to acquire conversational skills. Students learn correct pronunciation, basic sentence structures, and practical vocabulary for everyday use and traveling. Selected features of Japanese culture and everyday life in Japan will be introduced. (F, Sp, Su)

JAPN 116 Conversational Japanese II 3

Semester Prerequisite: JAPN 115/Equivalent
 Second course in conversational Japanese. Designed for people with some prior knowledge of Japanese who wish to improve their conversational skills. Students learn practical vocabulary and essential grammar to converse in Japanese. Selected features of Japanese culture and everyday life in Japan will be introduced. (F, Sp)

JAPN 121 Elementary Japanese I 4

Semester Prerequisite: None
 First course of a two-semester sequence in elementary Japanese. Designed to provide students with basic knowledge of Japanese for practical communication and skills in speaking, reading, writing, and listening comprehension. Provides information concerning everyday life and culture of Japan. Hiragana and Katakana syllabaries and 40 Kanji will be introduced. (F, Sp, Su)

JAPN 122 Elementary Japanese II 4

Semester Prerequisite: JAPN 101/JAPN 121/Equivalent/Approval
 Second course of a two-semester sequence in elementary Japanese. Students receive more practice in Japanese for practical communication. Develops speaking, reading, writing, and listening skills. Previously acquired knowledge and skills are refined and ability to communicate in Japanese is increased. Additional 100 Kanji will be introduced. Class is taught mostly in Japanese. (Sp)

JAPN 201 Intermediate Japanese I 4

Semester Prerequisite: JAPN 102/JAPN 122/Equivalent/Approval
 First course of a two-semester sequence in intermediate Japanese. Includes introduction of more advanced grammar, vocabulary building, composition, group discussions, and more information on Japanese culture and everyday life. Additional 150 Kanji will be introduced. (F)

JAPN 202 Intermediate Japanese II 4

Semester Prerequisite: JAPN 201/Equivalent/Approval
 Continuation of Japanese 201. Includes more advanced grammar, intensive vocabulary building, writing composition, reading contemporary materials, discussions, and student presentations of Japanese language or culture. Additional 150 Kanji will be introduced. Natural and practical communication will be emphasized. Class is taught in Japanese. (Sp)

JRNL – JOURNALISM**JRNL 151 Newswriting and Reporting 3**

Semester Prerequisite: None
 Introduction to, and practice in, writing news stories. Students learn news terminology, style, objectivity, attribution, accuracy, and copy-editing skills. Basic news gathering and reporting tactics are presented and practiced. (F)

JRNL 254 Editorial Writing 3

Semester Prerequisite: JRNL 151/Departmental Approval
 A course in how to write effective editorials. Students analyze content, structure and style of editorial models, learn methods of finding subjects, learn methods of research, and write editorials and articles on important issues. (F)

LABR – LABOR RELATIONS**LABR 200 Introduction to Labor Relations 3**

Semester Prerequisite: None
 This course surveys both historical and legal frameworks of the labor movement. Major labor laws, causes, and goals of the labor movement and union structure and behavior will be discussed. Students will explore both labor and management approaches to solving employment disputes. (F, Sp, Su)

LABR 201 Collective Bargaining 3

Semester Prerequisite: LABR 200/Departmental Approval
 This course studies the collective bargaining process, the administration of collective bargaining agreements, and wage/benefit issues of employment. (F)

LABR 202 Grievances and Arbitration 3

Semester Prerequisite: LABR 200/Departmental Approval
 Grievance procedure, including employee discharge and discipline, is examined in-depth with a review of pertinent legislation. This "how to" course introduces the basic knowledge and skills necessary for grievance handling and understanding the fundamentals of contract language. (Sp)

LABR 203 Labor Law 3

Semester Prerequisite: LABR 200/Departmental Approval
 An in-depth study of traditional labor law including NLRB law, court decisions, and historical origins which impact union organizing, representation elections, unfair labor practices, bargaining, strikes, and enforcement of labor contracts. (Sp)

LABR 204 Employment Law for Managers 3

Semester Prerequisite: None
 This course provides an introduction and overview to the principles and application of laws affecting the workplace, not including traditional labor relations law. Areas of law covered include discrimination, wage-hour, unemployment benefits, personnel records, and common law issues relating to discharge and other matters. (F, Sp)

LAND – LANDSCAPE**LAND 100 Introduction to Landscape Drafting 2**

Semester Prerequisite: None
 This course covers the use of drafting equipment with an emphasis on lettering, line convention, and title blocks. The students will develop a basic format for design construction drawings. The course provides essential drafting skills for beginning the Landscape Program. (F, Sp, Su)

LAND 104 Landscape Lecture Series .25

Semester Prerequisite: None
 This course is the study of the many facets in the fields of landscape architecture and horticulture. (F, Sp)

LAND 120 Principles of Landscape Contracting 3

Semester Prerequisite: None
 This course will explore the field of landscape contracting and its relationships to landscape architecture and management. Landscape contractors and their role in plan evaluation, landscape material selection and their installation and construction features will be fully analyzed. The role of the individual in the design/build industry will be highlighted. (F, Sp)

LAND 130 Interior Landscaping 3

Semester Prerequisite: None
 This course includes the identification, culture, placement, and use of foliage and flowering plants in the office, mall, restaurant or home. Basic principles of landscaping are covered to include soil media, watering, light requirements, fertilizer, and insect and disease control. Management in relation to the plant's placement and use within the interior landscape is also discussed. (Sp)

LAND 132 Residential Landscaping 2

Semester Prerequisite: None
 This course highlights a basic design process approach for developing a home landscape. The development of a basic design focusing on your own home including placement of plant material, decks, patios, water features, and other landscape elements will be demonstrated. A course for the new homeowner, homeowner renovating his or her landscape, residential landscaper, or nursery person. (F, Sp, Su)

LAND 133 Residential Landscape Maintenance 3	LAND 163 Designing Ornamental Garden 3
Semester Prerequisite: None This course will provide a basic understanding of landscape maintenance problems and solutions. Students will develop records and schedules for pest control as well as tree, shrub, lawn, and flower maintenance. Plant selection, installation, pruning, and fertilization will be covered. (F, Sp, Su)	Semester Prerequisite: LAND 100, LAND 140, LAND 142 This course is a practical approach to designing the herbaceous garden. Annuals, perennials, herbs, and ornamental grasses are analyzed to create a design that will be in harmony with its environment. Color, height, texture, form, and fragrance are some of the plant's characteristics which will be discussed. (F, Sp)
LAND 140 Evergreen and Deciduous Trees 3	LAND 164 Site Design 3
Semester Prerequisite: None This course emphasizes identification of both common and uncommon deciduous trees, shrubs, evergreens, vines, and ground covers used in the landscape trade. Weekly lab walks facilitate development of field identification skills based on form, foliage, bark, bud, flower, and fruit characteristics. Landscape use and basic culture of individual plants are also covered. (F, Su)	Semester Prerequisite: LAND 150, LAND 152 This course emphasizes use of the design process to solve a variety of urban and nonurban site planning problems. Project design solutions require graphic delineation stressing plan view presentations. A variety of drawing scales, graphic materials, and techniques will be explored. (F)
LAND 141 Flowering Trees, Shrubs, Ground Covers 3	LAND 170 Site Grading I 3
Semester Prerequisite: None This course explores spring flowering trees, shrubs, broadleaf evergreens, and ground covers. Identification in the field is emphasized during weekly lab walks. Design characteristics of individual plants including size, habit, flowers, fruit, bark, foliage, and buds are discussed as well as basic cultural requirements. (Sp, Su)	Semester Prerequisite: LAND 150 This course covers basic through advanced principles, methods, and procedures for grading a site. Use of contour lines, land form interpretation, and earthwork computation are studied and applied to problem solving for both typical and special requirement sites. (F)
LAND 142 Perennial and Annual Flowering Plants 3	LAND 171 Site Grading II 3
Semester Prerequisite: None This course covers the identification and basic culture of approximately 170 perennial and annual flowering and budding plants. Specific features of each plant will be discussed in relation to their proper landscape use. Herbs, grasses, and rock and water garden plants will also be highlighted. (Sp, Su)	Semester Prerequisite: LAND 170 This is an advanced site-grading course that builds on the skills gained in LAND 170. This Michigan Soil Erosion Control Act is emphasized with respect to the requirements related to circulation systems and recreational and utility facilities. (Sp)
LAND 145 Field Experience in Landscape Architecture 3	LAND 172 Site Layout 3
Semester Prerequisite: None This course will introduce the student to various aspects of the landscape architecture profession. Different aspects of the profession will be presented through discussion, videos, slides, field trips, and guest speakers. Topics will include urban planning, zoo design, ecological planning, landscape construction, recreation, and park design. (F, Sp, Su)	Semester Prerequisite: LAND 171 This course covers plan dimensioning and layout techniques for vehicle and pedestrian circulation systems, building locations, utilities, and sporting and recreational facilities. Professional graphic techniques are emphasized. (Sp)
LAND 150 Principles of Landscape Architecture 3	LAND 180 Landscape Ecology 3
Semester Prerequisite: None Students will explore the broad scale philosophical, historical, and technical aspects of landscape architecture. Basic problem-solving techniques and design theory are introduced along with implementation of the design process. (F, Sp, Su)	Semester Prerequisite: None This course is for the professional as well as the interested individual covering the relatively new field of landscape environments. Develop a basic understanding of landscape communities, how they developed, and how they function. Plant communities, native species, natural design, and environmental impact are some of the topics covered. (F, Sp)
LAND 152 Landscape Graphics Communications-Beginning 3	LAND 181 Landscape Restoration and Management 3
Semester Prerequisite: LAND 150/Concurrently This course explores basic illustration techniques relative to the field of landscape architecture. Both the formal and informal applications of mechanical and free-hand drafting communication are emphasized to include reproduction printing methods. (F, Sp, Su)	Semester Prerequisite: None This course will cover the detailed steps necessary to complete a total restoration of a damaged ecosystem. Specific system designs dealing with wetlands and prairies in particular will be highlighted. Specific native plants, animals, and insects will be discussed. Field experiences and native plant identification are a critical part of this course. (Sp)
LAND 153 Landscape Graphics Communications-Advanced 3	LAND 182 Wetland Delineation and Evaluation 2
Semester Prerequisite: LAND 152 This course acquaints the student with visual presentation techniques used in landscape architecture. Plan, section, and three-dimensional graphics are explored using a range of media. The students will develop sketching and mechanical-drafting techniques for the preparation of professional graphic presentations. (Sp)	Semester Prerequisite: None This course will explore the basic elements of wetland identification. Wetland indicator vegetation, hydric soils, and wetland hydrology will be covered. The U.S. Army Corps. of Engineers Wetland Delineation Manual will be used as the guideline for this class. Certification credits can be secured by taking this course. (F, Sp)
LAND 160 Planting Design I 3	LAND 183 Planned Wetlands Evaluation and Restoration 2
Semester Prerequisite: LAND 140/LAND 141, LAND 150 This course provides an overview of the planting design principles from site analysis to construction documents. Planting design principles are emphasized as well as practical aspects of plant selection and design implementation in a range of design situations. Contemporary issues concerning today's design and construction industries are also discussed. (F)	Semester Prerequisite: None This course will discuss goals which are desirable for designing planned wetlands, constructed, restored or enhanced with specific targeted functions in mind. The class will focus on assessment of wetland functions during the design process and tools available to accomplish this. Wetland design restoration, evaluation, and management will also be discussed. (F, Sp)
LAND 161 Planting Design II 3	LAND 185 Arboriculture (Urban/Forestry) 3
Semester Prerequisite: LAND 140, LAND 141, LAND 160 This course applies the planting design skills gained in LAND 160 to a broad range of sites and issues typically encountered in today's landscape design and construction industries. Topics covered include functional uses of plants, native plant material, and planting design in the urban environment. (Sp)	Semester Prerequisite: None The care of trees and shrubs in the urban environment is thoroughly discussed. The course emphasizes tree physiology as it relates to plant selection, installation, decay prevention, pruning, and fertilizing. Field demonstrations of arboricultural practices such as pruning, bracing, and fertilizing will be offered. (F, Sp)
	LAND 195 Irrigation Design and Management 3
	Semester Prerequisite: None This course is for the professional or beginner interested in irrigation system design, installation, maintenance, and troubleshooting. Lectures will cover a range of systems including residential, commercial, drip, and golf course. (Sp)

LAND 220 Wetland Restoration 5
Semester Prerequisite: None
 This course will present current information available from the MDNR, EPA, and Army Corp of Engineers as it relates to wetland regulations and policy. Wetland delineation, mitigation, design, construction, and planting will be highlighted. Restoration enhancement and creation of wetlands will be outlined and developed. (F, Sp, Su)

LAND 222 Landscape Construction Techniques Beginning 3
Semester Prerequisite: LAND 120/Equivalent
 This course will deal with the basic concepts needed to operate as a landscape contractor in the design/build industry. The fundamentals of landscape design evaluation, development of materials lists, and cost takeoffs will be demonstrated. Basic site analysis, site survey, drainage and grading techniques will be demonstrated. (F, Sp)

LAND 225 Landscape Cost Estimation 3
Semester Prerequisite: LAND 150/Equivalent
 This course is an introduction to the study of landscape contracting and the cost estimating process. The class covers the project management process and the costing factors associated with it. The areas of material costs, equipment cost, labor costs, and related management charges will be evaluated. The preparation of bids and the bidding process will be highlighted. (F, Sp)

LAND 232 Professional Residential Landscape Design 3
Semester Prerequisite: LAND 100/Equivalent
 This course is designed for the individual interested in residential and small commercial design projects on a professional scale. Several design problems will be presented and detailed projects will be developed. (F, Sp, Su)

LAND 233 Grounds Management 3
Semester Prerequisite: LAND 232
 The student will evaluate a landscape design and/or specific site plan with total management of the site in mind. Seasonal management such as pruning, transplanting, pesticide applications and fertilization as well as cost evaluations will be based on commercial and office sites. This course is for the professional grounds manager. (F, Sp)

LAND 242 Ecological Land Planning 3
Semester Prerequisite: None
 This course will introduce the student to the land planning process. The ecological method of land planning will be emphasized with projects demonstrated. Field trips to planning meetings and project sites will be an intricate part of this course. (F, Sp)

LAND 250 Landscape Construction Methods 3
Semester Prerequisite: MATH 050, LAND 150
 This course examines the properties and uses of concrete, asphalt, masonry, wood, and other landscape construction materials. Basic design and installation methods of landscape structures are emphasized in addition to the introduction of professional construction drafting techniques. (F)

LAND 252 Landscape Construction Details 3
Semester Prerequisite: LAND 250
 Focuses on graphic techniques for drawing construction details and coordination of details with site plan layout. Studies detailing utilities, irrigation systems, circulation systems, recreational facilities, and various light construction features. Design-build procedures are stressed, including material tabulation and cost estimating. (Sp)

LAND 276 Landscape Documents and Specifications 2
Semester Prerequisite: LAND 250
 This course explores the relationship and principles between specifications and working drawings. The cost of projects as well as bid preparations will be highlighted. The student will prepare bids, write specifications, and participate in a class bid opening. (F)

LAND 277 Landscape Office Practice 3
Semester Prerequisite: None
 Introduces the elements of office business practice and organization, record keeping, on-the-job inspection, close out, initial proposal writing, and contract formulation. (F)

LAND 281 CAD Basics in Landscape Designs 1
Semester Prerequisite: None
 This basic introduction to computer-based landscape design software packages will include basic computer concepts related to landscape drafting and design principles. Hands-on computer exercises will feature landscape modules of site design and selection. (F, Sp, Su)

LAND 282 Computer Drafting/Design in Landscape Architecture 3
Semester Prerequisite: None
 This course assumes no previous computer experience. A beginning class for the individual interested in computers and what they can do for you in landscape design, maintenance, construction, plant selection, land survey, and cost estimating. AutoCAD will be surveyed and utilized for the computer-aided drafting and design portion of this course. (F, Sp, Su)

LAND 283 Beginning LandCADD 3
Semester Prerequisite: LAND 282/CAD Experience
 This course assumes basic AutoCAD experience and covers the Site Design LandCADD package. Site planning and the related modules in site analysis, coordinate geometry, planting design, plant selection, and construction details will be demonstrated and hands-on exercises will be completed. A 3-D landscape design project will also be completed and plotted. (F, Sp, Su)

LAND 284 LandCADD Advanced 3
Semester Prerequisite: LAND 283
 This course continues the use of LandCADD modules and project development. The student will complete detailed drawings utilizing the site planning package. 3-D customization will also be covered including solid modeling, macro commands, line type creation, and customized symbol library. This is an advanced LandCADD class. (Sp)

LAND 285 Microcomputer Animation 3
Semester Prerequisite: LAND 282/Departmental Approval
 This course will familiarize the student with the animation aspects of computer design and presentation. The student will learn to produce an animation project using the latest computer technology. Students will also become familiar with the integration of video and animation in various applications. (Sp)

LAND 286 LandCADD: Photo Imaging 3
Semester Prerequisite: LAND 282
 This computer course will cover how to use photo-imagery and animation in a landscape design situation by way of lecture, video, and computer usage. Computer painting as well as imaging will be demonstrated. Various software will be utilized. (F, Sp)

LAND 288 Beginning Site Designer 3
Semester Prerequisite: None
 This course provides an introduction to the Site Designer computer design software. The class presents the site planning module as well as topography, plant selection, landscape construction, and rendering. All modules will be presented and several design projects will be completed. No previous computer experience necessary. (F, Sp, Su)

LAND 289 Landscape Architecture Computer Design Studio 3
Semester Prerequisite: LAND 282/Equivalent
 This course involves the use of computer animation presentation software in the three-dimensional arena. Various 3-D presentation softwares will be utilized to create graphic animations and presentations. (F, Sp)

LAND 295 Landscape Independent Study 4
Semester Prerequisite: Instructor Approval
 The independent study is designed for students who wish to pursue a specialty area in landscape architecture beyond that which is offered in our curriculum. Inquiry through research and design of landscapes is required. (F, Sp, Su)

LAND 296 Landscape Project Lab 2
Semester Prerequisite: Instructor Approval
 The independent study is designed for students who wish to pursue a specialty area in landscape architecture beyond that which is offered in our curriculum. Inquiry through research and design of landscapes is required. (F, Sp, Su)

LAND 297 Landscape Project Lab 3
Semester Prerequisite: Instructor Approval
 The independent study is designed for students who wish to pursue a specialty area in landscape architecture beyond that which is offered in our curriculum. Inquiry through research and design of landscapes is required. (F, Sp, Su)

LEGL - LEGAL ASSISTANT/LAW

- LEGL 115 Legal Assistant Career and Ethics** 3
Semester Prerequisite: Departmental Approval
Basic Skills Prerequisite: Reading Level, Writing Level (See *Course Schedule*)
 Introduction to the legal assistant's role in the legal system, including essential skills used in the litigation process and law practice. Introduces student to legal terminology, legal analysis, procedural, and substantive law. Surveys paralegal employment and regulation. 2.0 minimum required to continue program. (F, Sp, Su)
- LEGL 120 Legal Research I** 3
Semester Prerequisite: 2.0 Minimum in LEGL 115, LEGL 215
 Introduces research procedures and resources for finding federal and Michigan law, using digests, encyclopedias, reporters, statutes, court rules, treatises, administrative publications, citators, etc. Students complete research assignments utilizing the publications, and the assignments must be completed using the Michigan Uniform System of Citation. Some classes may be at off-campus libraries. (F, Sp)
- LEGL 121 Legal Writing I** 3
Semester Prerequisite: WRIT 122
 Students will learn to analyze court opinions and apply them to particular fact situations. This skill will then be used to write summaries of court opinions, legal memoranda, appellate briefs, and other legal documents. Learning methods include reading assignments, class discussion, lecture, and writing assignments of increasing difficulty. (F, Sp)
- LEGL 160 Critical Thinking in Law** 3
Semester Prerequisite: None
 This course strongly emphasizes the "learn by doing" approach, specifically by utilizing group dynamics. The panorama of thinking skills, particularly those relevant in law and criminal justice, will be examined and practiced. Innovative evaluation skills, both personal and group, are a regular part of each session. (F, Sp, Su)
- LEGL 210 Litigation Procedures** 4
Semester Prerequisite: 2.0 Minimum in LEGL 115, LEGL 215
 Provides in-depth study of pre-trial, trial, and post-trial practice and procedure. Emphasizes Michigan and federal rules of court. Detailed study of drafting pleadings, discovery procedures, and case preparation for trial and appeal. Also covers evidentiary rules as they relate to trial practice and preparation. (F, Sp, Su)
- LEGL 211 Tort Law** 2
Semester Prerequisite: 2.0 Minimum in LEGL 115, LEGL 215
 Covers principles of negligence, intentional torts, and strict liability. Emphasizes the role of the legal assistant in dealing with these areas of law in actual practice situations. (F, Sp)
- LEGL 215 Business Law I, Basic Principles** 3
Semester Prerequisite: None
 Introduction to the legal system, its purpose, and the fundamental principles of various areas of the law. Course content includes sources of law, court procedures, contracts, torts, crimes, constitutional rights, no-fault auto insurance, landlord-tenant law, and bailments. Taught in traditional classroom style or via Computer Managed Learning (C.M.L.). (F, Sp, Su)
- LEGL 216 Business Law II, Commercial Law** 3
Semester Prerequisite: LEGL 215
 An in-depth analysis of the Uniform Commercial Code allows students to explore the law of sales, commercial paper, secured transactions, banking, insurance, and debtor-creditor rights. Taught in traditional classroom style or via Computer Managed Learning (C.M.L.). (F, Sp, Su)
- LEGL 217 Business Law III, Business Organizations** 3
Semester Prerequisite: LEGL 215
 Introduces basic business organizations, including agency law, partnerships, sole proprietorships, and corporations. Additionally, the course will delve into government regulation of business, real estate, wills, trusts, and estates. Taught in traditional classroom style or via Computer Managed Learning (C.M.L.). (F, Sp, Su)
- LEGL 218 Litigation Specialties** 3
Semester Prerequisite: LEGL 211
 Covers several specialty areas of law, including personal injury, professional malpractice, products liability, workers' compensation, and no-fault auto insurance. Emphasizes role of legal assistant in these practice areas, including drafting of pleadings and other legal instruments. (F, Su)
- LEGL 219 Advanced Business Law for Accounting Majors** 4
Semester Prerequisite: LEGL 215
 This self-paced course is intended for students majoring in accounting who have a goal of becoming a CPA. This course covers the law of sales; commercial paper; security devices; debtor-creditor relations; bankruptcy; insurance; agency; partnership; corporations; wills, trusts and estates; employment regulation; real property; and accountant's liability. This course is taught via Computer Manager Learning (C.M.L.). (F, Sp)
- LEGL 220 International Legal Issues and Organizations** 3
Semester Prerequisite: LEGL 215
 This class will introduce global issues and organizations from the legal perspective and related economic and ethical perspectives. Cases based on events from around the globe will be used to illustrate principles, structures, and perspectives of citizens from many countries. Students will examine how these topics impact their daily activities. (Sp)
- LEGL 221 Real Estate Transaction** 3
Semester Prerequisite: LEGL 115, LEGL 215
 Covers fundamental principles of real estate property law and introduces the student to common types of real estate transactions encountered by a legal assistant in a typical real estate practice. Subject matter includes deeds, land contracts, mortgages, title insurance, environmental issues, forfeitures and foreclosures, and landlord-tenant relationships. (F)
- LEGL 222 Probate Law and Procedure** 3
Semester Prerequisite: LEGL 115, LEGL 215
 Probate process will be addressed in detail, from commencement of proceedings through closing the estate of a decedent. Other topics will include wills, trusts, guardianships, conservatorships, adoptions, and other probate court procedures. Emphasis is on the part played by the legal assistant in preparation of documents and other probate practice tasks. (Sp)
- LEGL 223 Domestic Relations** 3
Semester Prerequisite: LEGL 115, LEGL 215
 In-depth study of marriage, divorce, separation, annulment, paternity proceedings, custody, support, property division, and other areas of domestic relations law. Emphasis will be on the legal assistant's role in dealing with clients and applying appropriate statutes, case law, and court rules as part of a domestic law practice. (Sp)
- LEGL 224 Administrative Law** 3
Semester Prerequisite: LEGL 115, LEGL 215
 The relationship of governmental administrative agencies to private citizens is explored by studying how law is created and enforced by such agencies at the state and federal levels. Legal assistant students will focus on topics including rule-making procedures, regulations, adjudication, licensing, and informal action. (Sp)
- LEGL 225 Legal Research and Writing II** 3
Semester Prerequisite: LEGL 120, LEGL 211
 Reviews principles of legal research, analysis, and writing. Introduces student to computer-assisted legal research (LEXIS). Student will draft legal memoranda, opinion letters, and an appellate brief based on extensive research assignments in federal and Michigan publications. Some classes may be at off-campus libraries. (F, Sp, Su)
- LEGL 226 Legal Interviewing and Investigation** 3
Semester Prerequisite: LEGL 115, LEGL 215
 Interviewing and investigation methods including information gathering, analysis, and effective communication. Emphasis will be placed on the role of the legal assistant with numerous practical exercises. (F, Sp)
- LEGL 227 Bankruptcy and Collections** 3
Semester Prerequisite: LEGL 115, LEGL 215
 Explores federal bankruptcy law and procedure with emphasis on the legal assistant's role in collecting information, interviewing clients, and preparing documents. Topics include a comparison of selected chapters within the bankruptcy code, exemptions, preferences, petitions, schedules, and the part played by the bankruptcy trustee. (Su)
- LEGL 228 Computer Technology for Legal Assistants** 3
Semester Prerequisite: LEGL 120, Keyboarding Experience
 This course focuses on computer technology as it is applied within the law firm, including the use of computers to perform legal assistant functions in litigation support, legal research, communication and case management applications, such as calendar and docket control, and checking conflicts of interest among clients. (F, Su)

LEGL 280 Legal Assistant Internship 3
Semester Prerequisite: Departmental Approval
 Student will experience the paralegal career by working as a legal assistant in a supervised capacity. Placements include private law firms, governmental law offices, courts, corporations, and other law-related settings. Requirements include at least 160 hours in the workplace, weekly reports, periodic meetings, and performance evaluations by on-site supervisor. (F, Sp, Su)

LING - LINGUISTICS

LING 230 Introduction to Linguistics 3
Semester Prerequisite: None
 Examines human language from the perspective of contemporary American linguistics: generative syntax, phonology, and morphology. Special attention to the structure of English. Considers regional and social variation, and implications for teachers of language skills. (F, Sp)

MACH - MACHINE TOOL TECHNOLOGY

MACH 100 Manufacturing Processes 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
 (See *Course Schedule*)
 This course provides students with a comprehensive study of the materials, concepts, and processes used in modern manufacturing, which is augmented by field trips to local manufacturing plants. This course is designed for those who are pursuing careers in manufacturing design, engineering, and supervision. (F, Sp, Su)

MACH 105 Machine Tool Survey 3
Semester Prerequisite: MATH 050
Basic Skills Prerequisite: Math Level (See *Course Schedule*)
 Informs students of the machine tool principles and practices used in industry. Safety, terminology, measurement, and procedures are used to complete required projects. A working knowledge of hand and machine tools is achieved through a series of lectures, demonstrations, and hands-on projects. (F, Sp, Su)

MACH 110 Machine Tool Technology I 4
Semester Prerequisite: MATH 050, MACH 105
Basic Skills Prerequisite: Math Level (See *Course Schedule*)
 Informs students of shop safety, shop terminology, hand tools, machine tools, measurement, and layout practices. To complete the course, a series of lectures, demonstrations, and projects are used to guide the students. The competency required to successfully complete this course is at the apprentice level. (F, Sp)

MACH 111 Machine Tool Technology II 4
Semester Prerequisite: MACH 110
 This course is structured to apply hands-on applications to metal-working saws, mills, drills, and surface grinders. Bench work and layout procedures with technical terminology and mathematical applications are developed to the technical level of an apprentice. (F, Sp)

MACH 112 Machine Tool Technology III 4
Semester Prerequisite: MACH 111
 This course will use indexing, precision grinding, close-tolerance milling, lathe work, and broaching to complete the required projects. The student will accomplish these goals by using modern machine shop technology, applied math skills, planning, and precision measuring instruments. (F, Sp)

MACH 120 Effective Use of Machinery's Handbook 4
Semester Prerequisite: MATH 114/TECH 101
Basic Skills Prerequisite: Math Level (See *Course Schedule*)
Machinery's Handbook has been recognized as the "bible" for all phases of the metal working industry. This course will familiarize each student with the effective utilization of information contained in *Machinery's Handbook*. (F, Sp, Su)

MACH 130 Die Construction 4
Semester Prerequisite: DTDS 100, MATH 050
Basic Skills Prerequisite: Math Level (See *Course Schedule*)
 This course will provide each student with a basic understanding of the essential principles of cutting and forming operations, die components such as punches, punch plates, die blocks and strippers, and an in-depth knowledge of how to repair and maintain the equipment common to the die industry. (F, Sp)

MACH 135 Metallurgy and Heat Treat 4
Semester Prerequisite: None
 This course is designed to give students a working knowledge of the properties, uses, and heat treat processes of commonly used metals and alloys. The basic principles of metallurgy presented apply to the design, selection, processing, and testing of metal products. (F, Sp, Su)

MACH 140 Tooling Theory and Practices 4
Semester Prerequisite: MACH 110
 This course examines tooling used in mechanical material removal. Tooling materials from high-speed steel to diamond will be discussed and demonstrated. Tooling geometry, resharpening methods, speeds and feeds, failure mechanisms, and problem diagnosis will be addressed. Students will analyze tooling performance and write up technical reports. (F, Sp)

MACH 182 Machine Shop Seminar 2
Semester Prerequisite: None
 This course may cover a variety of topics in the machine trades or related fields. For individuals already employed in the industrial environment seeking to upgrade their skills or anyone looking to be employed in a particular trade. (F, Sp, Su)

MACH 194 Machine Tool Technology Project Lab 4
Semester Prerequisite: MACH 120/Departmental Approval
 An advanced course for students wishing to do in-depth work in the machine shop area or to develop trade-entry skills. Students select projects compatible with their individual fields of work. (Approval may be given to take this course twice for a maximum of eight credits.) (F, Sp, Su)

MACH 210 Principles of Electric Discharge Machining (EDM) 4
Semester Prerequisite: CNCP 110
 This course introduces the student to the fundamentals of Electrical Discharge Machining (EDM). Safety, principles of operation, programming, and operation of both Ram and Wire EDM are explored. Lectures, demonstrations, and projects are used. Projects assigned will require setup, programming, and operation of EDM machines. (F, Sp)

MASG - MASSAGE THERAPY

MASG 270 Massage Therapy - Beginning 2
Semester Prerequisite: None
 This course introduces the student to Swedish massage. The student will learn the history, theory, terminology, physiology, and techniques of Swedish massage. (F, Sp, Su)

MASG 271 Massage Therapy - Intermediate 2
Semester Prerequisite: MASG 270
 Following a review of MASG 270 the student is introduced to specialized massage techniques. The student will learn contraindicated techniques, and exploration of Swedish acupressure. (F, Sp, Su)

MASG 273 Human Structural Dynamics for Massage Therapy 2
Semester Prerequisite: Anatomy/Physiology Required
 This course will provide the massage therapy student with an in-depth view of the areas of anatomy which are particular to massage, primarily within the musculoskeletal and nervous systems. (F, Sp)

MASG 274 Massage Laboratory 2
Semester Prerequisite: MASG 271/Concurrently
 This course is designed for students who intend to complete the Massage Therapy Certificate of Completion curriculum. It will provide the student with supervised practice of massage techniques in basic massage, polarity therapy, clinical, and sports massage. Students must complete the requirements of this course within one year from the date of enrollment. (F, Sp, Su)

MASG 275 Touch for Health I 1
Semester Prerequisite: None
 This course introduces the student to the combination of ancient Oriental disciplines with the modern practice of applied kinesiology. The student will learn basic muscle techniques to improve postural balance, which can affect the mental, emotional, and physical state. (F, Sp)

MASG 277 Polarity Therapy I 2

Semester Prerequisite: None
This course introduces the student to polarity therapy as a form of massage that balances the life energy of the physical body. Hands-on application of balancing techniques, basic theory, and philosophy are taught to enhance relaxation and awareness of energy flow in the body. (F, Sp)

MASG 278 Polarity Therapy II 2

Semester Prerequisite: MASG 277
This course will deepen the student's understanding of polarity therapy. Advanced hands-on techniques and sequences will be taught to balance the various energy patterns of the physical body. Lectures will be on the philosophical, energetic, and spiritual principles that sustain and vitalize the physical form. (F, Sp)

MASG 279 Business Applications for Massage Therapists 2

Semester Prerequisite: MASG 270
This course introduces students to aspects of business and marketing in the field of massage and bodywork. Emphasis is placed on development of a professional and personal business sense and philosophy using planning and persistence, client-practitioner relationships and ethics, research, marketing strategy, goal-setting, motivation, and professional legalities. (F, Sp)

MASG 280 Clinical Approaches to Therapeutic Massage 3

Semester Prerequisite: MASG 271, MASG 273
The student will learn various therapeutic massage techniques and related therapies that will help relieve tension and pain in the musculature. Course includes contraindications, client-therapist relationship, health evaluations, draping procedures, and anatomy/physiology review pertinent to therapeutic massage. (F, Sp)

MASG 281 Sports Massage Techniques 2

Semester Prerequisite: MASG 280
The student will learn various massage techniques and related therapies that are specifically beneficial to the athlete. Application to pre-, inter-, and post-athletic event and athletic training massage will be emphasized. (F, Sp)

MATH - MATHEMATICS

MATH 001 Math Minus Anxiety Workshop 5

Semester Prerequisite: None
A workshop for students who are unsure about their ability to do math and need help and encouragement to succeed in math required for their goals. Materials and exercises are aimed at reducing math anxiety, improving math study skills, and practicing problem-solving techniques. Students at any level of math may enroll. (F, Sp)

MATH 005 Mathematics Laboratory 0

Semester Prerequisite: None
When registering for a math lab course, students must register for both a specific course and a MATH 005 section. The MATH 005 section determines the time and place of attendance in a mathematics laboratory. This time is used for studying, instructional help, and testing. (F, Sp, Su)

MATH 030 Fundamental Arithmetic Skills 4

Semester Prerequisite: Placement Test
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)

The course focuses on arithmetic skills and practical applications with whole numbers, decimals, fractions, rates, ratios and proportions. It also introduces percent, geometry, and measurement concepts. Work is done both with and without a calculator. Confidence-building and study skills for success in mathematics are emphasized. Students who successfully complete MATH 030 or MATH 033 should register for MATH 050. (F, Sp, Su)

MATH 033 Arithmetic Skills 3

Semester Prerequisite: Placement Test
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)

The course focuses on arithmetic skills and practical applications with decimals, fractions, rates, ratios, and proportions. It also introduces percent, geometry, and measurement concepts. Work is done both with and without a calculator. Confidence-building and study skills for success in mathematics are emphasized. Students who successfully complete MATH 030 or MATH 033 should register for MATH 050. (F, Sp, Su)

MATH 050 Mathematics-Principles and Practices 4

Semester Prerequisite: 2.0 Minimum in MATH 030/MATH 033/Placement Test
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)

This course reviews mathematical operations involving fractions and decimals. Topics include percents, ratios, proportions, U.S. and metric measurements, integers, statistical graphs, Pythagorean Theorem, formulas, and geometry involving perimeter, area, and volume. It also introduces algebraic concepts using simple expressions and equations. Problem solving, estimation, and reasoning skills are taught using applications. (F, Sp, Su)

MATH 103 Introductory Algebra, Part A 2

Semester Prerequisite: 2.0 Minimum in MATH 050/Placement Test
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)

Graphing calculator required. This course is the first half of Math 107. Topics include properties of real numbers, variable expressions, solving linear equations, ratio and proportion, graphing, solving systems of equations in two variables, and inequalities. Graphing calculator, relevant applications, and geometry are integrated throughout the course. (F, Sp, Su)

MATH 104 Introductory Algebra, Part B 2

Semester Prerequisite: 2.0 Minimum in MATH 103
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)

Graphing calculator required. This is the second half of MATH 107. Topics include properties of exponents, polynomial operations, solving quadratic equations, factoring polynomials, rational expressions and equations, and radicals. Graphing calculator, relevant applications, and geometry are integrated throughout the course. (F, Sp, Su)

MATH 107 Introductory Algebra 4

Semester Prerequisite: 2.0 Minimum in MATH 050/Placement Test
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)

Graphing calculator required. Topics include properties of real numbers and exponents, variable expressions, solving linear and quadratic equations, polynomial operations including factoring, graphing, solving systems of equations in two variables, rational expressions and equations, ratio and proportion, radicals, and inequalities. Graphing calculator, relevant applications, and geometry are integrated throughout the course. (F, Sp, Su)

MATH 112 Intermediate Algebra 4

Semester Prerequisite: 2.0 Minimum in MATH 104/MATH 107/Placement Test
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level
(See Course Schedule)

Graphing calculator required. This is an extension of beginning algebra, using the graphing calculator, with emphasis on graphing and applications, including linear, quadratic, rational, and other functions. Also emphasized are polynomials, rational expressions, radicals, rational exponents, equations, inequalities, systems of equations, with an introduction to complex numbers, logarithms, and matrices. (F, Sp, Su)

MATH 114 Technical Math I 4

Semester Prerequisite: MATH 050/Placement Test

Basic Skills Prerequisite: Reading Level; Writing Level (See Course Schedule)
This course introduces and/or reviews algebra, geometry, and trigonometry. Topics include order of operations, simplifying algebraic expressions, powers, roots, formulas, area, volume, ratio and proportion, linear and quadratic equations, linear systems of equations, graphing, angles, triangles, Pythagorean Theorem, and right triangle trigonometry. Emphasis is placed on problem-solving techniques for technical applications. (F, Sp, Su)

MATH 115 Technical Math II 4

Semester Prerequisite: MATH 114/Proficiency Test

Basic Skills Prerequisite: Reading Level; Writing Level (See Course Schedule)
This course is a continuation of topics covered in MATH 114. Topics include congruent and similar triangles, properties of polygons and circles including angles, chords, and tangents, application of right and oblique triangles using the Pythagorean Theorem, trig functions, law of sines, law of cosines, and law of cotangents. Emphasis is placed on problem-solving techniques for technical applications. (F, Sp, Su)

MATH 116 Technical Math III	4	MATH 152 Calculus II	4
Semester Prerequisite: MATH 115 This course combines solid geometry and advanced (solid) trigonometry, enabling students to solve problems involving angles in industrial applications. Emphasis on application of actual tooling setups for complex machining operations is used to make the course relate to real life situations. (F, Sp, Su)		Semester Prerequisite: 2.0 Minimum in MATH 151 Basic Skills Prerequisite: Reading Level, Writing Level (See <i>Course Schedule</i>) Applications of integration are emphasized along with the topics of sequences and infinite series. Also studied are exponential, trigonometric, inverse trigonometric, and logarithmic functions; improper integrals; L'Hopital's rule; conic sections; and polar coordinates. (F, Sp, Su)	
MATH 117 Math for Business	4	MATH 201 Math for Liberal Arts I	3
Semester Prerequisite: 2.0 Minimum in MATH 104/MATH 107/Placement Test Basic Skills Prerequisite: Reading Level, Writing Level, Math Level (See <i>Course Schedule</i>) This course surveys math applications in business. Applications representing management, marketing, finance, accounting, and statistics are used. Analysis of situations in business and correct use of business theory is emphasized in addition to accuracy in math. (F, Sp, Su)		Semester Prerequisite: MATH 121 Basic Skills Prerequisite: Reading Level, Writing Level (See <i>Course Schedule</i>) Topics studied provide an understanding of what mathematics is. Topics include analysis and interpretation of data, application of functions, the real numbers, bases other than 10, n -gons, golden figures, and tiling. A strong historical theme is present throughout. The student is involved in concept development as well as in finding answers. (F, Sp, Su)	
MATH 121 College Algebra I	4	MATH 202 Math for Liberal Arts II	3
Semester Prerequisite: 2.0 Minimum in MATH 112/Placement Test Basic Skills Prerequisite: Reading Level, Writing Level, Math Level (See <i>Course Schedule</i>) First in two-course sequence. Graphing calculator required. Topics include functions, mathematical models, symmetry, absolute value, distance, solving equations algebraically and graphically, solving inequalities, linear functions, quadratic functions, geometric transformations, real and complex zeros, and rational, radical, exponential, and logarithmic functions. Degree credit may not be earned in both MATH 121-122 and MATH 126. (F, Sp, Su)		Semester Prerequisite: MATH 201 Basic Skills Prerequisite: Reading Level, Writing Level (See <i>Course Schedule</i>) Topics studied provide an understanding of what mathematics is. Topics include number theory, logic, calculus, mathematical games, graph theory, trigonometry, and algorithmic reasoning. A strong historical theme is present throughout. The student is involved in concept development as well as in finding answers. (F, Sp, Su)	
MATH 122 College Algebra II and Trigonometry	3	MATH 253 Calculus III	4
Semester Prerequisite: 2.0 Minimum in MATH 121/Placement Test Basic Skills Prerequisite: Reading Level, Writing Level, Math Level (See <i>Course Schedule</i>) Second in a two-course sequence. Graphing calculator required. Topics include right triangle trigonometry, reference angles, graphing, identities, inverse trig functions, law of sines and cosines, binomial theorem, systems of linear equations, vectors, sequences, mathematical induction, series, permutations, and combinations. Degree credit may not be earned in both MATH 121-122 and MATH 126. (F, Sp, Su)		Semester Prerequisite: 2.0 Minimum in MATH 152 Basic Skills Prerequisite: Reading Level, Writing Level (See <i>Course Schedule</i>) Multivariable calculus and vector analysis are studied. Vector algebra, curves and surfaces in 3-space, vector valued functions, partial derivatives, multiple integrals, line integrals, and physical applications of all of these topics are presented. (F, Sp, Su)	
MATH 126 College Algebra and Trigonometry	5	MATH 254 Introduction to Differential Equations	3
Semester Prerequisite: 3.5 Minimum in MATH 112/Placement Test Basic Skills Prerequisite: Reading Level, Writing Level, Math Level (See <i>Course Schedule</i>) This is a very intensive course which covers the same material as that in MATH 121 and 122. Topics include functions, absolute value, solving equations and inequalities, graphing, linear and quadratic functions, zeros, rational, radical, exponential, logarithmic and trigonometric functions, right triangle trigonometry, law of sines and cosines, DeMoivre's Theorem, binomial theorem, vectors, sequences, mathematical induction, and series. Degree credit may not be earned in both MATH 126 and MATH 121-122. (F, Sp)		Semester Prerequisite: 2.0 Minimum in MATH 253 Basic Skills Prerequisite: Reading Level, Writing Level (See <i>Course Schedule</i>) An introduction to the basic methods for solving ordinary differential equations, including the methods of undetermined coefficients, variation of parameters, series, Laplace transforms, and numerical methods. Applications are emphasized. (F, Sp, Su)	
MATH 130 Finite Mathematics	3	MATH 260 Linear Algebra	3
Semester Prerequisite: 2.0 Minimum in MATH 121/Placement Test Basic Skills Prerequisite: Reading Level, Writing Level (See <i>Course Schedule</i>) This is an alternate course to MATH 122 for students whose programs do not require trigonometry. Topics studied include mathematics of finance, matrices, linear programming, permutations, combinations, probability, random variables, game theory, and Markov chains. In addition, students will solve applied problems by completing required computer assignments. (F, Sp, Su)		Semester Prerequisite: 2.0 Minimum in MATH 253 Basic Skills Prerequisite: Reading Level, Writing Level (See <i>Course Schedule</i>) This introduction to linear algebra includes the study of systems of linear equations, matrix algebra, vector spaces, linear transformations, eigenvalues and eigenvectors, with applications. (F, Sp, Su)	
MATH 141 Calculus with Applications	3	MATH 281 Honors Math Seminar I	1
Semester Prerequisite: 2.0 Minimum in MATH 121/MATH 126/Placement Test Basic Skills Prerequisite: Reading Level, Writing Level (See <i>Course Schedule</i>) This course is for students in business, economics, social science, life sciences, and other areas not requiring a rigorous study of calculus. Topics studied include limits, derivatives, and integrals with an emphasis on applications to the above-mentioned disciplines. (F, Sp, Su)		Semester Prerequisite: MATH 151, Departmental Approval Students solve a set of challenging mathematics problems which are not normally encountered in other classes. Creative and independent thinking is encouraged and developed. (Sp)	
MATH 151 Calculus I	4	MATH 295 Independent Study in Mathematics	1
Semester Prerequisite: 2.0 Minimum in MATH 122/MATH 126/Placement Test Basic Skills Prerequisite: Reading Level, Writing Level, Math Level (See <i>Course Schedule</i>) The first course in a three semester calculus sequence. Limits, continuity, derivatives of algebraic, trigonometric, and logarithmic functions are considered. Integration techniques and the fundamental theorems of calculus are introduced. Applications of the calculus to both physical and geometric problems are emphasized. (F, Sp, Su)		Semester Prerequisite: Departmental Approval An independent study in some area of mathematics not covered by an existing course. Student works independently under the supervision of a faculty member. Student devotes three or more hours per week to this study in addition to their work with the assigned instructor. (F, Sp, Su)	
		MATH 296 Independent Study in Mathematics	2
		Semester Prerequisite: Departmental Approval An independent study in some area of mathematics not covered by an existing course. Student works independently under the supervision of a faculty member. Student devotes six or more hours per week to this study in addition to their work with the assigned instructor. (F, Sp, Su)	
		MATH 297 Independent Study in Mathematics	3
		Semester Prerequisite: Departmental Approval An independent study in some area of mathematics not covered by an existing course. Student works independently under the supervision of a faculty member. Student devotes nine or more hours per week to this study in addition to their work with the assigned instructor. (F, Sp, Su)	

MATH 298 Independent Study in Mathematics 4**Semester Prerequisite:** Departmental Approval

An independent study in some area of mathematics not covered by an existing course. Student works independently under the supervision of a faculty member. Student devotes 12 or more hours per week to this study in addition to their work with the assigned instructor. (F, Sp, Su)

MEDA - MEDICAL ASSISTANT**MEDA 100 MA Administrative/Communication Skills** 3**Semester Prerequisite:** Admission to Program

Introduction to role of medical assistant administrative/ clerical functions: professionalism, written communication, telephone communication, scheduling, referrals, filing, medical records management, processing incoming and outgoing mail, pegboard system, and basic banking functions. Also provides students with an understanding of interpersonal skills. (F)

MEDA 131 Clinical Skills I 3**Semester Prerequisite:** AHCC 108/ANAT 145, Admission to Program

Designed to provide knowledge in clinical skills relating to the following topics: universal precautions; vital signs, health history and physical examination, infection control, instrument sanitation, disinfection and sterilization, problem-oriented medical records, and physical therapy. (F)

MEDA 132 Clinical Skills II 3**Semester Prerequisite:** MEDA 131

Designed to cover both in theory and campus lab the more advanced technical skills necessary to perform in the clinical setting. Skills and procedures covered will include surgical asepsis, minor surgery assisting, electrocardiography, medication administration, radiography, and nutrition. (Sp)

MEDA 141 Basic Medical Laboratory Procedures 2**Semester Prerequisite:** Admission to Program

This course introduces the student to the clinical laboratory. Laboratory organization and safety will be discussed. Quality assurance issues will be emphasized. Basic principles and procedures for laboratory tests will be presented including collection and preparation of specimens, venipuncture, capillary puncture, urinalysis, and hematological testing. (F)

MEDA 142 Advanced Medical Laboratory Procedures 2**Semester Prerequisite:** MEDA 141

This course enables the student to understand and perform some of the more complex laboratory tests performed in medical offices. Basic pathophysiology will be discussed. Tests from the following areas will be covered: clinical chemistry, immunology, microbiology, and hematology. Collection and preparation of specimens, etc. (Sp)

MEDA 181 Administrative Practicum 2**Semester Prerequisite:** MEDA 132, MEDA 142, AHCC 110

Administrative practicum is designed to provide application of administrative theory. This course is programmed with specific performance objectives and activities. (Su)

MEDA 182 Clinical Practicum 2**Semester Prerequisite:** MEDA 132, MEDA 142, AHCC 110

Clinical practicum is designed to provide application of theory and practice relevant to the clinical skills required of a medical assistant. The course is designed with specific performance objectives and activities. (Su)

METR - METEOROLOGY**METR 220 Introduction to Meteorology** 4**Semester Prerequisite:** 2.0 Minimum in ISCI 110/Science Inventory Recommended**Basic Skills Prerequisite:** Reading Level; Writing Level; Math Level (See *Course Schedule*)

This course includes a study of the interrelationships of the elements (temperature, moisture, pressure, wind) that create weather. Human-atmospheric interactions (e.g., pollution, severe weather, greenhouse effect), world climate, and climatic change are also discussed. Laboratory includes making weather observations and measurements, and learning how to draw and interpret weather maps. (F)

MFGM - MANUFACTURING MAINTENANCE**MFGM 101 Industrial Hydraulics** 4**Semester Prerequisite:** MATH 050**Basic Skills Prerequisite:** Math Level (See *Course Schedule*)

Industrial hydraulics introduces the theory of fluid power and circuits covering pumps, pressure valves, flow valves, cylinders, filters and motors, etc., as they are used in industry today. This will be done with lectures and labs related to each of the respective components. (F, Sp, Su)

MFGM 102 Industrial Pneumatics 3**Semester Prerequisite:** MATH 050**Basic Skills Prerequisite:** Math Level (See *Course Schedule*)

Introduces the students to the theory of industrial pneumatic systems. The theory of gas laws, pumps, filters, valves, etc., will be discussed as they are applied to the industrial pneumatics systems. The use of lecture and labs will give the students a hands-on approach to the use of pneumatics. (F, Sp)

MFGM 110 Machine Maintenance I 4**Semester Prerequisite:** MATH 050/Equivalent**Basic Skills Prerequisite:** Math Level (See *Course Schedule*)

Theory and industrial application of machine repair, preventive maintenance, safe practices, and troubleshooting, with actual dismantling and rebuilding of tool room machines. (F, Sp)

MFGM 111 Machine Maintenance II 4**Semester Prerequisite:** MFGM 110

Advanced theory and practice of machine tool repair including preventive maintenance. Also, the theory and repair of pumps and pneumatic tools will be covered. (F, Sp)

MFGM 120 Industrial Presses 4**Semester Prerequisite:** None

Covers different types of mechanical presses, terminology, purposes, and functions in industry. Includes movies and slides of mechanical action, maintenance systems, and safety, supplemented by visits to plants using presses and press repairs. For mechanical trades apprentices, press repair and maintenance people, stamping plant employees, press operators, and die setup employees. (F, Sp)

MFGM 125 Rigging 2**Semester Prerequisite:** MATH 050/Equivalent**Basic Skills Prerequisite:** Math Level (See *Course Schedule*)

Covers uses and strengths of ropes, chains, block and tackles, and the construction and erection of gin poles, with a study of rope knots used in rigging. Also, safe working strength of slings, hooks, sheaves, ropes and chains, and the use of personal safety equipment will be covered. (F, Sp)

MFGM 170 Fork Lift Truck Driver Training .5**Semester Prerequisite:** None

This course will teach the safe operation of industrial fork trucks. The instruction will combine lecture, written materials, and hands-on operation of a fork truck. Students will learn the basic safety guidelines and basic operational procedures of industrial fork trucks. (F, Sp, Su)

MGMT - MANAGEMENT**MGMT 200 Creative Thinking for Business** 3**Semester Prerequisite:** Any BUSN/MGMT Course/Departmental Approval

This course is designed to develop thinking skills and break down barriers to creativity. An experiential approach is used to apply both critical and creative thinking skills to business situations. (F, Sp)

MGMT 223 Supervision 3**Semester Prerequisite:** None

This course presents supervisory principles and practices for first-line supervisors. Managerial functions of planning, organizing, staffing, directing, and controlling are discussed, along with policies, decision-making, and the responsibilities of supervisors for overall work performance and employee development and evaluation. (F, Sp)

MGMT 224 Human Resource Management 3	MGMT 240 How Managers Make Things Happen 2
Semester Prerequisite: None	Semester Prerequisite: None
This is a survey course which examines the role of human resources management and its contribution to the total management effort. Emphasis will be placed on the evolution of human resource management, recruitment and selection, appraising and improving performance, compensation and incentives, safety and health, employee-management relations, and current legislation. (F, Sp)	This practical skills-building program concentrates on the functions that most often determine management success. Students will learn how to improve their performance in key areas by analyzing their job, breaking it down into functional components, spotting weaknesses, and taking concrete action to turn them around. (F, Sp, Su)
MGMT 225 Principles of Management 3	MGMT 241 How Successful Women Manage 1
Semester Prerequisite: None	Semester Prerequisite: None
Management is a changing discipline in a changing business world. This course is designed to reflect the dynamics of our changing world and to provide students with an introduction to some of the issues, topics, and processes that managers face. We will cover such topics as management functions and processes, quality, ethics, global issues, and the challenges and opportunities of diversity. In this course, students will manage themselves and their learning. (F, Sp, Su)	This course is an overview of the various functions and processes involved in management. Students will explore possible explanations for women's slow rate of progress in attaining managerial positions. It is enlightening and an absolute must for any woman who is considering entering or is now a part of management. (Sp, Su)
MGMT 227 Training and Development for Business 2	MGMT 242 Manager's Guide to Working With People 1
Semester Prerequisite: None	Semester Prerequisite: None
Training and development for business is a course designed to cover all aspects of training in the business environment. The course will focus on assessing training needs, identifying training barriers, curriculum design, instructional techniques, evaluation, and adult learning theory. (Sp)	Managers who want to work effectively with people—both on and off the job—will find this course full of valuable information. Students will acquire an understanding of human needs and motivation, leadership styles, problem-solving techniques, and effective methods for being assertive. Students will also learn how to deal with difficult behavior through positive work strategies. (Sp, Su)
MGMT 228 Organizational Behavior 3	MGMT 243 How to Delegate Effectively 1
Semester Prerequisite: None	Semester Prerequisite: None
Examines the dynamics of relationships at work. Integrates and applies behavioral and social science knowledge, using a systems approach, and focusing on the nature of both people and organizations. Students will study individual and group behavior and will have opportunities to work on skills necessary for successful interaction in organizations. (F, Sp)	This course will show students how to increase their productivity through delegation. It is designed to increase comfort with the delegation process, and demonstrates how this method of organizing and dispersing work can help improve everyday job performance. (Sp, Su)
MGMT 229 Compensation Management 3	MGMT 244 Supervisory Management 2
Semester Prerequisite: LABR 204, MGMT 224/MGMT 228	Semester Prerequisite: None
Students will gain a practical understanding of the principles and applications of compensation management. Students will study the theories, behaviors, and legal constraints affecting compensation practices, including job analysis, job evaluation methodologies, labor market surveys, variable pay approaches, and the administration of legally mandated and voluntary employee benefit programs. (F)	This course is designed to help managers at all levels to develop, enhance and update their skills. Major areas of emphasis include planning, operating, controlling, personnel functions, decision-making, job design, job analysis, and quality control within the department. (F, Sp, Su)
MGMT 231 Team Development 3	MGMT 245 Leadership Skills for Managers 1
Semester Prerequisite: None	Semester Prerequisite: None
This course defines and examines team building, team leadership, and self-managed teams in the context of today's workplace. Students develop skills in writing team mission and vision statements, and team goals and action assignments. Students will develop skills in chartering, problem solving, decision-making, conducting effective meetings and work sessions, negotiating, and presenting. (F, Sp)	In this course, the student will discover the secrets of great leadership and learn about the four basic leadership styles. You will master the art of goal setting, find your most effective leadership style, and know when to use the right style at the right time. (F, Sp, Su)
MGMT 234 Diversity in the Workplace - A Domestic and Global Perspective 3	MGMT 246 Fundamentals of Modern Personnel Management 1
Semester Prerequisite: None	Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level (See <i>Course Schedule</i>)	An organization's success often rests on the management of its staff. This course provides managers with comprehensive ideas and techniques for human resources programs that increase productivity and profits. (F, Sp, Su)
This course explores cultural, gender/sexual, physical, and other minority experiences in the workplace and in the world. The management of human resources will be examined from a global perspective. Emphasis is on helping the majority and the minority become aware of the other's opinions, feelings, and perspective. Instruction takes an experiential, awareness training approach. (F, Sp)	MGMT 247 How to be a Successful Project Manager 1
MGMT 237 Managing for Continual Improvement 3	Semester Prerequisite: None
Semester Prerequisite: None	Gain a comprehensive understanding of the techniques and methodology needed to plan and control any project—large or small—in any industry. Students will examine both basic and sophisticated tools, and learn how to use those tools as decision aides during a project's tracking and controlling phase. (F, Sp, Su)
Provides an introduction to concepts of quality, continual improvement, systems thinking, and other new management practices. Covers the history of the quality movement including key thinkers/leaders. Explores new ways of thinking and leading, methods for continual improvement teams, empowerment, and "learning organizations." (F, Sp)	MGMT 248 Team Building 1
MGMT 239 Time and Stress Management 3	Semester Prerequisite: None
Semester Prerequisite: None	More than ever, teams are a vital force in today's working environment. This course presents positive, practical methods for building and managing effective teams. Learn how to build trust, confidence, and group work skills; and how to balance and fine-tune the team process. Participants will focus on key aspects of team building, ranging from recruitment to empowering team members with authority and responsibility. (F, Sp, Su)
Explores relationship between time and stress management; stress is the causal factor for many of our physical and psychological problems. Suggests methods for harnessing its energy positively. Techniques and strategies for wise utilization of time and energy. Emphasis on creating action plan and initiating corrective actions. (F, Sp)	MGMT 249 Dealing With Difficult People 1
	Semester Prerequisite: None
	Discover how seasoned managers cope with difficult personalities in the workplace. This course covers effective communication, motivational and conflict resolution approaches used by experienced managers. Students will also learn how to avoid difficult behaviors by instituting positive work strategies, structures, and values before problems develop. (F, Sp, Su)

MGMT 250 Fundamentals of Finance and Accounting/ Non-Financial Managers	2	MGMT 262 How to Keep Satisfied Customers	1
Semester Prerequisite: None		Semester Prerequisite: None	
Provides the manager with an understanding of finance. Will help students learn to read and interpret financial statements, annual reports, and balance sheets. This course will help students use financial and accounting data more effectively. (F, Sp, Su)		This course is designed to make the task of keeping customers satisfied an easier one. The ultimate goal of this course is to help improve students' abilities to communicate effectively with customers. (F, Sp, Su)	
MGMT 251 Communication Skills for Managers	1	MGMT 263 Successful Marketing for Service Organizations	1
Semester Prerequisite: None		Semester Prerequisite: None	
All managers have a basic tool they can use to effectively get messages across to staff and colleagues: communication. This course presents practical applications for communicating such as writing effective letters, memos and reports, running meetings, conducting interviews, and listening. A video supplement is included. (Sp, Su)		Marketing concepts long associated with manufactured goods are now being applied to the service sector. Learn how to create services for markets rather than markets for services. This course is designed for service company managers and others who need to sharpen their competitive edge. (Sp, Su)	
MGMT 252 How to Deliver a Winning Presentation	1	MGMT 264 How to Write a Marketing Plan	2
Semester Prerequisite: None		Semester Prerequisite: None	
This course will provide the student with a basic awareness of the steps necessary for making an effective oral presentation. It is designed for anyone who wants to reduce the fear of public speaking by learning how to deliver presentations. (Sp, Su)		This course is designed for small business owners, marketing managers, product managers, and others responsible for creating the marketing plan. Students will learn how to fuse vital elements to create a marketing plan that is right for their product line, department, company, or organization. (Sp, Su)	
MGMT 253 How to Write Winning Reports	1	MGMT 265 WWW Skills for Business and Personal Development	1
Semester Prerequisite: None		Semester Prerequisite: None	
This course helps students develop a more concise straight forward writing style. It will help you express your ideas more clearly in memos, letters, and reports. (F, Sp, Su)		This course is designed for individuals who wish to benefit from online knowledge—the information superhighway. Included is a highly visual introduction to the World Wide Web, with Windows overview and basic WWW skills. Students will learn to create a Web page, designed for interactive learning or reading. (F, Sp, Su)	
MGMT 254 How to Write a Business Plan	2	MGMT 266 How to Enter International Markets	2
Semester Prerequisite: None		Semester Prerequisite: None	
This course is designed for managers who want to give real meaning and power to their company's business plan. Participants will learn how to develop realistic action programs and responsibility plans for allocating scarce resources, installing workable monitoring and control systems, and creating supportive policies and procedures. (Sp, Su)		International trade and marketing is growing rapidly in business. This course will help the student to capitalize on "going global" by providing information on how to research resources, learn terminology, and develop foreign market entry strategy. It is designed for the individual entrepreneur or a manager wishing to improve the bottom line. (F, Sp, Su)	
MGMT 256 Strategic Planning for Entrepreneurial Business	1	MGMT 268 Organizing Your Workspace: Enhancing Personal Productivity	1
Semester Prerequisite: None		Semester Prerequisite: None	
Owners and managers of new and growing businesses, or of companies that operate within an entrepreneurial environment, will learn how to prepare a strategic plan. Students will learn about organizational charts, goal-setting matrices, diagnostic summary sheets, and checklists—all designed to help them create a plan that works. (F, Sp, Su)		Organization is a skill that is easy to learn. Personal productivity is reduced by as much as 20 percent or more from ineffective organization of the workspace environment. This course is for anyone who experiences "clutter" in their daily activities. The student will get organized and stay organized as technology impacts the way we work. (F, Sp, Su)	
MGMT 257 Using Math as a Business Tool	1	MGMT 270 Time and Stress Management	1
Semester Prerequisite: None		Semester Prerequisite: None	
This course is designed to increase familiarity with formulas and calculations most frequently used in business. Participants will learn to apply various ratios to test a company's strength, use statistical tools to read results more accurately, forecast more reliably, and assess the viability of a project through break-even analysis. (F, Sp, Su)		Time management techniques can be applied to both personal and professional situations. Learners will discover basic principles of time management, and will also become aware of positive and negative stress, relaxation techniques, and ways to reduce stress through changes in lifestyle. (F, Sp, Su)	
MGMT 258 Strategic Résumés: New Challenges in the Work World	1	MGMT 271 Managing and Resolving Conflict	1
Semester Prerequisite: None		Semester Prerequisite: None	
The résumé is a sales tool for finding new career opportunities. Students will rethink their personal marketing tool, develop strategies, marshal resources, and create a packaged strategic, concise resume to help the applicant stand out and be noticed. (F, Sp, Su)		Conflict can be managed and yield positive results. Students of this course will gain practical knowledge, learn proven techniques, and acquire psychological insights they can use to resolve conflicts successfully. This course uses case studies, critical incidents, and realistic examples of conflict resolution to teach crucial skills. (Sp, Su)	
MGMT 260 How to Analyze the Competition	2	MGMT 272 Success Through Assertiveness	1
Semester Prerequisite: None		Semester Prerequisite: None	
This course will enable students to pinpoint competitors' strengths and weaknesses so students can identify and act upon competitive challenges before they occur. The course assists students in the design, implementation, and management of a competitor "intelligence" system. (F, Sp, Su)		This course will help to put participants in command of their career in order to respond to difficult situations according to individual desires, interests, and feelings. Participants will learn how being properly assertive at the right times and in the right place can help them achieve their goals. (Sp, Su)	
MGMT 261 Psychology of Selling and Winning	1	MGMT 273 Understanding and Assessing Personal Interaction Skills	1
Semester Prerequisite: None		Semester Prerequisite: None	
This course helps students realize their full potential for total success. It goes beyond positive thinking or other motivational programs to offer the key that unlocks inner power. It teaches participants what to do to become top professional salespeople and why they should do it in order to sell successfully. (Sp, Su)		This course is designed to increase awareness of personal styles and preferences for interacting with others. It is also designed to heighten awareness of styles and preferences of people with whom the student interacts daily. (F, Sp, Su)	

MGMT 274 Personal Financial Planning	2
Semester Prerequisite: None	
This course will show students how to start building financial security. It emphasizes spending strategies and capital-building techniques rather than housekeeping methods. Included is a computer template disk to accompany Lotus 1-2-3 for student use during the course. (Sp, Su)	
MGMT 275 How to Build Memory Skills	1
Semester Prerequisite: None	
This course uses audiotapes and a textbook to help apply the skills that increase ability to obtain and utilize information. The result of using improved listening and memory skills will help realize leadership potential. (Sp, Su)	
MGMT 276 How to Improve Writing Skills	1
Semester Prerequisite: None	
This course helps students strengthen their skills in these key communication areas by knowing how to properly use words and phrases associated with business. Workbook practice and review exercises are provided. (Sp, Su)	
MGMT 277 Speed Learning	1
Semester Prerequisite: None	
This course offers an entirely different way to read that reduces reading time while increasing comprehension. It teaches how to organize thinking systematically so the reader can learn quickly and efficiently in all reading situations. (Sp, Su)	
MGMT 278 Creative Fund-Raising	2
Semester Prerequisite: None	
As traditional funding sources become scarce, creative fund-raising is critical for an organization's survival. This course will guide the student through the process of defining fund-raising in an organization, identifying grant sources, and developing donors through special events. The student will design a strategic fund-raising plan for the solicitation and creative utilization of resources. (F, Sp, Su)	
MGMT 280 Management Internship	3
Semester Prerequisite: Coordinator Approval	
Internships provide students with actual job training and experience by working with business owners and/or managers in organizing and/or operating a business. Minimum of 160 hours of work required. (F, Sp, Su)	
MGMT 300 Managerial Leadership	3
Semester Prerequisite: MGMT 223/Departmental Approval	
Explores the leadership roles and functions of middle- to upper-level managers. Presents an overview and analysis of processes by which managers help organizations obtain their stated goals. Students apply managerial leadership theories and skills to help them develop abilities in the areas of planning, communication, decision-making, change management, and ethics. (F)	
MGMT 304 Organizational Development	3
Semester Prerequisite: MGMT 225/MGMT 300/Departmental Approval	
Based on the assumption that all managers must recognize, plan for, and manage organizational change, this course examines the process of improving organizational effectiveness by means of a systematic change program. Students practice identifying problems, selecting appropriate interventions, building action plans, and developing facilitator skills. (F, Sp)	
MGMT 329 Advanced Management Communication Skills	3
Semester Prerequisite: MGMT 225/MGMT 300/Departmental Approval	
This is an advanced course in interpersonal communication skills for business. It includes components of listening, interpersonal communication, oral presentations, interviewing techniques, meeting management, business report writing, and persuasive speaking. This class is both informational and experiential. (F, Sp)	
MGMT 332 Managerial Ethics	3
Semester Prerequisite: MGMT 225/MGMT 300/Departmental Approval	
Designed to sensitize participants to the impact of ethics on decision-making, both personal and organizational. Participants will examine the basis for the behavior of managers, their own behavior, various means of controlling organizational behavior, and the bases for ethical standards. (F, Sp)	
MGMT 335 Managerial Statistics	3
Semester Prerequisite: MATH 112/MATH 117/Equivalent	
Application of statistical tools and techniques to improve decision-making processes and reduce managerial decision difficulty from less-than-perfect data. Includes sampling, description of sample data, methods of averaging, standard deviation, probability theory, estimation, and hypothesis testing. (F, Sp)	

MGMT 337 Human Resource Management Skills	3
Semester Prerequisite: MGMT 225/MGMT 300/Departmental Approval	
Skill areas involved in the management of human resources are developed. Techniques for setting objectives with employees, conducting performance appraisals, and working with employee problems are practiced. Students plan techniques for managing teams and for leading and motivating employees. (F, Sp)	
MGMT 338 Current Topics in Management	3
Semester Prerequisite: MGMT 225/MGMT 300/Departmental Approval	
Study of specific topics and issues in today's society that affect managerial decisions. Students explore internal and external constraints on actions. External factors considered are legal, social, educational, and political. Special emphasis is given to international events impacting domestic management practices. Internal factors considered are shareholders, employees, and customers. (F)	
MGMT 339 Management Styles and Corporation Strategies	3
Semester Prerequisite: None	
Numerous current materials relating to management styles and corporation strategies in Japan will acquaint the student with management as practiced in Japan. Japanese management practices are presented as an alternative managerial style for the United States to explore. (This course is offered only as part of the Japan Adventure Program.) (Sp, Su)	
MGMT 346 Managerial Finance	3
Semester Prerequisite: ACCG 210	
This course is designed to provide necessary and practical skills to deal with financial matters and communicate with people who specialize in finance. Topics covered include basic financial analysis, short-term and long-term financing, financial planning, and managing the finance function. (F, Sp)	
MGMT 348 Strategic Management and Policy	3
Semester Prerequisite: MGMT 300/MGMT 225	
This course pulls together learning from the areas of management and marketing to gain an overall organizational perspective which is applied to strategic plan formulation and implementation for the whole organization. The process involves pursuing organizational mission while managing the relationship of the organization to its environment. (F)	

MICR – MICROBIOLOGY

MICR 203 Microbiology	3
Semester Prerequisite: BIOL. CHEM Recommended	
Basic Skills Prerequisite: Reading Level: Writing Level: Math Level (See Course Schedule)	
An introduction to bacteria, viruses, and other microorganisms as they relate to human health. Emphasis on bacterial and viral structure, life cycles, and genetics, antimicrobial therapy, immunology and host defenses, and the epidemiology, treatment, and prevention of selected infectious human diseases. (F, Sp, Su)	
MICR 204 Microbiology Laboratory	1
Semester Prerequisite: MICR 203/Concurrently	
Basic laboratory principles of microbiology for allied health students. Emphasis on microscopy, aseptic cultivation of microorganisms, differential staining, assays of antimicrobial agents, and diagnostic laboratory techniques. Students will identify unknown bacterial species and examine medically important parasites. (F, Sp, Su)	

MILS – MILITARY/SCIENCE

MILS 101 The Military Profession	1
Semester Prerequisite: None	
This course analyzes the military profession and organization of the U.S. Army from several academic perspectives and explores the technical, ethical, and personal ramifications of service as an officer in the U.S. Army. This course provides an introduction to military leadership which draws upon examples from military history. (F, Sp)	
MILS 102 Land Navigation	1
Semester Prerequisite: None	
This course includes an overview and practical exercise in the use of military topographic maps. This course will cover methods of reading and interpreting map symbols; determining elevation and relief; measuring distance; and using the techniques of intersection, resection, modified resection, and polar coordinates to determine location. Lab includes land navigation exercises using a lensatic compass in a field environment. (F, Sp)	

MILS 201 Leadership Assessment Program: The Military Leader 1

Semester Prerequisite: None
This course examines individual leadership development using standardized assessment technology to evaluate potential to command and lead. Communications, administrative, personal relations and decision-making skills training, ethical career assessment, and sources of professional obligation will be reviewed. Lab includes rappelling and smallbore rifle marksmanship. (F, Sp)

MILS 202 Military First Aid, Leadership Assessment, Fitness Training 1

Semester Prerequisite: None
This course provides instruction in emergency first aid techniques including casualty evaluation, lifesaving measures, CPR, and environmental injury prevention. It reviews the Army's Physical Fitness Program, and introduces individual and group fitness programs. Rappelling, individual/squad tactics, and field training exercises are provided. Lab includes leadership training. (F, Sp)

MKTG - MARKETING

MKTG 100 Current Issues in Business 3

Semester Prerequisite: None
This is an introductory course designed to enhance a student's occupational preparedness and competence by promoting a better understanding of the competitive enterprise system. Classroom instruction will be combined with relevant marketing projects and professional community involvement to give students a solid foundation of marketing knowledge and managerial "know-how." (F, Sp)

MKTG 119 Marketing and Managing Your Professional Image 3

Semester Prerequisite: None
This course is a complete guide for everything people and their companies need to know to do the right thing at the right time in every business situation. Students will understand the importance of a professional image as it relates to business success and will develop a personal image development plan. (F, Sp)

MKTG 120 Sales 3

Semester Prerequisite: None
This course presents the fundamentals of sales and highlights its role in the marketing mix. Students will develop basic skills needed to enter the field. Topics include customer buying habits, the sales process, product demonstration techniques, and the analysis of human relations aspects of sales. (F, Sp, Su)

MKTG 122 Field Sales Internship 3

Semester Prerequisite: MKTG 120/Departmental Approval
Practical field sales experience working in consumer or industrial sales. Opportunity to develop advanced selling techniques and refine selling skills. Minimum of 160 hours of work required. (F, Sp, Su)

MKTG 123 Computer Field Sales Internship 3

Semester Prerequisite: MKTG 120/Departmental Approval
Practical computer field sales experience working in consumer or industrial sales. Opportunity to develop advanced selling techniques and refine selling skills. Minimum of 160 hours of work required. (F, Sp, Su)

MKTG 130 Retailing 3

Semester Prerequisite: None
Students will gain understanding of activities and strategies used in selling goods to ultimate consumers. The course develops an awareness of problems facing retailers and explores feasible solutions. Career opportunities in retailing are examined. (F, Sp)

MKTG 131 Merchandising 2

Semester Prerequisite: None
Functions and policies: what, when, where, how much, how to, and from whom to buy. Introduction to merchandising, merchandise management, store management and operations, how to evaluate and set up effective controls, and new trends in merchandising. Career opportunities are also explored. (Sp)

MKTG 140 Introduction to Advertising 3

Semester Prerequisite: None
Methods and techniques used in modern advertising. Information on the entire advertising function. Preparation of an advertising campaign will be required to facilitate hands-on understanding of the component parts which include marketing review, marketing plan, creative strategy, and media selection. (F, Sp)

MKTG 200 Principles of Marketing 3

Semester Prerequisite: BUSN 118/Approval
Designed to define marketing, develop an understanding of the marketing concept and functions, and generally investigate the field of marketing. Will cover the marketing environment; identifying consumer needs; examining product, price, promotion; and distribution strategies within our society. Provides a basic marketing understanding with practical applications. (F, Sp, Su)

MKTG 202 Managerial Marketing 3

Semester Prerequisite: MKTG 200
The course focuses on the solution of marketing problems through case analysis. It relates marketing to the total enterprise by analyzing problems, and suggesting approaches to business decision-making. Particular attention is paid to the elements of the marketing mix and how marketing management deals with these variables. (Sp)

MKTG 204 Marketing Research 3

Semester Prerequisite: MKTG 200
Types of data, sampling, data collection, analysis, interpretation, and applications of marketing research. A practical managerial approach—not a statistical or mathematical orientation. Students will design and execute a marketing research project. (F)

MKTG 221 Consumer Behavior 2

Semester Prerequisite: None
Covers the basic perspectives involved in consumer motivation and decision-making. Students will investigate relevant variables that shape consumer actions and concepts that integrate the study of consumer behavior with the practice of marketing. (F)

MKTG 231 Independent Study in Marketing 1

Semester Prerequisite: Coordinator Approval
Advanced marketing students design, implement, and draw conclusions relevant to a marketing project in a specific area of interest in marketing. Minimum of 16 hours work is required. (F, Sp, Su)

MKTG 232 Independent Study in Marketing 2

Semester Prerequisite: Coordinator Approval
Advanced marketing students design, implement, and draw conclusions relevant to a marketing project in a specific area of interest in marketing. Minimum of 32 hours work is required. (F, Sp, Su)

MKTG 233 Independent Study in Marketing 3

Semester Prerequisite: Coordinator Approval
Advanced marketing students design, implement, and draw conclusions relevant to a marketing project in a specific area of interest in marketing. Minimum of 48 hours work is required. (F, Sp, Su)

MKTG 235 Marketing Internship 3

Semester Prerequisite: BUSN 118, MKTG 200, Coordinator Approval
Practical work experience in an approved business setting. Minimum of 160 hours work required. (F, Sp, Su)

MTEC - MEDIA TECHNOLOGY

MTEC 110 An Introduction to the Broadcast and Electronic Media 4

Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level (See Course Schedule)
A survey of the history, technology, regulation, economics, programming, and societal effects of the electronic media. (F, Sp, Su)

MTEC 120 Audio Production I 4

Semester Prerequisite: None
A beginning course which covers the basics of audio theory and production techniques. Included are topics in tape editing, audio mixing, and basic nonlinear digital editing. This class provides the foundational theory for the other classes in the audio series. (F, Sp, Su)

MTEC 121 Audio Recording I 4

Semester Prerequisite: MTEC 120, MTEC 220 Recommended
A beginning course in audio recording which covers the basic principles of multitrack recording, both studio and remote. Emphasis is placed on microphone selection and placement, use of mixing consoles for the recording session, and multitrack recorders. (F, Sp)

- MTEC 122 Sound Reinforcement** 4
Semester Prerequisite: MTEC 120
 A beginning course in sound reinforcement which covers the theory and practice of sound systems and components used for concert sound and other live reinforcement operations. Includes equipment specifications, system design, troubleshooting, and operation of live systems. (Sp)
- MTEC 130 Radio Production I** 4
Semester Prerequisite: None
 Survey of the radio broadcast industry including careers, qualifications, responsibilities, and station operation. Introduces basic studio production and on-air presentations. (F, Sp, Su)
- MTEC 150 TV Production I** 4
Semester Prerequisite: None
 This course places special emphasis on the components of effective visual communication. The development of pre-production processes related to visual composition, scriptwriting, storyboarding, lighting, and floor plot designs are emphasized. An introduction to studio and field production formats is included in classroom activities. Class sessions contain instructional and performance exercises. (F, Sp)
- MTEC 151 Electronic Field Production I** 4
Semester Prerequisite: MTEC 150/Approval
 This course provides the student with an introduction to the process of single camera, remote video production. In addition, the course helps the student in developing an aesthetic reference for critiquing contemporary video programming. In-class assignments are evaluated using technical and artistic guidelines. (F, Sp)
- MTEC 220 Audio Production II** 4
Semester Prerequisite: MTEC 120
 A second course in audio production providing advanced audio theory and production practice. Included are topics in tape editing of musical material, use of audio effects in production, additional production mixing, and audio post-production for video. (F, Sp)
- MTEC 221 Audio Recording II** 4
Semester Prerequisite: MTEC 121
 A second course in audio recording that covers advanced techniques used in multitrack studio recording. Emphasis is on use of the multitrack studio and signal processing equipment for multitrack mixdown as well as the use of SMTE and MIDI. (Sp)
- MTEC 223 Sound Reinforcement Practicum** 2
Semester Prerequisite: MTEC 122
 A practical sound reinforcement activity combining specific theories related to the larger project with the opportunity to design, assemble, load, transport, erect, operate, and strike a large outdoor reinforcement system. Students operate the system to provide reinforcement for the hands that play in Riverfront Park on the Fourth of July. (Su)
- MTEC 230 Radio Production II** 4
Semester Prerequisite: MTEC 130
 Presentation of advanced studio and remote-production techniques. Emphasis on writing, producing, and performing for commercials, news, and sports programs. (F, Sp)
- MTEC 231 Radio Programming and Promotions** 3
Semester Prerequisite: MTEC 130
 A survey of diverse radio formats. Consideration is given to the role of the program director and the tools used in format decision-making. Techniques used in creating and promoting station image and the effects of ratings are analyzed. (Sp)
- MTEC 232 Radio Workshop** 2
Semester Prerequisite: Departmental Approval
 An opportunity for practical experience through access to the campus radio facility. Students work in a variety of station staff positions. (F, Sp, Su)
- MTEC 240 Script and Copywriting for the Media** 3
Semester Prerequisite: MTEC 110
 Basic writing techniques and formats used in preparing program scripts for television, radio, and multimedia productions. Emphasis on practical copywriting techniques for commercial, promotion, public affairs, documentary, and entertainment programs. (Sp)
- MTEC 241 Radio News Reporting** 3
Semester Prerequisite: MTEC 130
 Survey of the broadcast news industry with special emphasis on radio news. This course includes practical exercises in preparing news stories through writing, production, and presentation. Interviewing and feature production are also covered. (F)
- MTEC 242 Radio Sales and Marketing** 3
Semester Prerequisite: MTEC 110
 An introductory course to the profession of advertising sales as it relates to the broadcast media but with special emphasis on radio—the primary training ground for broadcast media account executives. This course covers the profession from advertising basics to the activities of a winning radio sales superstar. (Sp)
- MTEC 243 The Ethics and Social Impact of the Media** 3
Semester Prerequisite: None
 This course explores the effects of the mass media on American culture and society. Topics such as privacy, censorship, violence, and portrayals of minorities and women are discussed. These discussions take place within an ethical reasoning framework. (F, Sp, Su)
- MTEC 250 Television Studio Production** 4
Semester Prerequisite: MTEC 150
 An advanced production course focusing on the development of the technical and creative skills necessary to direct the work of a studio production team. Production assignments are modeled after activities found in broadcast production environments. Additional academic exercises include interpretation and translation of script ideas into effective video programming. (Sp)
- MTEC 251 Electronic Field Production II** 4
Semester Prerequisite: MTEC 151
 An advanced production course designed to provide the student with high-level instruction in videography and electronic editing techniques. Class sessions contain instructional and critical analysis exercises of contemporary video programming. All production exercises are conducted outside of classroom sessions. Course assignments are evaluated on technical and artistic guidelines. (F)
- MTEC 252 Lighting for Television and Video** 3
Semester Prerequisite: MTEC 150
 An advanced instructional seminar on lighting techniques for video and television production. Special emphasis is placed on developing creative and technical lighting approaches applicable to a broad range of program subjects. In-class examples and assignments are used for developing individual lighting techniques. (Sp)
- MTEC 254 Electronic Presentational Graphics** 3
Semester Prerequisite: MTEC 150
 An introduction to the production of electronically-generated visuals for use with video presentations. Computer and video hardware will be used to create desktop graphics and special effects as elements of television programs. (Sp)
- MTEC 255 Video Workshop** 2
Semester Prerequisite: MTEC 151/Departmental Approval
 This course provides guided laboratory and practical production experience in the creation of professional video programming. Projects will include opportunities to work in a variety of production and post-production positions during the semester. Emphasis will be placed on developing course materials of a professional caliber that students can later use as portfolio or résumé materials. (F, Sp, Su)
- MTEC 290 Guided Independent Study** 1
Semester Prerequisite: Departmental Approval
 An opportunity for self-directed learners to explore topics of particular interest more thoroughly. Students will meet intermittently throughout the semester with an assigned faculty member for guidance and evaluation of progress. A proposal detailing the area of independent investigation must be submitted by the student prior to registration. (F, Sp, Su)
- MTEC 291 Guided Independent Study** 2
Semester Prerequisite: Departmental Approval
 An opportunity for self-directed learners to more thoroughly explore topics of particular interest. Students will meet intermittently throughout the semester with an assigned faculty member for guidance and evaluation of progress. A proposal detailing the area of independent investigation must be submitted by the student prior to registration. (F, Sp, Su)

MTEC 295 Media Practicum	3
Semester Prerequisite: Departmental Approval	
An opportunity to gain practical production experience in the media. Students are assigned to work on various audio, video, radio, and television projects within the Media Department. Faculty guidance and evaluation are an integral part of the experience. Practicum is intended only for advanced media technology students. (F, Sp, Su)	
MTEC 296 Media Internship	3
Semester Prerequisite: Departmental Approval	
An opportunity for students to work in external media settings under professional supervision. Students work closely with faculty in arranging and evaluating the workplace experience, interview results determine intern placement. The internship is intended only for media technology majors who have completed at least 75 percent of their academic programs. (F, Sp, Su)	
MTEC 298 Special Projects	2
Semester Prerequisite: Departmental Approval	
An opportunity for students to work closely with faculty in the design and development of media-based programs and projects to be used by departments or divisions within the College. (F, Sp, Su)	
MTEC 299 Special Projects	3
Semester Prerequisite: Departmental Approval	
An opportunity for students to work closely with faculty in the design and development of media-based programs to be used by departments or divisions within the College. (F, Sp, Su)	
MUSC - MUSIC	
MUSC 100 Women's Chorus - Summer	.5
Semester Prerequisite: None	
An ensemble of women vocalists composed of students and community members, which develops general musicianship and provides training in choral singing. This group performs two to four concerts throughout the year. Students are required to attend live performances. May be taken up to six semesters for credit. (Su)	
MUSC 101 Lanswingers Vocal Ensemble	1
Semester Prerequisite: Audition Approval	
The purpose of Lanswingers, a vocal jazz ensemble, is to develop artistic and creative vocal jazz skills for ensemble performance. Advanced solo experience, microphone techniques, and vocal improvisational skills will be developed. Students are required to attend live performances. May be taken up to six semesters for credit. (F, Sp)	
MUSC 102 Women's Chorus	1
Semester Prerequisite: None	
An ensemble of women vocalists composed of students and community members, which develops general musicianship and provides training in choral singing. This group performs four to six concerts throughout the year. Students are required to attend live performances. May be taken up to six semesters for credit. (F, Sp)	
MUSC 103 Men's Ensemble	1
Semester Prerequisite: None	
An ensemble of male vocalists which develops general musicianship and provides training in choral singing. This group performs two to three concerts each semester. Men's Ensemble may be taken up to six semesters for credit. (F, Sp)	
MUSC 105 Private Lesson	1
Semester Prerequisite: Departmental Approval	
This course is a private lesson, 40 minutes per week, for performing arts majors. Only music, dance, or theatre majors are eligible to enroll. This course may be taken up to six semesters for credit. (F, Sp, Su)	
MUSC 106 Private Lesson	2
Semester Prerequisite: Departmental Approval	
This course is a private lesson, 60 minutes per week, for performing arts students. Only music, dance, or theatre majors are eligible to enroll. This course may be taken up to six semesters for credit. (F, Sp, Su)	

MUSC 108 Concert Choir	1
Semester Prerequisite: Audition Approval	
A select group of singers who perform a wide range of music, sacred and secular. This group performs four to six concerts throughout the year. Students are required to attend live performances. May be taken up to six semesters for credit. (F, Sp)	
MUSC 119 Lansing Concert Band	1
Semester Prerequisite: Audition Approval	
A community band serving as the official band of the City of Lansing. The group performs throughout the year, and plays all types of music but primarily concentrates on traditional concert band literature. Students are required to play in public performances of the band. May be taken up to six semesters for credit. (F, Sp, Su)	
MUSC 121 Percussion Ensemble	1
Semester Prerequisite: Music Reading Ability	
The percussion ensemble rehearses and performs pieces in a variety of styles and periods. Rhythmic reading skills and percussion techniques will be honed and developed further. This ensemble performs two to four times per year. The course may be taken up to six semesters for credit. (F, Sp)	
MUSC 123 Jazz Ensemble	1
Semester Prerequisite: Audition Approval	
The jazz ensemble will rehearse and perform pieces of various styles and from various periods in jazz and big band development. Improvisational skills will be taught and developed. The group performs two to four concerts throughout the year. Students are required to attend live performances. May be taken up to six semesters for credit. (F, Sp, Su)	
MUSC 133 Jazz Theory	2
Semester Prerequisite: Instructor Approval	
This course is designed to acquaint students with basic jazz theoretical principles. Students will gain an understanding of chord symbols, scales and modes, chord-scale relationships, chord substitutions, and harmonization techniques. Students are required to attend live performances. (F)	
MUSC 138 Class Piano Major I	2
Semester Prerequisite: Audition Approval/Music Major	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
The first in a series of two, this course is designed to develop the practical keyboard skills used in a music career. Students will gain keyboard facility, skill in sight-reading, and the ability to transpose. This series does not teach classical piano performance. MUSC 138 will cover all major scales. Students are required to attend live performances. (F)	
MUSC 139 Class Piano Major II	2
Semester Prerequisite: MUSC 138	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
Last in a series, this course will increase technical facility through playing more advanced compositions and minor scales in all forms. Students will gain skill in accompanying a melody using a variety of patterns. Students will learn to read open score and lead sheets using letter and numeral notation. (Sp)	
MUSC 143 Beginning Piano I - Summer	.5
Semester Prerequisite: None	
Course assumes no prior music experience or knowledge. Students are introduced to the rudiments of playing piano. Concepts such as staff notation, rhythmic notation, correct fingering/hand positions, major scales, and primary chords will be the focus for this course. May be taken up to three semesters for credit. (Su)	
MUSC 144 Beginning Piano I	2
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
Course assumes no prior music experience or knowledge. Students are introduced to the rudiments of playing piano. Concepts such as staff notation, rhythmic notation, correct fingering/hand positions, major scales, and primary chords will be the focus for this course. May be taken up to three semesters for credit. (F, Sp)	
MUSC 145 Beginning Piano II	2
Semester Prerequisite: MUSC 144	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
This course is designed to take the student up to an intermediate level of playing. Rhythmic subdivisions, more complex fingering, and new major and minor keys are introduced. Students are required to attend live performances. May be taken up to three semesters for credit. (F, Sp)	

- MUSC 154 Class Voice Commercial I - Summer** 1
Semester Prerequisite: None
 Beginning course designed to introduce students to vocal techniques and performance skills required in singing/performing commercial music. Breathing, posture, diction, tone production, interpretive skills, and microphone techniques are presented and developed. Students are required to attend live performances. May be taken up to three semesters for credit. (Su)
- MUSC 155 Class Voice Commercial I** 2
Semester Prerequisite: None
 Beginning course designed to introduce students to vocal techniques and performance skills required in singing/performing commercial music. Breathing, posture, diction, tone production, interpretive skills, and microphone techniques are presented and developed. Students are required to attend live performances. May be taken up to three semesters for credit. (F, Sp)
- MUSC 156 Class Voice Commercial II** 2
Semester Prerequisite: MUSC 155
 The advanced course in a series of two, this course will refine techniques introduced in MUSC 155. Students will prepare a final public performance. Students are required to attend live performances. May be taken up to three semesters for credit. (F, Sp)
- MUSC 157 Applied Lesson I** 2
Semester Prerequisite: None
 This course is a private lesson, 60 minutes per week, for music majors. Enrollment is by audition only. Auditions are held the Friday prior to Fall Semester or as requested during Fall and Spring Semester juries. The course may be taken up to three semesters for credit. (F, Sp, Su)
- MUSC 158 Applied Lesson II** 2
Semester Prerequisite: MUSC 157
 This course is a private lesson, 60 minutes per week, for music majors. Enrollment is allowed upon successful completion of the MUSC 157 juried performance. This course may be taken up to three semesters for credit. (F, Sp, Su)
- MUSC 168 Introduction to Musicianship I** 2
Semester Prerequisite: None
 This course is for beginning musicians to gain an understanding of notating and reading pitch, rhythm, and music terminology and theory. Students are introduced to musical scales, key signatures, intervals, and chords. Students are required to attend live performances. (F, Sp)
- MUSC 169 Introduction to Musicianship II** 2
Semester Prerequisite: MUSC 168
 This course is the second in a pair of courses for novice musicians to further their understanding of music notation and theory fundamentals. MUSC 169 builds on material covered in MUSC 168. Students will learn to construct melodies, create phrases, and to harmonize a given or original melody. Students are required to attend live performances. (Sp)
- MUSC 173 Basic Musicianship I** 4
Semester Prerequisite: MUSC 168/Departmental Approval
 This course allows students to gain knowledge and skills necessary to hear and notate pitches, rhythms, scales, modes, and intervals. This course is the first in a sequence of two courses in music theory, ear-training, and sight-singing. It serves as a freshman requirement for a four-year college music degree. (F)
- MUSC 174 Basic Musicianship II** 4
Semester Prerequisite: MUSC 173
 This course presents intermediate music theory principles including diatonic and chromatic harmony, four-part writing, counterpoint, basic music forms, and analysis. Aural skills are developed through dictation and sight-singing. This course is second in a sequence of two. It serves as a freshman requirement for a four-year college music degree. (Sp)
- MUSC 179 Class Voice Major I** 1
Semester Prerequisite: Departmental Approval
 This course is designed to train singers in the International Phonetic Alphabet, assisting them in the pronunciation of English and foreign languages. This course focuses on English and Italian IPA skills, using the literature of major composers from the United States, Great Britain, and Italy with historical and performance emphasis. Students are required to attend live performances. (F)
- MUSC 180 Class Voice Major II** 1
Semester Prerequisite: MUSC 179
 This course continues to train singers in the use of the International Phonetic Alphabet. Focus is on the German and French languages, with a historical and performance emphasis. These language skills will be utilized in performing the literature of the major composers of German lieder and French chanson. Students are required to attend live performances. (Sp)
- MUSC 181 Class Voice I - Summer** .5
Semester Prerequisite: None
 The first in a series of two courses for group and individual work on varied song literature. Emphasis is placed on vocal techniques such as breathing, posture, diction, tone production, and stage presence. Students are required to attend live performances. May be taken up to three semesters for credit. (Su)
- MUSC 182 Class Voice I** 1
Semester Prerequisite: None
 The first in a series of two courses for group and individual work on varied song literature. Emphasis is placed on vocal techniques such as breathing, posture, diction, tone production, and stage presence. Students are required to attend live performances. May be taken up to three semesters for credit. (F, Sp)
- MUSC 183 Class Voice II** 1
Semester Prerequisite: MUSC 182
 The advanced course in a series of two. This course will refine techniques, such as breathing, posture, diction, tone production, and stage presence, introduced in MUSC 182. Students are required to attend live performances. May be taken up to three semesters for credit. (F, Sp)
- MUSC 187 Class Guitar - Summer** .5
Semester Prerequisite: None
 This course is for beginners and experienced players who desire note reading skills. Folk, blues, and classical guitar traditions are presented using basic plectrum technique. Beginning chord theory is introduced. Students will provide their own guitar, and attend live performances. The course may be taken up to four semesters for credit. (Su)
- MUSC 188 Class Guitar** 2
Semester Prerequisite: None
 This course is for beginners and experienced players who desire note reading skills. Folk, blues, and classical guitar traditions are presented using basic plectrum technique. Beginning chord theory is introduced. Students will provide their own guitar, and attend live performances. The course may be taken up to four semesters for credit. (F, Sp)
- MUSC 199 Music Appreciation** 2
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level, Writing Level (See Course Schedule)
 Designed for non-music majors, this course develops well-informed, focused listening. Students are acquainted with representative composers, compositions, and musical characteristics of a variety of style periods from early music through 20th Century music. Students are required to attend live performances. (F, Sp, Su)
- MUSC 200 Music Fundamentals for Elementary Classroom Teachers** 3
Semester Prerequisite: None
 A mandatory course for elementary, special education, and early childhood majors, this course assumes little, if any, prior musical experience. The basic fundamentals of music are covered, in addition to a sampling of successful teaching methods for singing and focused listening. Performance skills are taught through the piano and recorder. (F, Sp)
- MUSC 230 Directed Independent Study** 1
Semester Prerequisite: Departmental Approval
 Advanced study in areas relating to, but not taught in, the curriculum. Student will meet with an assigned faculty member once per week. Students must submit written application detailing their projects for department approval. Students are required to attend live performances. (F, Sp)
- MUSC 231 Directed Independent Study** 2
Semester Prerequisite: Departmental Approval
 Advanced study in areas relating to, but not taught in, the curriculum. Student will meet with an assigned faculty member once per week. Students must submit written application detailing their projects for department approval. Students are required to attend live performances. (F, Sp)

MUSC 232 Music Seminar	1	MUSC 254 Band Management	2
Semester Prerequisite: Departmental Approval		Semester Prerequisite: MUSC 253/Approval	
Student will be given the opportunity to attend master classes on various related topics or perform in a production on the main stage or comparable space. Limited to individuals who have been selected as cast members or approved for master class. (F, Sp, Su)		This course is designed to assist the professional musician or manager in creating or improving a performing band. All major aspects of band management are covered, including intra-band arrangements, contracts, negotiations, format and material choice, equipment, finances, promotion and sales, road management, and basic organizational information. Students are required to attend live performances. (Sp)	
MUSC 233 Music Seminar	2	MUSC 257 Applied Lesson III	2
Semester Prerequisite: Departmental Approval		Semester Prerequisite: MUSC 158	
Student will be given the opportunity to attend master classes on various related topics or perform in a production on the main stage or comparable space. Limited to individuals who have been selected as cast members or approved for master class. (F, Sp, Su)		This course is a private lesson, 60 minutes per week, for music majors. Enrollment is allowed upon successful completion of the MUSC 158 juried performance. This course may be taken up to three semesters for credit. (F, Sp, Su)	
MUSC 240 World Music History I	4	MUSC 258 Applied Lesson IV	2
Semester Prerequisite: None		Semester Prerequisite: MUSC 257	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		This course is a private lesson, 60 minutes per week, for music majors. Enrollment is allowed upon completion of the MUSC 257 juried performance. This course may be taken up to three semesters for credit. (F, Sp, Su)	
Basic musical elements and the ways which civilizations/cultures use music will be introduced. This includes composers and musical characteristics of specific style periods starting with ancient civilizations of the world through the year 1600. Eastern and Western music will be compared/contrasted in focus, content, and process. (F)		MUSC 270 Rock Guitar I	1
MUSC 241 World Music History II	4	Semester Prerequisite: None	
Semester Prerequisite: MUSC 240		A presentation on fundamental rhythm and lead guitar techniques and music theory concepts applicable to rock music from its rhythm and blues origin to the present, as well as other related popular styles. Student must provide own guitar. Students are required to attend live performances. (F, Sp, Su)	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		MUSC 273 Advanced Musicianship I	4
Building on historical information gleaned from MUSC 240, this class covers world music history from 1600 to the present. Characteristic music, musicians, and instruments from all areas of the world are discussed, focusing on uses/functions and qualities of music, and emphasizing similarities and differences between world cultures. (Sp)		Semester Prerequisite: MUSC 174	
MUSC 244 Studio Production Commercial	2	This course is a continuation of the first year of training in the elements of music theory acquired in MUSC 173 and 174. The student will learn such advanced elements of harmony as modulation, Phrygian II chords, augmented sixth chords, and chromatic voice leading techniques. The basic principles of musical form will be introduced and the student will continue with more advanced training in sight-singing and ear-training. Students are required to attend live performances. (F)	
Semester Prerequisite: Departmental Approval		MUSC 274 Advanced Musicianship II	4
This course, as an introduction to multi-channel recording techniques, covers equipment functions, separation techniques, basic tracks, overdubs, and the roles of musicians, producers, and engineers in the commercial recording field. The second half of the course consists of recording session observation in an off-campus recording studio. Students are required to attend live performances. (F)		Semester Prerequisite: MUSC 273	
MUSC 245 Jazz History	2	After the study of classical harmony is completed and the study of basic musical form begun in MUSC 273, MUSC 274 takes up with the study of the major classical forms including variation, sonata, rondo, and concerto forms. Counterpoint and 19th Century harmony as well as jazz, set theory, and 12-tone theory will be studied. Advanced training in ear-training and sight-singing will continue. This course is the second in a two-course music theory and ear-training sequence as a sophomore requirement for a four-year college music degree. Students are required to attend live performances. (Sp)	
Semester Prerequisite: None		MUSC 276 Lyric Writing	2
Students will be introduced to the origins and traditions of the music loosely categorized as "jazz." Musical styles influential in the development of jazz, such as Stride, Ragtime, New Orleans, Swing, Bebop, "Free" or Avant-garde, and others, will be studied. Students are required to attend live performances. (F)		Semester Prerequisite: None	
MUSC 246 Rock History I - Blues to the British Invasion	2	This course introduces students to the craft of writing song lyrics. The work of professional songwriters as well as the students' work will be examined and discussed. Students are required to attend live performances. (F, Su)	
Semester Prerequisite: None		MUSC 280 Private Songwriting	1
This course provides an overview to the elements of rock and roll, and its origins. The student will be introduced to the major figures of rhythm and blues/early rock and roll via recordings of their music. Students are required to attend live performances. (F)		Semester Prerequisite: Departmental Approval	
MUSC 249 Rock History II - From 1963 to Present	2	Private coaching for music majors, 40 minutes per week, in writing and copyrighting music compositions, giving attention and suggestion in harmony, chord substitution, and formal design. Students are required to attend live performances. May be taken up to six semesters for credit. (F, Su)	
Semester Prerequisite: None		MUSC 297 Synthesizers and Computer Music	2
Students will be introduced to the changes in pop music that have occurred since the early '60s. Developments in styles will be covered via examination of a variety of recordings from the early '60s to the present. Students are required to attend live performances. (Sp)		Semester Prerequisite: Instructor Approval	
MUSC 251 Blues History	2	This course introduces students to the role of computers in the music discipline. Topics include basic IBM and Macintosh personal computer skills, a thorough exploration of MIDI, music sequencing software, music printing software, and orchestration with electronic/digital instruments. (F, Sp)	
Semester Prerequisite: None		NURS - NURSING	
An introductory overview of the African-American musical form known as the blues. Using recordings of musicians as a primary source, supplemented with reading, the student will become familiar with the stylistic variations of both regional styles and individual performers. This course will show how the music changed as performers dealt with the factors of urbanization, electricity, social/cultural elements, and more. Students are required to attend live performances. (Sp)		NURS 150 Nursing Process I: Introduction to Nursing	9
MUSC 253 Business of Music	3	Semester Prerequisite: Admission to Program	
Semester Prerequisite: None		The focus of this course is the nursing process as a problem-solving technique for meeting basic human needs. The concepts of perioperative care and cancer are presented and the aging process is emphasized throughout. Clinicals are in nursing homes, extended care facilities, and hospitals. (F, Sp)	
An introduction to the business aspects of the music industry. Areas covered include copyrights, contracts, trademarks, publishing, recording and record company operations, personal managers, booking agents, concert promotions, and unions. Students are required to attend live performances. (F)			

NURS 160 Nursing Process II: Common Acute Health Problems	6
Semester Prerequisite: PHGY 202, NURS 150, NURS 200	
Students are assisted in using the nursing process in the care of adults adapting to common acute health problems. Pathophysiology and nursing interventions affecting the cardiovascular, respiratory, endocrine, gastrointestinal, neurological, and musculoskeletal body systems is presented. Clinical in acute care hospital systems. (F, Sp)	
NURS 165 Nursing Process III: Family Health I	5
Semester Prerequisite: NURS 150, PSYC 205, Admission to Program	
The concepts of maternity nursing, well-child care, and therapeutic communication are discussed. Assessment and care of the childbearing family is presented. Basic needs and developmental tasks of childhood are discussed including effects of change in family systems. Clinicals are in maternal-child units of hospitals and community agencies. (F, Sp)	
NURS 180 Practical Nursing Role	1
Semester Prerequisite: NURS 160, NURS 165/Concurrently	
Examines the role of the practical nurse, ethical and legal dimensions of practice, professional organizations, differentiated practice, nursing issues, role transition, and preparation for employment. Required to be eligible for NCLEX-PN (National Council Licensing Examination-Practical Nurse). (F, Sp)	
NURS 200 Pharmacology	3
Semester Prerequisite: PHGY 202 Recommended, Admission to Program	
This course is recommended for students who wish to transfer to a BSN program. Drug categories are discussed in-depth as well as nursing responsibilities associated with medication administration. Students are expected to calculate drug dosages. (F, Sp)	
NURS 210 LPN-RN Transition	2
Semester Prerequisite: Departmental Approval	
Introduces the returning licensed practical nurse (LPN) to the nursing process, patient records, role transition, and curriculum concepts. Assessment and evaluation of nursing skills will be done. (F, Sp)	
NURS 260 Nursing Process IV: Family Health II	5
Semester Prerequisite: NURS 180, NURS 165, Admission to Program	
The student is expected to use the nursing process in caring for clients adapting to psychosocial health problems including the high risk mother and infant. Emphasis is placed on therapeutic communication skills. Clinicals are in psychiatric and maternal units of acute care hospitals and day treatment facilities and community sites. (F, Sp)	
NURS 265 Nursing Process V: Family Health III	5
Semester Prerequisite: NURS 160, NURS 165, Admission to Program	
Concepts of illness in children are discussed utilizing a systems perspective. Students are expected to integrate the nursing process and course concepts into their care of children in hospital acute care maternity units, pediatric units, and other selected health care settings. (F, Sp)	
NURS 280 Nursing Process VI: Chronic Health Problems	4
Semester Prerequisite: NURS 260, NURS 265, MICR 203, MICR 204	
The student will use the nursing process in caring for adult clients adapting to chronic health problems. Client adaptation to chronic illness, selected neurological and immune system problems, cancer, AIDS, and care of the dying client is discussed. Clinical experiences in nursing homes, home health care agencies, and selected community facilities. (F, Sp)	
NURS 285 Nursing Process VII: Acute/Critical Health Problems	4
Semester Prerequisite: NURS 260, NURS 265, MICR 203, MICR 204	
The student will use the nursing process in caring for adult clients adapting to critical health problems. Homeostatic changes in the neurological, cardiovascular, and respiratory systems is discussed, as well as fluid-electrolyte and acid-base imbalance. Clinical experiences are in acute care hospitals. (F, Sp)	
NURS 290 Nursing Process VIII: ADN as Provider and Manager of Care	3
Semester Prerequisite: NURS 280, NURS 285 Concurrently	
The role of the nurse as manager of care and the role of the associate degree nurse within the discipline of nursing are presented. Students are expected to use the nursing process with various management systems within a health care system. Clinicals in acute care hospitals and nursing homes. (F, Sp)	

OADM - OFFICE ADMINISTRATION

OADM 102 Editing Business Documents	2
Semester Prerequisite: WRIT 114/Concurrently	
This course teaches office personnel applied editing skills for business documents and emphasizes locating and correcting errors in typing, word division, format, numbers, word usage, capitalization, and punctuation. Grammar rules will be reviewed as needed. Classroom activities may require completion of some exercises in one of the computer labs. (F, Sp, Su)	
OADM 110 Machine Transcription	3
Semester Prerequisite: CABS 105/CABS 113, WRIT 114	
This course is designed for the production of mailable communications by using transcribers, recorded cassettes, and an IBM PC with word processing software. Proficiency in spelling, punctuation, grammar, and business vocabulary is emphasized. (F)	
OADM 114 College Speedwriting	4
Semester Prerequisite: CABS 101/Equivalent	
Students will learn an alphabetic shorthand. The minimum performance level for dictation and transcription is 70 wpm for three minutes at 96 percent accuracy. (Sp)	
OADM 150 Certified Professional Secretaries (CPS) Review I	3
Semester Prerequisite: None	
Discussion of the secretary's proficiency in office administration and communication. Executive travel, office management, records management and reprographics, written business communications, editing, abstracting, and preparing communications in the final format. (F, Sp, Su)	
OADM 155 Certified Professional Secretaries (CPS) Review II	3
Semester Prerequisite: None	
This course covers the basics of office technology and behavioral science. Topics include automated office systems, telecommunication, and problem solving. (F, Sp, Su)	
OADM 195 Human Behavior in the Work Place	3
Semester Prerequisite: None	
This course emphasizes the importance of the skill of human relations in the workplace. Through a combination of case studies, self-analysis exercises and discussion, students become more aware of the impact of positive interactions at work. Proficiency in enhancing good human relations and in handling difficult situations is stressed. (F, Sp, Su)	
OADM 197 Medical Vocabulary	3
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level (See <i>Course Schedule</i>)	
This course provides instruction in spelling, definition structure, and concepts of medical terminology using a body-systems approach. Requires good study skills. (F, Sp)	
OADM 198 Medical Record Management	3
Semester Prerequisite: OADM 197	
This course is a concentrated study of the health care providers, control reimbursement, legal, and quality assurance systems which affect the maintenance of the medical record in various health care delivery settings. (Sp)	
OADM 200 Critical Thinking	3
Semester Prerequisite: None	
Critical thinking is designed to provide basic and higher-order thinking skills including reasoning, creative thinking, decision-making, and problem solving. Emphasis is placed on gaining proficiency in critical awareness to enable students to confidently appraise and discriminate information, problems, issues, etc., whether in a societal, educational, or organizational setting. (F, Sp)	
OADM 201 General Pharmacology for Business	2
Semester Prerequisite: OADM 197/Equivalent	
This overview course is designed for students in the medical secretarial, medical transcriptionist, and court and conference reporting curricula. It provides an introduction into pharmacology, its history and terminology, drug categories, and the clinical applications of common drugs by body systems. Provides experience in using several drug references. (F)	

OADM 203 Professional Office Procedures	1
Semester Prerequisite: None	
The topics of this course include telephone techniques, handling incoming and outgoing mail, writing certain office documents such as minutes and reports, planning meetings and travel arrangements, and interviewing. Computer usage may be emphasized. (Sp)	
OADM 206 Legal Vocabulary and Forms Preparation	3
Semester Prerequisite: None	
This course utilizes basic legal terminology in general and specialized areas of law. It defines legal terms and their use in legal context and stresses forms preparation. (F, Sp)	
OADM 207 Medical Transcription	3
Semester Prerequisite: OADM 197/CHSE 121, WRIT 114, CABS 105.	
This course is designed to develop skill in defining and transcribing medical reports with the use of transcriber and microcomputer. Emphasis is on development of accuracy and knowledge of medical terminology for the transcription of medical reports. (F, Sp)	
OADM 215 Records and Information Management I	3
Semester Prerequisite: None	
This course includes managing the creation, protection, storage, and disposition of business records; alphabetic indexing; the foundation of other storage methods; selection of proper equipment; and procedures for the operation and control of filing methods and systems. (F, Sp, Su)	
OADM 216 Records and Information Management II	4
Semester Prerequisite: OADM 215	
This course familiarizes students with the aspects of micrographics and the study of planning, organizing, and controlling records and information management systems. Management of both paper- and electronic-based forms and documents will include design, analysis, usage, retention, and disposal procedures for manual and electronic systems. (F, Sp)	
OADM 220 Administrative Office Management	4
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
This course emphasizes the principles of office management and the role of an office as a service center. Office functions, structure and design, workflow, procedures, job analysis, and issues relating to human resources are covered. (F, Sp, Su)	
OADM 222 Advanced Medical Transcription	4
Semester Prerequisite: 3.0 Minimum in OADM 207, ANAT 145	
This course is designed to equip students with entry-level medical transcription skills. This course incorporates advanced medical terminology and actual physician dictation from a wide variety of medical specialties. (Sp)	
OADM 232 Seminar: Special Subjects	1
Semester Prerequisite: None	
Classroom instruction is given on special topics of current interest to office personnel. (F, Sp, Su)	
OADM 240 Office Internship	3
Semester Prerequisite: Coordinator Approval	
This course is designed to provide on-the-job training relating to an office administration major. Placement is made in an approved training station to earn credits for satisfactory work performance and to earn wages for work performed. Volunteer work may be substituted for earning wages. Minimum of 180 hours work is required. (F, Sp, Su)	
OADM 275 Cultural Differences in Business	3
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
This course is designed to help students become familiar with, understand, and appreciate people from different cultures to promote a more effective basis for working together in the business world. Emphasis and application is placed upon business etiquette and business practices as they differ in various cultures. (F, Sp)	

OCNL - OCEANOLOGY

OCNL 225 Basic Oceanology	4
Semester Prerequisite: 2.0 Minimum in ISCI 110/Science Inventory Recommended	
Basic Skills Prerequisite: Reading Level; Writing Level; Math Level (See <i>Course Schedule</i>)	
An introduction to the modern ocean science describing the basic geological, chemical, physical, and biological marine processes necessary to the comprehensive understanding of the ocean environment. Complementary laboratory exercises are included to provide students with hands-on experience. (F)	

PARA - PARAMEDIC

PARA 221 Medical Trauma I	4
Semester Prerequisite: Admission to Program	
Builds on previous knowledge acquired as a basic EMT. Provides theoretical background material for management of prehospital emergencies. Course includes roles and responsibilities, anatomy/physiology, airway maintenance, parenteral therapy, assessment and management of respiratory, maternal, neonatal, and pediatric emergencies. (F, Sp)	
PARA 222 Medical Trauma II	4
Semester Prerequisite: PARA 221	
PARA 222 incorporates previous knowledge of basic EMT and PARA 221. Provides theoretical background material for management of prehospital emergencies including assessment and management of neurological, behavioral, abdominal, metabolic, geriatric, and multiple trauma patients. The principles of triage, management of mass casualty incidents, and telecommunications are also included. (Sp, Su)	
PARA 231 Cardiology I	2
Semester Prerequisite: Admission to Program	
Enables paramedic students to read EKG rhythm strips. It will give them background and understanding of the anatomy, physiology, electrophysiology, and pathophysiology of the heart and cardiovascular system. Much emphasis will be placed on arrhythmia interpretation, treatment modalities, and patient management. (F, Sp)	
PARA 232 Cardiology II	2
Semester Prerequisite: PARA 231	
Utilizes information learned in PARA 231 as a basis for more advanced arrhythmia interpretation. Management of cardiac arrest including medications, cardioversion, and defibrillation will be a major emphasis. Pacemakers, other advanced procedures, and arrhythmia will be presented. Application of information, judgment, and decision-making are evaluated. (Sp, Su)	
PARA 241 Pharmacology I	2
Semester Prerequisite: Admission to Program	
The first course in a two-course sequence. Designed to give the student background information necessary for the preparation and administration of drugs used in the field. ACLS drugs will be covered in-depth. (F, Sp)	
PARA 242 Pharmacology II	2
Semester Prerequisite: PARA 241	
The second course in a two-course sequence. In-depth information on ACLS drugs will be covered. Common drugs that paramedics administer in the field will also be covered. Drug classification, action, use, and side effects are included. (Sp, Su)	
PARA 251 Skills I	2
Semester Prerequisite: Admission to Program	
Provides introduction of the paramedic skills required for advanced life support and provides the opportunity to apply theory courses information to field practice in a tabletop setting. Skills will be demonstrated, practiced during supervised labs, and tested for competency. Must have excellent basic EMT skills upon entry. (F, Sp)	
PARA 252 Skills II	2
Semester Prerequisite: PARA 251	
A continuation of Skills I with the introduction of new skills and additional application of theory. Measurement criteria for Skills I competencies becomes more stringent and students must become competent in all paramedic skills as well as applying theory to practice. (Sp, Su)	

PARA 261 Clinical I	3
Semester Prerequisite: Admission to Program	
Provides clinical time for paramedic students in the first semester. Assignments include nursing home; hospital units such as ED, CCU, ICU, Burn Unit, OB, and Peds. Psyc unit simulations on-campus; and designated EMS agencies under licensed paramedics. (F, Sp)	
PARA 262 Clinical II	4
Semester Prerequisite: PARA 261	
Provides clinical time for paramedic students in the second semester. Assignments include hospital units such as ED, CCU, ICU, Burn Unit, OB, and OR; simulations on-campus; designated EMS agencies under licensed paramedics; and a community service project. (Sp, Su)	
PARA 263 Paramedic Internship	3
Semester Prerequisite: Semester I Courses	
This course provides field internship with paramedic agency and testing for certification in Advanced Cardiac Life Support. (F, Sp)	

PFAQ - PHYSICAL FITNESS: AQUATICS

PFAQ 100 Swimming: Primary Skills	1
Semester Prerequisite: None	
This course focuses on the development of basic swimming strokes, rhythmic breathing, survival swimming, and beginning diving skills. (F, Sp, Su)	
PFAQ 101 Swimming: Stroke Development	1
Semester Prerequisite: PFAF 100/PFAQ 100	
This course stresses development of skills in front crawl and backstroke. Students will be introduced to the elementary backstroke and breaststroke. (F, Sp, Su)	
PFAQ 102 Swimming: Stroke Refinement	1
Semester Prerequisite: PFAF 101/PFAQ 101	
This course builds upon the stroke development level skills. Skill development is placed on front crawl and rhythmic breathing, breaststroke, diving, and survival swimming skills. Emphasis is placed on polishing strokes and increasing swimming distances. (F, Sp, Su)	
PFAQ 104 Swimming/Training	1
Semester Prerequisite: None	
This course is designed for persons interested in skill development in all competitive swimming strokes as well as in a fitness program design. The student should be able to swim 500 yards in 10 minutes. (F, Sp, Su)	
PFAQ 105 Advanced Swimming/Training	2
Semester Prerequisite: None	
This course is designed for the competitive swimmer seeking a high level of swimming. Advanced swimming/training incorporates some dry land training and water polo. (F, Sp, Su)	
PFAQ 106 Water Walking/Toning	1
Semester Prerequisite: None	
This course utilizes a variety of walking moves in shallow water to enhance cardiovascular fitness. Toning exercises for arms, abdominal, and thighs are used extensively. (F, Sp, Su)	
PFAQ 107 Water Exercise I	1
Semester Prerequisite: None	
This course utilizes stationary water exercises and water games to improve cardiovascular fitness and flexibility. (F, Sp, Su)	
PFAQ 108 Water Exercise II	1
Semester Prerequisite: None	
This course uses stationary water exercise and an introduction to swimming techniques to improve cardiovascular fitness. Wall exercises and water jugs are used to increase strength and flexibility. (F, Sp, Su)	
PFAQ 109 Water Exercise-Plus	2
Semester Prerequisite: None	
This course is an intensive water fitness exercise program designed to increase cardiovascular output and muscle strength. Students use water movements to increase flexibility and strength. (F, Sp, Su)	

PFAQ 110 Hydro-Fit Exercise I	1
Semester Prerequisite: None	
This course is designed to give the student an overall water fitness workout with little impact to joints or back. The class is held in deep water while exercising with Hydro-Fit weights. Participants must be comfortable in deep water. (F, Sp, Su)	
PFAQ 111 Hydro-Fit Exercise II	2
Semester Prerequisite: PFAF 110/PFAQ 110	
This course is a water fitness program using water resistance to tone, strengthen, develop coordination, and increase flexibility by using Hydro-Fit exercise equipment. Emphasis is placed on increasing abdominal, shoulder/arm, and lower body strength. (F, Sp, Su)	
PFAQ 112 Scuba	2
Semester Prerequisite: None	
This course is a basic course in scuba diving. The course includes both classroom and pool training instruction. Upon successful completion of class, the student is eligible for scuba certification following open water training. (F, Sp, Su)	

PFAQ 113 Scuba: Advanced	2
Semester Prerequisite: PFAF 112/PFAQ 112	
This course is designed for certified divers who wish to further their scuba diving skills and knowledge. Topics covered will include diving equipment, underwater navigation, stress and rescue, limited visibility and night diving, dry suit diving, and underwater photography. Certification as an advanced and/or specialty diver is available with optional open water training. (F, Sp, Su)	
PFAQ 114 Parent/Infant Water Adjustment	.5
Semester Prerequisite: None	
This course places emphasis on parent/infant water adjustment, safety, and fun. Emphasis is placed on development of water experience and improvement of motor skills and coordination. (Infant ages between 6 months to 2 years) (F, Sp, Su)	
PFAQ 115 Parent/Toddler Water Adjustment	.5
Semester Prerequisite: PEAD 113/PFAQ 114	
This course places emphasis on parent/toddler water adjustment, skill development, safety, and fun. Emphasis is on development of water experiences, improvement of motor development, coordination, and social skills. Toddlers should be 2 to 5 years old, depending upon skill development and/or instructor approval. (F, Sp, Su)	

PFAQ 116 Parent/Child Swim	.5
Semester Prerequisite: PEAD 114/PFAQ 115	
This course focuses on parent/child water skill development, socialization skills, and safety. Individualized instruction is given for advancement of motor skill and coordination in the aquatic environment. Children should be 4 to 5 years old and/or have instructor's approval. (F, Sp, Su)	
PFAQ 118 Arthritis Aquatics	1
Semester Prerequisite: None	
This course will give the student exercises for range of motion in comfortable water temperatures and will improve and help maintain flexibility and well-being. (F, Sp)	
PFAQ 119 Scuba Certification Class	1
Semester Prerequisite: PFAF 112/PFAQ 112/Equivalent	
This course is designed to allow students who have completed scuba PFAF 112/PFAQ 112 or equivalent to complete their open water scuba certification training. Upon successful completion of the class, the student will receive Scuba Schools Internationals' open water certification. (F, Sp, Su)	

PFCW - PHYSICAL FITNESS: COMBATIVE/WEIGHT TRAINING

PFCW 100 Fencing: Beginning	1
Semester Prerequisite: None	
This course is designed to introduce the student to basic skills and theories in foil fencing. Course emphasis is placed on 12 basic skills: advance, retreat, lunge, disengage, coupe', one-two double', reposte, counter parry and reposte, and advance-lunge. (F, Sp, Su)	
PFCW 101 Fencing: Intermediate	1
Semester Prerequisite: PFAF 100/PFCW 100	
This course builds upon the 12 basic fencing skills and introduces rules and complex fencing movements. Students will use acquired skills in fencing bouts. (F, Sp, Su)	

PFCW 102 Fencing: Advanced 1
Semester Prerequisite: PEAG 101/PFCW 101
 This course reviews the basic skills of fencing and its rules. Students will be introduced to a sequence of fencing movements in foil facing as well as limited use of Sabre and Epee. (F, Sp, Su)

PFCW 103 Judo: Beginning 1
Semester Prerequisite: None
 This course is designed to familiarize students with basic Judo techniques of falling, throwing, and grappling. (F, Sp, Su)

PFCW 104 Judo: Intermediate 1
Semester Prerequisite: PEAG 103/PFCW 103
 This course works toward a series of sequential Judo movements with continued emphasis on throwing and grappling. (F, Sp, Su)

PFCW 105 Karate: Beginning 1
Semester Prerequisite: None
 This course introduces the basic skills of karate: kicking with the feet and knees, and punching with the fist and hands. (F, Sp, Su)

PFCW 106 Karate: Intermediate 1
Semester Prerequisite: None
 This course further develops karate skills in punching with the fists and hands, kicking with feet and knees, and essential body movement in combative activities with an emphasis on free sparring. (F, Sp, Su)

PFCW 107 Karate: Advanced 1
Semester Prerequisite: PEAG 105/PFCW 105
 This course places primary emphasis on the development of sparring techniques as they relate to punching and kicking. Students spar and move toward the competitive aspect of karate as a martial art. (F, Sp, Su)

PFCW 108 Weight Training: Beginning 2
Semester Prerequisite: None
 This course is designed to promote physical fitness through weight training. Instruction will include different principles, methods and techniques for progressive resistance training. Students will design a program of their choice with emphasis on weight reduction, muscle strengthening, and body building with an aerobic component. (F, Sp, Su)

PFCW 109 Body Building: Introduction 1
Semester Prerequisite: None
 This course is designed to introduce weight training and proper lifting techniques. Introduction to safety rules, proper use of machinery, and concepts of lifting will be emphasized. (F, Sp, Su)

PFCW 110 Body Building: Beginning 2
Semester Prerequisite: None
 This course acquaints students with the beginning aspects of body structuring through the application of weights. Emphasis on weight reduction or increase in muscle size through an individualized training program is stressed. (F, Sp, Su)

PFCW 111 Body Building: Intermediate 2
Semester Prerequisite: PEAG 109/PFCW 109
 This course expands the student's ability to use machines and free weights to increase variations and methods of lifting techniques. Students will also monitor food intake to provide information to assist with proper diet and nutritional needs. (F, Sp, Su)

PFDA - PHYSICAL FITNESS: DANCE COURSES

PFDA 141 Ballroom Topics 1
Semester Prerequisite: None
 This course will focus on one or two dances for in-depth study. Introduction to partnership technique, dance posture, basic patterns, and music appropriate for the dance(s) selected. Dances will be selected that reflect student interest, new partnership dance forms, or current popular trends. Enrollment with a partner is strongly encouraged. (F, Sp, Su)

PFDA 142 Ballroom Swing I 1
Semester Prerequisite: None
 Introduction to the study of ballroom swing including partnership technique, dance posture, basic patterns, music and style of the Swing dances. Includes introduction to dances using different styles and speeds of music such as East Coast swing, West Coast swing, jitterbug, and jive. Enrollment with a partner is strongly recommended. (F, Sp, Su)

PFDA 143 Ballroom Western Swing 1
Semester Prerequisite: None
 Techniques, patterns, movements, and styles of Western swing dancing. Includes evaluations of the differences in movement, rhythms, and techniques of various styles. (F, Sp, Su)

PFDA 145 Ballroom Swing II 1
Semester Prerequisite: DANC 141/PFDA 141/DANC 142/PFDA 142/
 Departmental Approval
 Course designed to build on the techniques introduced in Ballroom Swing I. Includes dances using different styles and speeds of music such as East Coast swing, West Coast swing, jitterbug, and jive. New steps and syncopated rhythms will be introduced. Enrollment with a partner is strongly recommended. (F, Sp, Su)

PFDA 147 Latin Ballroom I 1
Semester Prerequisite: None
 This course includes an introduction to partnership technique, dance posture, basic patterns and music for Latin partnership dancing. Dances will be selected from the following: cha-cha, rumba, mambo, merengue, salsa, samba, and tango. Enrollment with a partner is strongly recommended. (F, Sp, Su)

PFDA 151 Ballroom Bronze I Workshop 1
Semester Prerequisite: None
 Introduction to the study of ballroom including partnership technique, dance posture, basic patterns, and music for traditional ballroom dances including waltz, fox trot, cha-cha, rumba, and swing. Enrollment with a partner is strongly suggested. (F, Sp, Su)

PFDA 152 Latin Ballroom II 1
Semester Prerequisite: DANC 141/PFDA 141/DANC 142/PFDA 142/
 DANC 147/PFDA 147
 This course is designed to build on the techniques introduced in Latin Ballroom I, Ballroom I, Ballroom Swing I, or Ballroom Topics. Emphasis will be placed on the following dance styles: cha-cha, rumba, mambo, samba, salsa, merengue, and tango. Enrollment with a partner is strongly recommended. (F, Sp, Su)

PFDA 153 Cha-Cha/Mambo Workshop .5
Semester Prerequisite: None
 Introductory course in the Latin ballroom dances cha-cha and mambo covering basic components of partnership dancing and basic patterns of movement, footwork, technique, and style. (F, Sp, Su)

PFDA 154 Tango/Samba Workshop .5
Semester Prerequisite: None
 Introductory course in the Latin ballroom dances tango and samba, covering basic components of partnership dancing and basic patterns of movement, footwork, technique, and style. (F, Sp, Su)

PFDA 155 Ballroom Hustle Workshop .5
Semester Prerequisite: None
 Designed to introduce students to hustle dance steps and styling. Emphasis is on effective partnering, mastering basic patterns, and adapting dance to varieties of music. Class usually includes field trips to local dance venues. (F, Sp, Su)

PFDA 156 Ballroom II 1
Semester Prerequisite: DANC 142/PFDA 142/Departmental Approval
 This course is designed to build on the skills and techniques introduced in Ballroom I, Latin Ballroom I, Ballroom Swing I, or Special Topics. Emphasis will be placed on the following dance styles: waltz, fox trot, cha-cha, rumba, and swing. Enrollment with a partner is strongly recommended. (F, Sp, Su)

PFDA 157 Ballroom III 1
Semester Prerequisite: DANC 152/PFDA 152/DANC 156/PFDA 156
 This is an advanced course in traditional ballroom designed to build on the techniques introduced in Ballroom II, Ballroom Bronze, or Latin Ballroom II. Emphasis will be placed on the following dance styles: waltz, fox trot, cha-cha, rumba, and swing. Enrollment with a partner is strongly recommended. (F, Sp, Su)

PFDA 158 Line Dancing 1
Semester Prerequisite: None
 Line dancing provides a fun way for students to learn basic steps and patterns to a variety of dances. The class consists of Western dances, Latin dances, and ballroom dance steps. Partner unnecessary. (F, Sp)

PFPT - PHYSICAL FITNESS/ FITNESS COURSES

PFPT 105 Aerobic Walking 2
Semester Prerequisite: None
 This course centers on improving one's fitness level through outdoor walking at an individually determined speed. Students will also develop a personalized healthy lifestyle plan which integrates exercise, diet, and stress management. (F, Sp, Su)

PFPT 106 First Step to Fitness 2
Semester Prerequisite: None
 A beginning exercise program with emphasis on increasing aerobic capacity through walking, jogging, calisthenics, and light weight lifting. (F, Sp, Su)

PFPT 107 Jogging: Beginning 1
Semester Prerequisite: None
 This course introduces jogging as a fitness modality and covers how to care for feet, proper equipment choices, clothing, and safety. (F, Sp, Su)

PFPT 108 Commitment to Fitness 2
Semester Prerequisite: None
 This course emphasizes commitment to physical fitness as it affects one's quality of life. Class activities, lectures, and discussions are aimed to introduce students to a physically-active lifestyle, based on sound academic justification. Personal commitment, lifestyle modification, and willingness to experiment and change are a "prerequisite." (F, Sp, Su)

PFPT 110 Fitness Maintenance 2
Semester Prerequisite: None
 This course is for students with prior experience and knowledge in physical fitness-related activities and a desire to continue fitness maintenance. (F, Sp)

PFPT 111 Aerobic Boxing 5
Semester Prerequisite: None
 This course will teach the art of self-defense while improving your aerobic and anaerobic capacity. (F, Sp, Su)

PFPT 112 Body Flexibility 1
Semester Prerequisite: None
 This course is designed to increase body flexibility by learning proper stretching techniques and applying these techniques to increase muscle and joint flexibility. (F, Sp, Su)

PFPT 113 Tone and Stretch 1
Semester Prerequisite: None
 This course combines calisthenics and stretching. Students will use floor exercises to tone muscles and increase flexibility. Proper stretching techniques as well as which muscle groups are being worked will be examined. (F, Sp, Su)

PFPT 114 Advanced Circuit Training 2
Semester Prerequisite: None
 This course is designed to incorporate strength conditioning, muscle endurance, flexibility, and cardiovascular training for a total body workout. This can be accomplished in a relatively short time frame by utilizing the circuit training method. (F, Sp, Su)

PFPT 120 Aerobic Exercise 2
Semester Prerequisite: None
 This course helps students to improve cardiovascular function and oxygen efficiency to enhance muscle structure and function through toning exercises, aerobic dancing, and stretching. (F, Sp, Su)

PFPT 122 Step Aerobics 2
Semester Prerequisite: None
 This course helps students improve cardiovascular efficiency through the use of step platforms. Movement combinations with increasing complexity will be used to increase student's balance and coordination. Toning and stretching exercises will be used to complete muscle balancing and flexibility. Educational material will be distributed to increase student's knowledge of fitness and wellness to improve personal quality of life. (F, Sp)

PFFT 135 Tai Chi 2
Semester Prerequisite: None
 Introduction to Zazen meditation and basic principles of Tai Chi. Course covers first 64 movements in the Yang school of Tai Chi Chuan. (F, Sp, Su)

PFFT 136 Dance Exercise 1
Semester Prerequisite: None
 This course includes warm-ups and exercises from various dance genres including ballet, modern, and jazz designed to develop flexibility, strength and coordination. Emphasis is placed on toning and stretching. (F, Sp, Su)

PFHC - PHYSICAL FITNESS/ HEALTH/FITNESS CARDIAC

PFHC 150 Cardiac Education 5
Semester Prerequisite: None
 This course introduces the student to information about the cardiac disease process, rehabilitation, and prevention techniques. The student will learn the role exercise, diet, and stress plays in heart disease. (F, Sp)

PFHC 151 Cardiac Rehabilitation Exercise 3
Semester Prerequisite: Departmental Approval
 This continuing course includes medically-monitored exercise and education, which emphasizes reducing the risk factors known to contribute to heart disease. Methods and level of exercise are determined by the participant's physician and the program medical director. Monitored by professional staff. (F, Sp, Su)

PFHW - PHYSICAL FITNESS/ HEALTH/FITNESS WELLNESS

PFHW 100 Health and Wellness Seminar 5
Semester Prerequisite: None
 This course introduces the student to eight hours of various topics related to health awareness, wellness, and/or prevention. (F, Sp, Su)

PFHW 101 Health and Wellness Seminar 1
Semester Prerequisite: None
 This course introduces the student to health and wellness issues. This information encompasses areas of awareness for changing attitudes/lifestyles, issues of prevention, techniques for management of health, and more. (F, Sp, Su)

PFHW 105 Medical Alternatives in Health and Wellness 2
Semester Prerequisite: None
 This course discusses alternatives in maintaining health and correcting illness. The students will examine the six major medical systems, as well as many alternative therapies from around the world. (F, Sp)

PFHW 108 Emergency Services Health Awareness 1
Semester Prerequisite: Emergency Services Student
 Emergency services health awareness introduces the future emergency service student to health and wellness issues. This information includes changing attitudes/lifestyles, issues of prevention, techniques for management of health, and more. (F, Sp, Su)

PFHW 109 Emergency Services Fitness I 1
Semester Prerequisite: Emergency Services Student
 This course provides emergency service students with techniques and practice to maintain and improve the high degree of physical fitness necessary to meet the demands of their profession. (F, Sp)

PFHW 110 Emergency Services Fitness II 1
Semester Prerequisite: Emergency Services Student
 A continuation of PFHW/PEAK 109. This course provides emergency service students with techniques and practice to maintain and improve the high degree of physical fitness necessary to meet the demands of their profession. (F, Sp)

PFHW 111 Emergency Services Fitness III 1
Semester Prerequisite: Emergency Services Student
 A continuation of PFHW/PEAK 110. This course provides emergency service students with techniques and practice to maintain and improve the high degree of physical fitness necessary to meet the demands of their profession. (F, Sp)

PFHW 112 Emergency Services Fitness IV 1
Semester Prerequisite: Emergency Services Student
 A continuation of PFHW/PEAK 111. This course provides emergency service students with techniques and practice to maintain and improve the high degree of physical fitness necessary to meet the demands of their profession. (F, Sp)

PFHW 123 Human Nutrition 3	PFHW 168 Un-smoking for Life 1	
Semester Prerequisite: Biology Recommended	Semester Prerequisite: None	
An introductory course in human nutrition. Topics include the role of nutrients; digestion, absorption, and metabolism of nutrients; role of vitamins and minerals; and the introduction of current and controversial topics when relevant. Such topics can include fad diets, obesity, nutrition of athletes, food labels, alcohol, sugar, and food additives. (F, Sp)	This course introduces the student to the habit, patterns, and health effects of smoking. The student will learn ways to permanently stop smoking and will gain information to make healthy lifestyle choices. (F, Sp, Su)	
PFHW 131 Osteoporosis Prevention I 2	PFHW 169 Fit for Life Exercise 1	
Semester Prerequisite: None	Semester Prerequisite: None	
This course introduces the student to principles that can aid in the prevention of osteoporosis. The student will learn risk factors, nutritional information, and progressive strength and flexibility exercises related to osteoporosis prevention. (F, Sp, Su)	This course introduces the older student to the benefits and importance of a regular exercise program to combat the debilitating effects which inactivity has upon aging. The student will learn the benefits of cardiovascular exercise as well as flexibility, mobility, and range of motion. (F, Sp)	
PFHW 132 Osteoporosis Prevention II 1	PFHW 180 Positive Approaches to Stress 1	
Semester Prerequisite: HFWE 131/PFHW 131	Semester Prerequisite: None	
This course continues the focus on osteoporosis prevention. The student will continue progressive strength and flexibility exercises, current research, and nutrition information. (F, Sp, Su)	This course introduces the student to the role stress has in our lives; physically, emotionally, and mentally. The student will learn to identify his or her own stress styles and become aware of options with coping techniques. (F, Sp)	
PFHW 145 Nutrition: Critical Issues 2	PFHW 181 Stress Management 1	
Semester Prerequisite: None	Semester Prerequisite: None	
This course introduces the student to nutrition and its role in promoting better health. The student will learn concepts and controversies in nutrition including vitamin supplements, natural foods, and other related topics. (F, Sp, Su)	This course introduces the student to the nature of stress, how it affects us, and techniques to handle it. The student will learn to develop individualized strategies to deal with his or her stress and increase overall health. (F, Sp, Su)	
PFHW 146 Choice for Change Weight Control Program 1	PFHW 182 Stress Management for Parents 1	
Semester Prerequisite: None	Semester Prerequisite: None	
This course introduces the student to a weight management program that follows the American Dietetic guidelines. The student will learn the principles of nutritionally sound low-fat eating and the necessity of regular exercise for permanent weight loss. (F, Sp, Su)	This course introduces the student to effects of stress in child-rearing, for child care providers and parents. The student will gain an understanding of how stress influences family relationships and learn techniques to apply to daily life. (F, Sp, Su)	
PFHW 147 Mini Choice for Change Weight Control .5	PFHW 261 Adult Lifestyles Exercise 2	
Semester Prerequisite: None	Semester Prerequisite: Fitness Evaluation, Departmental Approval	
This mini-course introduces the student to a weight management program that follows the American Dietetic guidelines. The student will learn the principles of nutritionally sound low-fat eating and the necessity of regular exercise for permanent weight loss. (Su)	An opportunity for students to maintain and/or improve their fitness level through supervised aerobic exercise sessions and health education. Emphasis is on regular, safe exercise, and healthy lifestyles. (F, Sp, Su)	
PFHW 148 Staying on Track: Lifelong Weight Management 1	PFIS - PHYSICAL FITNESS: INDIVIDUAL SPORT/INTEREST	
Semester Prerequisite: None	PFIS 100 Bowling: Beginning 1	
A continuation of the principles of Choice for Change Weight Control Program. The student will focus on the behavioral aspects of eating, better techniques for weight management, and changing behavior through awareness. (F, Sp, Su)	Semester Prerequisite: None	
PFHW 149 Cholesterol Management .5	This course is a basic introduction to bowling. Primary emphasis is placed on spot bowling, release, and approach. Students become familiar with bowling etiquette and scoring. (F, Sp, Su)	
Semester Prerequisite: None	PFIS 101 Bowling: Intermediate 1	
This course introduces the student to a dietary program that can assist in lowering cholesterol levels. The student will learn ways to identify high cholesterol and saturated fat foods substituting them with a practical, nutritionally sound food plan. (F, Sp, Su)	Semester Prerequisite: None	
PFHW 161 Self-Awareness: Key to Wellness 2	This course develops further strategies in spot bowling, consistent ball release, and scoring strategies. (F, Sp, Su)	
Semester Prerequisite: None	PFIS 102 Bowling: Advanced 1	
This course introduces the student to aspects of self-awareness that can lead to greater vitality in all aspects of life. The student will learn ways in which he or she is influenced by family and cultural beliefs. Tools for changing behavior will be presented. (F, Sp, Su)	Semester Prerequisite: PEAC 101/PFIS 101	
PFHW 163 Healthy Lifestyles 2	This course is an extensive review of skills introduced at the beginning and intermediate levels. Students develop strategies in lane reading. (F, Sp, Su)	
Semester Prerequisite: None	PFIS 103 Golf: Beginning 1	
This course introduces the student to lifestyle skills that lead to better health. The student will learn healthy nutritional habits, basic fitness concepts, positive stress reduction, and development of a personalized healthy lifestyle plan. Assessment skills and wellness concepts will be put into practice. (F, Sp, Su)	Semester Prerequisite: None	
PFHW 167 The Consumer and Health Issues 2	This course is an introduction to the basics of golf which include equipment, grip, stance and posture, club swing, and the rules and etiquette of golf. (F, Sp, Su)	
Semester Prerequisite: None	PFIS 104 Golf: Advanced/Beginning 1	
This course introduces the student to the study of health from a holistic perspective—seeing life as a total system. The student will learn awareness and tools for the "Triangle of Health" including the physical, mental, and spiritual. Alternatives in health care will be examined. (F, Sp, Su)	Semester Prerequisite: None	
	This course will provide continuation of the development of grip, stance, and club swing. Visualization and imagery will be introduced in relation to the golf swing. (F, Sp, Su)	
	PFIS 105 Golf: Intermediate 1	
	Semester Prerequisite: None	
	This course will review the basics of golf: equipment, grip, stance and posture, and club swing. Students will be given drills to foster and improve proper swing mechanics for course play. (F, Sp, Su)	

PFIS 108 Pool: Beginning 1
Semester Prerequisite: None
 This course introduces students to the fundamentals of pool (pocket billiards). Primary course emphasis is on stance, grip, bridge, aim, and stroke. Cue ball position shots such as stop, follow, draw, and center are covered. (F, Sp, Su)

PFIS 109 Pool: Intermediate 1
Semester Prerequisite: None
 This course reviews the fundamentals of stance, grip, bridge, aim, and stroke. Skill improvement and concentration techniques are stressed. (F, Sp, Su)

PFIS 111 Table Tennis: Beginning 1
Semester Prerequisite: None
 This course is an introduction to table tennis as played by tournament players. Strokes covered include forehand and backhand topspin drives, pushes and blocks, and defensive strokes. Discussions will include the rules of table tennis tournaments. (F, Sp, Su)

PFIS 112 Table Tennis: Intermediate 1
Semester Prerequisite: None
 This course is an extension of the beginning course and provides more training in the basic strokes. More advanced strokes such as the loop and the lob are covered. (F, Sp, Su)

PFIS 113 Competitive Table Tennis 1
Semester Prerequisite: PFIS 111
 This course is offered for students who are considering participation in United States Table Tennis Association-sanctioned tournaments. Match play is stressed. Rules are discussed in detail and observed during practice. Footwork and service practice are strongly encouraged. (F, Sp, Su)

PFIS 115 Tennis: Beginning 1
Semester Prerequisite: None
 This course will introduce the student to the lob, half volley, and a number of different serves. The student should be able to demonstrate and execute the fundamentals of tennis: ground strokes, net volley, serve, and the knowledge of scoring the game. (F, Sp, Su)

PFIS 116 Tennis: Intermediate 1
Semester Prerequisite: None
 This course will introduce the student to the lob, half volley, and a number of different serves. The student should be able to demonstrate and execute the fundamentals of tennis: ground strokes, net volley, serve, and the knowledge of scoring the game. (F, Sp, Su)

PFIS 117 Tennis: Advanced 1
Semester Prerequisite: None
 This course deals with developing good ball control, court position, topspin shots, and serve/slice shots. Students should be able to execute and demonstrate the following tennis skills: solid ground strokes, net volleys, lobs, and good control of the serve. (F, Sp, Su)

PFIS 118 Bicycling/Touring 1
Semester Prerequisite: None
 This course deals with emergency repairs, proper fit of bicycle, good cycling techniques, and safe use of roads. Students are shown a variety of routes suitable for bicycling in the Lansing area. (F, Sp, Su)

PFIS 119 Bicycling Camping/Touring 1
Semester Prerequisite: None
 This course is a two-day, self-contained bicycle trip in a scenic area of Michigan. Participants carry on their bicycles all gear and items needed for the entire trip. Students will cycle 45-50 miles each day. (F, Sp, Su)

PFIS 120 Tai Chi I 1
Semester Prerequisite: None
 This course introduces the first 30 forms of the Yang-style Tai Chi. Students develop techniques to focus on relaxation and inner calmness. Slow movements train the mind to be in better control of the body. (F, Sp, Su)

PFIS 121 Tai Chi II 1
Semester Prerequisite: PEAD 104/PFIS 120
 This course covers more difficult forms in Tai Chi. Yang-style Tai Chi stresses the health and well-being of the whole person. Yang-style movements allow students to move in slow, smooth, steady, and continuous movement. (F, Sp, Su)

PFIS 122 Aikido 1
Semester Prerequisite: None
 This course is an introduction to the philosophy of Aikido. Basic movements of Aikido as a martial art are introduced. (F, Sp, Su)

PFIS 123 Aikido: Continuing 1
Semester Prerequisite: PEAD 107/PFIS 122
 This course presents the sixth KYU forms through the third KYU techniques. This course examines the philosophical underpinnings of Aikido. (F, Sp, Su)

PFIS 124 Yoga: Beginning 1
Semester Prerequisite: None
 This course is an introduction to yogic breathing and gentle yogic stretching exercises with emphasis in guided relaxation and meditation. Psycho-acoustic music is used to reduce stress and tension. (F, Sp, Su)

PFIS 125 Yoga: Continuing 1
Semester Prerequisite: None
 This course promotes psycho-physical integration of body and mind through yogic breathing, stretching, and relaxation. Guided breathing and visualization are used to enhance depth and quality of relaxation and meditation. (F, Sp, Su)

PFIS 126 Yoga: Special 1
Semester Prerequisite: None
 This course teaches modified and adaptive yogic breathing and stretching exercises to enhance the body's mobility of the movement-handicapped person. Feldenkais audio and video instructional tapes are used to extend range of movement. Self-massage, guided relaxation, and meditation are used to reduce stress and tension, as well as to enhance well-being. (F, Sp, Su)

PFIS 127 Parent/Child Gymnastic Tumbling I .5
Semester Prerequisite: None
 This course introduces basic tumbling skills to work toward greater motor skill development through tumbling, stretching, balancing skills, and controlled movement. (F, Sp)

PFIS 128 Parent/Child Gymnastics Tumbling II .5
Semester Prerequisite: PEAD 116/PFIS 127
 This course introduces children to elementary combinations of movements to enhance flexibility, strength, and coordination. Children learn balancing techniques and sequential movements on a low balance beam. (F, Sp)

PFIS 131 Seminar: Special Subjects 1
Semester Prerequisite: None
 Seminars are designed to meet specific community needs. (F, Sp, Su)

PFIS 132 Seminar: Special Subjects 2
Semester Prerequisite: None
 Seminars are designed to meet specific community needs. (F, Sp, Su)

PFIS 133 Seminar: Special Subjects 3
Semester Prerequisite: None
 Seminars are designed to meet specific community needs. (F, Sp, Su)

PFIS 134 Theory and Practice of Yoga 2
Semester Prerequisite: PEAD 110/PFIS 124/Departmental Approval
 This class explores the theoretical foundations of yoga and its historical framework. Lecture, discussion, and in-class practice will give participants an opportunity to deepen their understanding of yoga theory and how it pertains to their daily practice. Students will explore how yoga exercises and relaxation practices promote health and fitness through stress reduction. (F, Sp, Su)

PFIS 145 Parent/Child Tumbling I .25
Semester Prerequisite: None
 This course introduces basic tumbling skills to work toward greater motor skill development through tumbling, stretching, balancing skills, and controlled movement. (F, Sp)

PFIS 146 Parent/Child Tumbling II .25
Semester Prerequisite: PFIS 145
 This course introduces children to elementary combinations of movements to enhance flexibility, strength and coordination. Children learn balancing techniques and sequential movements on a low balance beam. (F, Sp)

PFIS 201 Independent Study 1
Semester Prerequisite: None
 This course is a directed research project in the area of physical education, recreation, or athletics. (F, Sp, Su)

PFIS 202 Independent Study 2
Semester Prerequisite: None
 This course is a directed research project in the area of physical education, recreation, or athletics. (F, Sp, Su)

PFIS 203 Independent Study 3
Semester Prerequisite: None
 This course is a directed research project in the area of physical education, recreation, or athletics. (F, Sp, Su)

PFIS 204 Independent Study 4
Semester Prerequisite: None
 This course is a directed research project in the area of physical education, recreation, or athletics. (F, Sp, Su)

PFQA - PHYSICAL FITNESS: OUTDOOR ACTIVITY

PFOA 105 Angling: Beginning 1
Semester Prerequisite: None
 This course is an introduction to the sport of angling with demonstrations of basic angling tackle and techniques. Information is provided on Michigan sport fish and their habitat. The class will take fishing trips for steelhead, walleye, salmon, trout, bass, and other game fish. (F, Sp, Su)

PFOA 107 Angling: Advanced 1
Semester Prerequisite: PEAJ 105/PFOA 105
 This course is designed to improve the angler's skills and knowledge of fish habitat. Many sophisticated angling techniques will be discussed. Weekly fishing trips for Michigan's premier gamefish are scheduled. (F, Sp, Su)

PFOA 110 Seminar: Wilderness Survival Techniques 3
Semester Prerequisite: None
 This course provides basic outdoor survival skills and techniques to campers, outdoor enthusiasts, and group leaders. Among the topics are shelter, fire, water, signals, orienteering, food procurement, hot/cold stress management, toxic bites, edible plants of the world, and survival at sea. Optional three-day field trip exercise. (F, Sp, Su)

PFOA 111 Seminar: Wild Food Plants 3
Semester Prerequisite: None
 This course introduces 77 kinds of edible wild plants and their toxic look-alikes from Michigan and adjoining states. The students learn to distinguish these plants on the basis of observed plant characteristics. The material is illustrated in slides and handouts. Several outdoor experiences are provided. Conservation stressed. (F, Sp, Su)

PFOA 115 Sailing: Beginning 1
Semester Prerequisite: None
 This course is an introduction to basic sailing on Lake Michigan. Students will become familiar with the parts and functions of a sailing vessel. Students will be taught rigging procedures, use of wind, and other basic sailing functions. (F, Su)

PFOA 116 Basic Sailing/Cruising 2
Semester Prerequisite: None
 This course will help students gain first-hand experience in the art of sailing and seamanship. Students will attain confidence necessary to handle a cruising sailing vessel under various conditions which present themselves in the Great Lakes. (Sp, Su)

PFOA 117 Advanced Sailing 2
Semester Prerequisite: None
 This course is designed to give the student an opportunity to experience a major voyage on the Great Lakes applying the terms and course objectives covered in the introductory cruising class. Major emphasis will be placed on advanced piloting and helmsmanship. (Sp, Su)

PFOA 118 Windsurfing 1
Semester Prerequisite: Ability to Swim
 This is an entry-level class designed to provide the student with enough knowledge and experience to safely sail a windsurfer alone in protected waters during moderate weather conditions. Windsurfers and life-jackets are provided. Classes are conducted at the MSU Sailing Club on Lake Lansing. (F, Sp, Su)

PFPR - PHYSICAL FITNESS: PROFESSIONAL COURSES

PFPR 103 Athletic Training I 2
Semester Prerequisite: None
 This course is an overview of injury prevention and care techniques, first aid principles, and equipment and facilities. Other course topics covered are taping procedures and the legal implications for the athletic trainer. (F, Sp)

PFPR 104 Athletic Training II 2
Semester Prerequisite: PEAA 103/PFPR 103
 This course will complement the skills and knowledge acquired in Athletic Training I. Course emphasis will be placed on injury assessment, injury treatments, and further rehabilitation skills as they relate to athletic injury. (Sp)

PFPR 105 Psychology of Coaching 1
Semester Prerequisite: None
 This course is a comprehensive introduction to the art and science of coaching, and the art of positive coaching philosophy. (F, Sp, Su)

PFPR 106 Aerobic Instructor Training and Certification 3
Semester Prerequisite: None
 This course will train the student on how to instruct a safe and effective aerobic fitness class. High and low impact aerobics, step aerobics, and muscle repetition work using light weights and resistance bands will be emphasized. Safe exercise techniques, developing creative choreography, and teaching modifications for special populations will be covered. Certification exams will be given. (F, Sp)

PFPR 107 Officiating Basketball 2
Semester Prerequisite: None
 This course is an officiating mechanics class for students wishing to officiate basketball at the high school and college level. Proper court positioning, arm signals, and whistle use are topics covered. (F, Sp)

PFPR 110 Coaching Basketball 2
Semester Prerequisite: None
 This course is designed to prepare the student for coaching the technical aspects of basketball as well as to enhance the student's knowledge of the duties, roles, and responsibilities of the coach. Material will apply to all levels of competition with emphasis placed on high school and college levels. (F, Sp)

PFPR 111 Coaching Volleyball 2
Semester Prerequisite: None
 This course is designed to develop coaching skills in the areas of basic through advanced individual volleyball skills as well as team strategies. Teaching skill progressions and practice planning will be covered. (F, Sp, Su)

PFPR 112 Coaching Soccer 2
Semester Prerequisite: None
 This course places emphasis on teaching the proper execution of the fundamental skills and components of soccer. Individual and team skills will be taught as well as skill progression. (F)

PFPR 114 Basic Lifeguarding 1
Semester Prerequisite: None
 This course is designed to provide the necessary minimum skills of training to qualify as an entry-level lifeguard. (F, Sp)

PFPR 115 Lifeguard Training 2
Semester Prerequisite: None
 This course is designed to provide the necessary minimum skills training for a person to qualify as a non-surf lifeguard. (F, Sp)

PFPR 116 Water Safety Instruction 2
Semester Prerequisite: None
 This course is designed to assist in teaching basic aquatic skills for instructors. Teaching modalities and how different students learn is covered. (F, Sp)

PFTS - PHYSICAL FITNESS, TEAM SPORTS**PFTS 100 Basketball: Beginning 1****Semester Prerequisite:** None

This course introduces the student to the fundamental skills of basketball. Course emphasis is placed on ball handling, passing, shooting, and rules. (F, Sp, Su)

PFTS 101 Basketball: Women 1**Semester Prerequisite:** None

This course for women is designed to emphasize the game, rules and regulations of women's basketball. The student will be instructed on passing, shooting, skill development, and team play as well as individual skill improvement. (F, Sp, Su)

PFTS 102 Basketball: Advanced 1**Semester Prerequisite:** None

This course is designed for the student who has a sound understanding of basketball skills. Drills will be used to enhance passing and shooting skill development. Emphasis is placed on team play as well as individual skill improvement. (F, Sp, Su)

PFTS 103 Volleyball: Beginning 1**Semester Prerequisite:** None

This course introduces the student to the fundamental skills of volleyball. Course emphasis is on proper serving, setting, forearm passing, spiking, positioning, rules, and game strategy. (F, Sp, Su)

PFTS 104 Volleyball: Intermediate 1**Semester Prerequisite:** PEAE 103/PFTS 103

This course focuses on the development of proper serving, setting, forearm passing, and spiking skills. Game strategies and player positioning are taught in more detail. (F, Sp, Su)

PFTS 107 Indoor Soccer 1**Semester Prerequisite:** None

This course is designed to introduce students to the basics of indoor soccer and to improve the level of understanding of the game through instructions and discussions. Passing and shooting drills are emphasized along with team play concept. Modifications to soccer rules are used to accommodate indoor soccer rules and safety. (F, Sp, Su)

PFTS 108 Indoor Soccer Team Competition: Men 1**Semester Prerequisite:** None

This course provides the students with concepts, strategies, and framework of team effort to compete successfully in a competitive soccer environment via intraclass team competition similar to indoor soccer leagues. (F, Sp, Su)

PFTS 109 Indoor Soccer Team Competition: Women 1**Semester Prerequisite:** None

This course provides the students with concepts, strategies, and framework of team effort to compete successfully in a competitive soccer environment via intraclass team competition similar to indoor soccer leagues. (F, Sp, Su)

PHGY - PHYSIOLOGY**PHGY 202 Human Physiology 4****Semester Prerequisite:** 2.0 Minimum in ANAT 201, Biology, Chemistry Recommended**Basic Skills Prerequisite:** Reading Level; Writing Level (See *Course Schedule*)
The physiology, regulation, and biochemistry of the various organ systems in the human body is presented along with the integration of body function. Emphasis is on normal function, but clinical aspects may be discussed when appropriate. Laboratory topics complement the lecture. (F, Sp, Su)**PHIL - PHILOSOPHY****PHIL 151 Introduction to Logic and Critical Thinking 4****Semester Prerequisite:** None

Introduction to modern logic and elements of reasoning, with special attention given to the roles of language in reasoning, distinguishing deductive from inductive arguments, recognizing levels of meaning and differing world views (Weltanschauungen), analyzing truth-functional relations, avoiding fallacious reasoning or misleading language, and using logical skills in everyday life. (F, Sp, Su)

PHIL 152 Introduction to Ethics 4**Semester Prerequisite:** None

Designed to explore essential requirements for moral reasoning and to call attention to both the factual foundation as well as the traditional criteria utilized for value judgments. Major ethical theories will be discussed, along with their applications to everyday situations. The course will include cross-cultural references, when appropriate. (F, Sp, Su)

PHIL 153 Knowledge and Reality 4**Semester Prerequisite:** None

Select issues from classical and contemporary philosophy provide an introduction to differences between knowledge and opinion, ways of supporting knowledge claims, and the relationship between the knower and what exists. (F)

PHIL 211 World Philosophies I 4**Semester Prerequisite:** None**Basic Skills Prerequisite:** Reading Level; Writing Level (See *Course Schedule*)
Surveys major developments in theories of knowledge, reality, ethics, and society, and their historical role in shaping cultures and human identity. Covers Chinese, Indian, Greek, Roman, Christian, Islamic, and European thought from mythic beginnings to the period of early scientific reasoning. (F)**PHIL 212 World Philosophies II 4****Semester Prerequisite:** None**Basic Skills Prerequisite:** Reading Level; Writing Level (See *Course Schedule*)
Surveys major developments in theories of knowledge, reality, ethics, and society, and their historical role in shaping cultures and human identity. Covers European, Asian, African, Native American, and American pragmatic thought from the scientific revolution to contemporary global concerns. (Sp)**PHIL 260 Contemporary Ethical Problems 4****Semester Prerequisite:** None**Basic Skills Prerequisite:** Reading Level; Writing Level (See *Course Schedule*)
This is an advanced course designed to examine contemporary moral issues which arise through technological and social developments. It will explore the limits of traditional ethical theories and/or their possible adaptation to a changing world. Where appropriate, course includes issues of cross-cultural importance which involve multinational concerns. (Sp)**PHIL 295 Independent Study 1****Semester Prerequisite:** Departmental Approval

Special research projects and/or individual readings in philosophy. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)

PHIL 296 Independent Study 2**Semester Prerequisite:** Departmental Approval

Special research projects and/or individual readings in philosophy. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)

PHON - PHONICS**PHON 108 Introduction to Phonics 4****Semester Prerequisite:** None**Basic Skills Prerequisite:** Reading Level; Writing Level (See *Course Schedule*)
Explores relationship of English language sounds to their corresponding printed alphabetical letters and letter combinations. Examines rules governing variations in these sounds, the process of syllabication, accent, the dictionary pronunciation system, structural analysis of words, and the relationship of phonics to reading and spelling. (F, Sp)**PHYS - PHYSICS****PHYS 200 Applied Physics 4****Semester Prerequisite:** None**Basic Skills Prerequisite:** Math Level (See *Course Schedule*)
This course includes basic principles of construction, electronics, electrical, civil, hydraulics, metal working, heating and air conditioning technologies, as they relate to the physical sciences. Provides basic training in fundamental physical phenomena and simple machines with emphasis put on their application to practical shop and field problems. (F, Sp)

PHYS 201 Introductory Physics I 4

Semester Prerequisite: Recommend MATH 122 2.0 Minimum/Concurrently
Basic Skills Prerequisite: Reading Level, Writing Level, Math Level
(See *Course Schedule*)

First in a two-semester sequence of algebra-based physics courses designed to present the fundamental principles of physics, with applications to other fields. Core topics include one- and two-dimensional, circular and rotational motion, kinematics, forces, energy and momentum. Optional topics include solids and fluids, heat, and alternative energy sources and technologies. Demonstrations and hands-on activities complement the lecture topics. (F, Sp, Su)

PHYS 202 Introductory Physics II 4

Semester Prerequisite: 2.0 Minimum in PHYS 201

Continuation of PHYS 201. Core topics include electricity, magnetism, vibrations and waves, sound, light, and optics. Optional topics include nuclear physics, quantum physics, elementary particles, semiconductors, relativity, and cosmology. Demonstrations and hands-on activities and projects complement the lecture topics. (F, Sp, Su)

PHYS 215 Physics I: Mechanics 5

Semester Prerequisite: 2.0 Minimum in MATH 151

Basic Skills Prerequisite: Reading Level (See *Course Schedule*)

First in a three-semester sequence of calculus-based physics courses for science and engineering students. Topics include force and motion, momentum, work and energy, the conservation laws of energy and momentum, rotational motion, static equilibrium, gravitation, and oscillations. Integrated special topics may include relativity, nuclear physics, and thermodynamics. (F, Sp, Su)

PHYS 216 Physics II: Electromagnetism, Waves, and Optics 5

Semester Prerequisite: 2.0 Minimum in MATH 152, PHYS 215

Second in a three-semester sequence of calculus-based physics courses for science and engineering students. Topics include electric and magnetic forces and fields, electromagnetic energy, currents and circuits, electromagnetic oscillations and waves, mechanical waves and sound, light waves, and physical and geometrical optics. (F, Sp, Su)

PHYS 225 Physics I Laboratory 1

Semester Prerequisite: PHYS 201/Concurrently/PHYS 215/Concurrently/
Equivalent

Basic Skills Prerequisite: Reading Level (See *Course Schedule*)

Laboratory course which complements Physics I. Experiments include investigations in mechanics and heat. The lab is intended to increase students' knowledge of natural and technological phenomena as they learn effective laboratory techniques for gathering and interpreting data, communicating their results, and designing and implementing individual and team projects. (F, Sp, Su)

PHYS 226 Physics II Laboratory 1

Semester Prerequisite: PHYS 202/Concurrently/PHYS 216/Concurrently/
Equivalent

Laboratory course which complements Physics II. Experiments include investigations in electromagnetism, sound, and optics. The lab is intended to increase students' knowledge of natural and technological phenomena as they learn effective laboratory techniques for gathering and interpreting data, communicating their results, and designing and implementing individual and team projects. (F, Sp, Su)

POLS - POLITICAL SCIENCE**POLS 120 American Political System 4**

Semester Prerequisite: None

Basic Skills Prerequisite: Reading Level, Writing Level (See *Course Schedule*)
An analysis of the American political system. Emphasis is given to the federal system, with special attention to American government at the national level. (F, Sp, Su)

POLS 121 State and Local Government 4

Semester Prerequisite: None

Basic Skills Prerequisite: Reading Level, Writing Level (See *Course Schedule*)
A study of state and local governmental activities, their structures, functions, and methods of organizing resources and making policy. Consideration is given to the relationships between governmental units and the problems they confront, including relations between federal, state, and local government. (F, Sp, Su)

POLS 205 Government Internship 3

Semester Prerequisite: Departmental Approval

This course offers the student a chance to observe the actual workings of the political process by participating in it. Participation will provide students an exposure to public policy making and an opportunity to reflect on that process through course assignments. The program covers all levels of government, from city and township through the federal level. (F, Sp, Su)

POLS 206 Advanced Government Internship 3

Semester Prerequisite: Departmental Approval

This course offers the student a chance to observe the actual workings of the political process by participating in it. Participation will provide students an exposure to public policy making and an opportunity to reflect on that process through course assignments. The program covers all levels of government, from city and township through the federal level. (F, Sp, Su)

POLS 240 Introduction to Public Policy 3

Semester Prerequisite: None

This course will provide an analysis of political and organizational processes which influence the formulation and implementation of public policy. Special attention will be given to the formulation, implementation, and evaluation of various selected public policies. Further, the course is intended to develop some skills for the evaluation and design of policies. (Sp)

POLS 250 American Political Parties and Interest Groups 3

Semester Prerequisite: None

Emphasizes the origins, structure, and functions of political parties, examines the American political system in terms of citizens' concerns about community and government, and serves as a guide to political action by the citizenry. Included is the role and function of interest groups in American politics. (F)

POLS 260 Comparative Political Systems 3

Semester Prerequisite: None

Basic Skills Prerequisite: Reading Level, Writing Level (See *Course Schedule*)
An introduction to the institutions, processes, and policies of political systems throughout the world. The course will compare political cultures and behavior in the United States, the industrial nations of Europe and Asia, and the developing nations, with special emphasis on the themes of democracy, participation, and political change. (F)

POLS 270 International Relations 3

Semester Prerequisite: None

A course in contemporary international relations, with emphasis on politics. Concepts, theories, and rudimentary methods are surveyed. The relationship between international politics and U.S. foreign and domestic policy is explored. (Sp)

POLS 295 One-Credit Independent Study in Political Science 1

Semester Prerequisite: Departmental Approval

Independent project involving research, reading, and experience in political science. The project, chosen by the student, must be approved in advance by the department chair, must be supervised by a member of the faculty, and must meet specific academic goals. (F, Sp, Su)

POLS 296 Two-Credit Independent Study in Political Science 2

Semester Prerequisite: Departmental Approval

Independent project involving research, reading, and experience in political science. The project, chosen by the student, must be approved in advance by the department chair, must be supervised by a member of the faculty, and must meet specific academic goals. (F, Sp, Su)

POLS 297 Three-Credit Independent Study in Political Science 3

Semester Prerequisite: Departmental Approval

Independent project involving research, reading, and experience in political science. The project, chosen by the student, must be approved in advance by the department chair, must be supervised by a member of the faculty, and must meet specific academic goals. (F, Sp, Su)

PSYC - PSYCHOLOGY**PSYC 175 Psychology of Death: A Preparation for Living 3**

Semester Prerequisite: None

Examines psychological theories, concepts, and research that pertain to the study of death and personal death awareness. Topics include cross-cultural and historical perspectives, health care systems, medical ethics, grief/loss issues, funerals and body disposition, legal and social issues, death in modern society, suicide and beliefs about life after death. (Sp)

PSYC 200 Introduction to Psychology	4
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
The basic orientation to the field of psychology, designed as a general survey and as preparation for advanced courses in the field. Topics include methods, nervous systems, sensation, perception, development, learning, motivation, emotion, cognition, personality, abnormality, therapy, and social behavior. (F, Sp, Su)	
PSYC 202 Psychology of Personality	3
Semester Prerequisite: PSYC 200	
Discussion of concepts of adjustment, conflict, mental processes, and behavior modification. Survey of leading theories of personality, emphasizing their implications for assessing and modifying normal personality. (F, Sp, Su)	
PSYC 203 Social Psychology	3
Semester Prerequisite: PSYC 200	
A theoretical and empirical approach to understanding individual social and group behavior. Examines the person and the social environment with a focus on attitudes, interpersonal behavior, and group processes. (F)	
PSYC 204 Educational Psychology	3
Semester Prerequisite: PSYC 200	
An investigation of the contribution of psychology to education. Emphasis will be placed upon aspects of child growth and development, motivation, learning, measurement, and group dynamics that affect the achievement of pupils in the classroom. (F, Sp, Su)	
PSYC 205 Human Growth and Development	3
Semester Prerequisite: PSYC 200	
A study of the human life cycle from conception to death. Designed to investigate, describe, and explain changes in the physical, social, emotional, and cognitive areas that are a result of the continuous interaction of maturation and experience. (F, Sp, Su)	
PSYC 209 Cognitive Psychology	3
Semester Prerequisite: PSYC 200	
Cognitive psychology is the study of the human mind; its domain includes questions concerning how people perceive the world, remember information, use knowledge, understand language, learn, reason, and solve problems. (Sp)	
PSYC 210 Biological Psychology	3
Semester Prerequisite: PSYC 200, Science Course	
Biological psychology is an integration of physiology, psychology, and several other related disciplines. The course provides an in-depth exploration of the brain and the relation between it and behavior. Specific topics include sensory processing, learning and memory, sleep and disorders, and disorders of depression and schizophrenia. (Sp)	
PSYC 221 Child Psychology	3
Semester Prerequisite: PSYC 200	
Explores theories and principles of child development from conception to puberty. The course covers psychological, sociological, and biological aspects of maturation and development. (F, Sp, Su)	
PSYC 222 Adolescent Psychology	3
Semester Prerequisite: PSYC 200	
Examines theoretical and empirical literature related to adolescence, emphasizing biological, psychological, and sociological aspects of maturation and development from puberty to young adulthood. (Sp)	
PSYC 240 Psychology of Human Sexuality	3
Semester Prerequisite: PSYC 200	
An exploration of psychological aspects of human sexuality, including research methods, response, identity, development, attraction and intimacy, communication, orientation, attitudes, diseases, and disorders. (Sp)	
PSYC 250 Abnormal Psychology	3
Semester Prerequisite: PSYC 200	
A survey of the nature, development, diagnosis, and treatment of psychopathology viewed from a general-systems perspective (psychological, sociological, and biological). Major theories of causes, scientific research, and diagnostic and therapeutic techniques are studied with respect to various psychological disorders. (F, Sp)	

PSYC 295 One-Credit Independent Study in Psychology	1
Semester Prerequisite: Departmental Approval	
An independent project involving research, reading, and experience in psychology. The project, chosen by the student, must be approved in advance by the department chair, must be supervised by a member of the faculty, and must meet specific academic goals. (F, Sp, Su)	
PSYC 296 Two-Credit Independent Study in Psychology	2
Semester Prerequisite: Departmental Approval	
An independent project involving research, reading, and experience in psychology. The project, chosen by the student, must be approved in advance by the department chair, must be supervised by a member of the faculty, and must meet specific academic goals. (F, Sp, Su)	
PSYC 297 Three-Credit Independent Study in Psychology	3
Semester Prerequisite: Departmental Approval	
An independent project involving research, reading, and experience in psychology. The project, chosen by the student, must be approved in advance by the department chair, must be supervised by a member of the faculty, and must meet specified academic goals. (F, Sp, Su)	

PVAA - PROPERTY VALUATION AND ASSESSMENT ADMINISTRATION

PVAA 281 Property Valuation and Assessment Administration I	3
Semester Prerequisite: None	
An introductory course presenting the Michigan property tax system, basic property valuation concepts, property descriptions, eminent domain, land economics, tax mapping, and aerial photograph interpretation. (F)	
PVAA 282 Property Valuation and Assessment Administration II	3
Semester Prerequisite: PVAA 281/Departmental Approval	
Presents concepts of residential and agricultural appraisals and soil survey. (Sp)	
PVAA 283 Property Valuation and Assessment Administration III	3
Semester Prerequisite: PVAA 282/Departmental Approval	
Commercial and industrial appraisals are presented. Valuation and auditing procedures relevant to personal property are also explained. (F)	
PVAA 284 Property Valuation and Assessment Administration IV	3
Semester Prerequisite: PVAA 283/Departmental Approval	
Topics covered include Michigan property tax law, local government financing, assessment/equalization cycle, allocation, and millage rollback computations. (Sp)	
PVAA 286 Applied Appraisal Concepts I	1
Semester Prerequisite: PVAA 281/PVAA 282/Departmental Approval	
Field inspection and appraisal of residential, commercial and industrial properties. Emphasis is on potential appraisal problems utilizing the cost approach to value. (Su)	
PVAA 287 Applied Appraisal Concepts II	1
Semester Prerequisite: PVAA 282/Departmental Approval	
Field inspection and appraisal of commercial and industrial properties which emphasize potential appraisal problems using the cost approach to value. (Su)	
PVAA 288 Income Approach to Value I	2
Semester Prerequisite: PVAA 282/REAL 279	
This course introduces the advanced student to the appraisal concepts used in the appraisal of income-producing properties. (F)	
PVAA 289 Income Approach to Value II	2
Semester Prerequisite: PVAA 288	
Advanced study of the appraisal concepts utilized in the appraisal of income-producing properties. (Sp)	

QUAL - QUALITY ASSURANCE

QUAL 100 Introduction to Quality Assurance	3
Semester Prerequisite: None	
This course explores the historical evolution of total quality management and introduces the concepts of continuous improvement and process systems. Current quality control theories from both service and manufacturing environments are examined. (F, Sp)	

QUAL 103 Probability and Statistics for Quality Assurance	4
Semester Prerequisite: None	
This course introduces the student to basic probability and statistics as related to quality assurance. Material covered includes probability concepts, average and standard deviation, discrete probability distributions, the normal distribution, the Central Limit Theorem, OC curves, and basic acceptance sampling concepts. The student will also be exposed to computer applications. (F, Sp)	
QUAL 104 Process Control Charting	3
Semester Prerequisite: QUAL 103	
This course introduces the student to the theory, application, selection, and interpretation of both variable and attribute control charts. A variety of manufacturing as well as service sector examples are used. (Sp)	
QUAL 107 Problem-Solving Techniques	3
Semester Prerequisite: None	
This course introduces the student to various problem-solving tools and methods that can be used effectively for process or product improvement. A variety of both manufacturing and service applications will be examined. (F)	
QUAL 115 Metrology	4
Semester Prerequisite: QUAL 103/Approval	
Introduces the student to the theory, use, and application of conventional and digital precision instrumentation. Designed to fulfill the needs of quality assurance and skilled trades students requiring a foundation in metrology. (F)	
QUAL 121 Introduction to Statistical Process Control	3
Semester Prerequisite: None	
This course provides an introduction to statistical process control (SPC) philosophy and techniques. SPC is a means of controlling and improving processes through the use of data. Students will be introduced to the history of SPC, the Deming philosophy, process variation, techniques including control charts, and process improvement. (F, Sp)	
QUAL 124 Quality Service and Customer Satisfaction	3
Semester Prerequisite: None	
This course explores the meaning of reliable customer service and the effects of changing customer expectations. Topics include: quality concepts, terms and techniques as they apply to service quality, gaps between customer expectations and service performance, determining customer expectations, and measuring customer satisfaction. (F)	
QUAL 200 Quality Improvement Teams	4
Semester Prerequisite: None	
Covers problem-solving models and techniques for quality/productivity improvement, and the human factor related to quality. Emphasis includes interpersonal and communication skills related to quality assurance. Students use problem-solving methods and techniques, learn team member roles, effective communication skills, and prepare and present projects to the class. (F)	
QUAL 203 Quality Planning and Systems Management	4
Semester Prerequisite: None	
This course focuses on developing, managing, and implementing quality assurance systems. Course material and assignments are designed to develop student skills in intracompany, vendor, and customer quality relationships including quality planning, quality manual and procedure development, communication, training for quality certification programs, and continuous improvement. (F)	
QUAL 205 Cost of Quality	3
Semester Prerequisite: QUAL 100	
Introduces the student to definitions and philosophy of quality costs through the interactions of typical accounting methods and the alignment of quality cost practices. Topics include basic financial concepts, trend analysis, problem areas, reducing costs, and planning. (Sp)	
QUAL 209 Reliability	3
Semester Prerequisite: QUAL 103	
This course introduces the student to definitions and characteristics of reliability. Topics covered include probability density function, reliability function, hazard/failure rate function, life characteristic curve, and reliability modeling for components and systems. (Sp)	
QUAL 212 Applied Statistics for Quality Assurance	4
Semester Prerequisite: QUAL 104	
This course covers the topics of hypothesis testing, confidence intervals, and sample size determination as applied to various distributions, such as the normal, student T, chi-squared and F. Correlation, and regression. (F)	

QUAL 215 Experimental Design in Quality Assurance	4
Semester Prerequisite: QUAL 212	
This course covers the concepts of analysis of variance and experimental design. Topics include one and two way ANOVA, various graphical and numerical tests for effects, determination and testing of residuals, and the use of mathematical models. (Sp)	
QUAL 224 Supervisory Skills for Quality	3
Semester Prerequisite: None	
This course will help students to develop skills for supervising personnel in a production environment consistent with current quality engineering principles. Topics include customer focus, employee selection and development, task analysis equipment and resource utilization, and continuous improvement of quality and productivity utilizing data and employee involvement. (F)	
QUAL 239 Project Management	3
Semester Prerequisite: QUAL 215	
This course requires the student to utilize previous knowledge gained in the Quality Assurance curriculum to set up projects, gather data, analyze data, and reach appropriate conclusions and recommendations. Possible project areas may include control charts, hypothesis testing, regression analysis, and experimental design. (Sp)	

RDGR - READING RESTRICTED

RDGR 101 Personal Reading I	1
Semester Prerequisite: Departmental Approval	
May be taken concurrently with other reading courses to provide extra instruction and practice. One-to-one instruction. Requires enrollment in READ 005 (lab). (May repeat for credit three times.) (F, Sp, Su)	
RDGR 102 Personal Reading II	2
Semester Prerequisite: Departmental Approval	
May be taken concurrently with other reading courses to provide extra instruction and practice. One-to-one instruction. Requires enrollment in READ 005 (lab). (May repeat for credit three times.) (F, Sp, Su)	
RDGR 103 Personal Reading III	3
Semester Prerequisite: Departmental Approval	
May be taken concurrently with other reading courses to provide extra instruction and practice. One-to-one instruction. Requires enrollment in READ 005 (lab). (May repeat for credit three times.) (F, Sp, Su)	

READ - READING

READ 005 Reading Laboratory	0
Semester Prerequisite: None	
READ 005 arranges the days and times when students will attend Reading Clinic courses. Students must register for both a reading clinic course, such as READ 100, and a section of READ 005. (F, Sp, Su)	
READ 100 Reading Clinic IA	4
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines private tutoring with directed practice. For students whose reading skills range from pre-literate to basic literacy. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)	
READ 101 Reading Clinic IIA	4
Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines private tutoring with directed practice. For students who have some basic literacy skills. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)	

READ 102 Reading Clinic IB 3
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines private tutoring with directed practice. For students who have some basic literacy skills. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 103 Reading Clinic IIB 3
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines private tutoring with directed practice. For students who have some basic literacy skills. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 104 Reading Skills IA 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines private tutoring with directed practice. For students whose reading skills range from pre-literate to basic literacy. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 105 Reading Skills IIA 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines private tutoring with directed practice. For students who have some basic literacy skills. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 106 Reading Skills IIB 3
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines private tutoring with directed practice. For students who have some basic literacy skills. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 107 Reading Skills IIB 3
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines private tutoring with directed practice. For students who have some basic literacy skills. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 108 Individualized Reading A 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed for average readers, especially adults in the working community, who wish to improve their reading proficiency with one-to-one instruction and directed practice. Students concentrate on areas that need strengthening. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 109 Individualized Reading B 3
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed for average readers, especially adults in the working community who wish to improve their reading proficiency with one-to-one instruction and directed practice. Students concentrate on skill areas that need strengthening. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 110 Reading: Essential Strategies 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed to provide a transition from mastery of basic reading skills and individualized tutorial literacy instruction to a mainstream, classroom learning experience. Includes emphasis in reading for main ideas, rapid information processing skills for improving comprehension, drawing conclusions from implied meaning, and application of techniques to insure academic survival. (F, Sp, Su)

READ 113 Reading Skills 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed to help students further skills in comprehension in various types of reading. This course emphasizes discernment in reading skills through classroom activities. (F, Sp, Su)

READ 115 Reading Comprehension 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed to increase basic comprehension skills, build vocabulary, and prepare students for college-level reading through the exploration of effective study techniques. (F, Sp, Su)

READ 165 Critical Reading 2
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 This course is designed to go beyond reading comprehension at the literal level and to develop in the individual the ability to grasp implied meanings and draw conclusions. The reader must also be able to perceive the structural and developmental pattern in written material and to judge rationally what he or she reads. (F, Sp, Su)

READ 175 Speed Reading and Advanced Vocabulary 2
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 Designed for the student of an average or better-than-average reading ability. Increases reading rate and comprehension for greater efficiency in studying and in general reading. Special attention is given to vocabulary improvement, the multiple purposes of reading, the importance of flexibility in reading, and increased concentration. (F, Sp, Su)

REAL - REAL ESTATE

REAL 271 Introduction to Real Estate 2
Semester Prerequisite: None
 Overview of the real estate business. Emphasis on points of law and real estate principles useful to the beginning salesperson and/or potential buyer, seller, or investor. (F, Sp)

REAL 273 Real Estate Investment 3
Semester Prerequisite: REAL 271/REAL 274/Departmental Approval
 Emphasis on investment analysis, financing, depreciation, capital gains, exchanging, and federal tax implications of real estate acquisitions, ownership, and disposal. (Sp)

REAL 274 Real Estate License Exam 3
Semester Prerequisite: None
 Intense study in the fundamentals of real estate. Preparation for the State of Michigan License Examination, administered by the Applied Measurement Professionals (AMP). This class meets statutory requirements including four hours in fair housing. (F, Sp, Su)

REAL 275 Real Estate Financing 3
Semester Prerequisite: None
 Significance and nature of mortgage lending, mortgage money markets, sources, types of mortgages, instruments, qualifying, the land contract and its use, administration of a mortgage loan, and a loan portfolio and methods of foreclosure. (F, Sp)

REAL 277 Property Management 3
Semester Prerequisite: None
 Covers management and the market, marketing residential and commercial rental space, creating an organized management plan, tenant and landlord laws, rent collection, leases, tenant screening, fair-housing requirements, tenant-owner relations, accounting for investment properties, real estate as an investment, managing apartments, office space, retail stores, and special-purpose buildings. (F, Sp)

- REAL 279 Residential Appraisal** 3
Semester Prerequisite: None
 This is a survey course on the appraisal of the single family residence. It is designed to expose the student to the basic economic, political, social, and environmental foundations upon which real estate valuation rests. The student will then encounter the processes by which freestanding, single family dwellings are valued. Students will also be acquainted with professional standards and ethics. (F)
- REAL 280 Real Estate Law** 3
Semester Prerequisite: REAL 271/REAL 274/Departmental Approval
 Topics covered include: land and its elements, land titles, land interests, abstracts and title insurance, deeds, easements, liens, mortgages, land contracts, foreclosures and landlord-tenant relations, private land-use controls including restrictions, condominiums, and tax policies pertaining to real estate. (Sp)
- REAL 281 Successful Home Buying Seminar** 1
Semester Prerequisite: None
 The successful home buying seminar introduces students to the fundamentals of selling and buying a home. Participants will learn what they need to know about the buying and selling process, from determining needs to closing procedures. (F, Sp)

RELG - RELIGION

- RELG 211 World Religions I** 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 This course describes and analyzes the beliefs and practices of Hinduism, Jainism, Buddhism, Sikhism, Confucianism, and Taoism in cultural context, from their origins to the present. It examines their influence on literature and the arts, beliefs and values, socioeconomic and political systems, and science and technology in world civilizations. (F)
- RELG 212 World Religions II** 4
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 This course describes and analyzes the beliefs and practices of Judaism, Christianity, Islam, and other Western religions in cultural context, from their origins to the present. It examines their influence on literature and the arts, beliefs and values, socioeconomic and political systems, and science and technology in world civilizations. (Sp, Su)
- RELG 241 Old Testament Literature** 4
Semester Prerequisite: WRIT 121 (ENGL/WRIT 122 Recommended)
 This course surveys the content of Judaism's Bible (Christianity's Old Testament) in its original Hebrew cultural and religious context, using some of the insights of modern critical scholarship. The origins and early development of the Hebrews and their religious beliefs and practices are examined. (F)
- RELG 242 New Testament Literature** 4
Semester Prerequisite: WRIT 121 (ENGL/WRIT 122 Recommended)
 This course surveys the content of Christianity's New Testament in its original Hebraic and Greco-Roman context, using some of the insights of modern critical scholarship. The origins and early development of Christianity and its religious beliefs and practices are examined. (Sp)
- RELG 250 Religions of East Asia** 4
Semester Prerequisite: 2.0 Minimum in WRIT 121
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 This course surveys the origins and development of East Asian religions. The religious beliefs and practices of Confucianism, Taoism, Buddhism (Mahayana and Tibetan), and Shinto are examined in terms of their vital role in the development of ancient and modern East Asian civilizations. (Sp)

RESP - RESPIRATORY THERAPY

- RESP 123 Cardiopulmonary Applied Basic Sciences and Microbiology** 2
Semester Prerequisite: Admission to Program
 This course explores selected areas of physical and biological sciences as applied to the practice of cardiopulmonary care. Basic physical sciences emphasize the states of matter, gases, fluid, and application laws. Biological science application concerns microbiology of pathogens, infections control, and surveillance in medical practice. (F)

- RESP 125 Cardiopulmonary Anatomy and Physiology** 3
Semester Prerequisite: Admission to Program
 The course explores general medical terminology while providing an in-depth study of cardiopulmonary anatomy and physiology. An emphasis will be placed on building medical vocabulary and word usage in relation to anatomy and physiology of the respiratory, cardiovascular, and blood and lymph systems. (F)
- RESP 126 Cardiopulmonary Physiology and Pathophysiology** 3
Semester Prerequisite: RESP 123, RESP 125/Departmental Approval
 Explores the physiology and pathophysiology of the cardiopulmonary system. Detailed analysis of pulmonary mechanics and studies, gas transport, circulatory system, acid/base balance, V/Q relationships, control of ventilation, and hypoxia is provided. Emphasis is placed in study of the systems in health and disease. (Sp)
- RESP 128 Cardiopulmonary Pharmacology and Metrology** 2
Semester Prerequisite: Admission to Program
 A study of general concepts of pharmacology and metrology for use in cardiopulmonary care. Emphasis is placed in pulmonary drugs and cardiovascular drugs. Medically-related math skills are developed through example and exercise. (F)
- RESP 131 Respiratory Therapy Technology I** 4
Semester Prerequisite: Admission to Program
 Introductory course in professional respiratory care that includes didactic instruction, campus lab, and clinical lab experience. The emphasis is placed on infection control, medical gases, aerosol and humidity therapy, physical assessment, and patient care principles. Topics of universal precautions and hygiene for the health care provider are stressed. (F)
- RESP 132 Respiratory Therapy Technology II** 5
Semester Prerequisite: RESP 131
 Exploration of theory and techniques in individual respiratory care technique. The areas include medical gas, analyzers and blenders, aerosol therapy, airway management, chest physiotherapy, maximum demand inspiration (MDI), intermittent positive pressure breathing (IPPB), and continuous mechanical ventilation. (Sp)
- RESP 133 Respiratory Therapy Technology III** 3
Semester Prerequisite: RESP 132
 A continuation of the techniques in RESP 132. Emphasis is placed in the following areas: advanced critical care techniques, pulmonary diagnostics, resuscitation and advanced cardiac life support, rehabilitation and home care, hemodynamic monitoring, chest radiology, neonatology, and pediatrics. (Su)
- RESP 142 Respiratory Therapy Clinical Practice I** 6
Semester Prerequisite: RESP 131
 Companion clinical practice course emphasizing the techniques covered in lecture and campus lab in RESP 132. (Sp)
- RESP 143 Respiratory Therapy Clinical Practice II** 1
Semester Prerequisite: RESP 132, RESP 142
 Companion clinical practice course emphasizing the techniques covered in lecture and campus lab in RESP 132 and RESP 133. (Su)
- RESP 234 Respiratory Therapy Technology IV** 2
Semester Prerequisite: RESP 133
 Presents advanced concepts and techniques necessary in specialized areas of a respiratory therapy practice with an emphasis on emerging concepts in techniques and care appliances for this decade. Units of instruction in material and personal management for a clinical environment are presented. (F)
- RESP 235 Respiratory Therapy Technology V** 2
Semester Prerequisite: RESP 234
 A continuation of RESP 234 which presents concepts and techniques necessary in specialized areas of respiratory practice with an emphasis on emerging concepts in techniques and care appliances for this decade. (Sp)
- RESP 244 Advanced Respiratory Clinical Practice III** 6
Semester Prerequisite: RESP 143
 Designed to provide practice of respiratory care in actual clinical settings for specialized contemporary care. These areas include required areas of adult and pediatric critical care, chronic respiratory care, pulmonary function studies, and neonatal intensive care. Optional areas of study include sleep studies, pulmonary home care, pulmonary rehabilitation, and cardiology. (F)

- RESP 245 Advanced Respiratory Clinical Practice IV** 6
Semester Prerequisite: RESP 244
 This continuation of RESP 244 is designed to provide supervised practice of respiratory care in actual clinical settings for each of the highly specialized contemporary care areas. (Sp)
- RESP 251 Practice of Pulmonary Medicine** 2
Semester Prerequisite: RESP 133
 Practicing respiratory therapist, pulmonologist, and other physicians share theory, techniques, and ethics involved in their practice of pulmonary medicine. Designed to not only shape the roles and practices of new therapist, but to promote understanding among different professionals involved in the practice of pulmonary medicine. (F)
- RESP 252 Respiratory Professional Testing and Management** 2
Semester Prerequisite: RESP 251
 Examines in detail two vital areas of professional development of the respiratory therapist. The system of professional advancement for therapist is explored; diagnostic and practice professional examination for the certification and registry levels are analyzed closely. Units of instruction in material and personal management for a clinical environment are presented. (Sp)

SCIS - SCIENCE SEMINARS

- SCIS 297 Independent Study in Science** 1
Semester Prerequisite: Departmental Approval
 Special study in science topics such as geology, astronomy, physiology, chemistry, physics, ecology, zoology, or other natural sciences. The topic is chosen by the student, and the project is supervised by a member of the Science Department. Students meet with a supervising instructor by arrangement. (F, Sp, Su)
- SCIS 298 Independent Study in Science** 2
Semester Prerequisite: Departmental Approval
 Special study in science topics such as geology, astronomy, physiology, chemistry, physics, ecology, zoology, or other natural sciences. The topic is chosen by the student, and the project is supervised by a member of the Science Department. Students meet with a supervising instructor by arrangement. (F, Sp, Su)
- SCIS 299 Independent Study in Science** 3
Semester Prerequisite: Departmental Approval
 Special study in science topics such as geology, astronomy, physiology, chemistry, physics, ecology, zoology, or other natural sciences. The topic is chosen by the student, and the project is supervised by a member of the Science Department. Students meet with a supervising instructor by arrangement. (F, Sp, Su)

SDEV - STUDENT DEVELOPMENT

- SDEV 103 Preventing Parent Burnout** 1
Semester Prerequisite: None
 This course is designed to facilitate an understanding of parent burnout and its impact on mental and physical functions. The class will address causes, stages and symptoms, family and relationship dynamics, and problem solving. The course will provide multiple skills and mechanisms to cope with stress and prevent parent burnout. (F, Sp, Su)
- SDEV 110 Leadership Development I** 3
Semester Prerequisite: Departmental Approval
 Provides an opportunity to develop leadership skills through study, observation, and application. Assists students in increasing their understanding of themselves, and the theories and techniques of leadership. Specific skills include: understanding your personal philosophy, visioning, logic and creativity in decision-making, servant leadership, ethics, building trust, empowering others, resolving conflict, leader as changemakers, leading with goals, time management, situational leadership. (F)
- SDEV 111 Leadership Development II** 2
Semester Prerequisite: SDEV 110, Departmental Approval
 Provides an opportunity to further develop and apply leadership skills introduced in the previous course. Students will learn and apply skills related to conference planning, implementation, and evaluation. Students will serve on Lansing Community College committees and volunteer in community organizations. (Sp)

- SDEV 112 Leadership Development III** 2
Semester Prerequisite: SDEV 111, Departmental Approval
 Provides an opportunity to apply leadership skills introduced in SDEV 110 and learn skills related to program review and evaluation. Students will evaluate the first year of the leadership program, conference, and applications process and make recommendations. Students will also serve on Lansing Community College committees and volunteer in community agencies. (F)
- SDEV 113 Leadership Development IV** 2
Semester Prerequisite: SDEV 112, Departmental Approval
 Provides an opportunity to apply leadership skills introduced in SDEV 110/SDEV 112 and learn skills related to candidate screening and selection. Students will select first year leadership program participants and evaluate the second year of the program. Students will serve on Lansing Community College committees and volunteer in community agencies. (F, Sp)
- SDEV 118 Stretching Your Dollars** 2
Semester Prerequisite: None
 Assistance is given in very basic money management, budget procedures, record keeping, wise shopping practices, low-cost entertainment and recreation, effective debt payment methods, and financial goal-setting and planning. Consumer awareness and problems in the marketplace will also be addressed. (F, Sp, Su)
- SDEV 121 Exploring Your Potential** 2
Semester Prerequisite: None
 This course is designed to help each person identify past and present achievements which suggest the presence of strengths and potential. The goal of this class is greater realization of one's potential through self-determination. (F, Sp)
- SDEV 123 Career Bridge** 2
Semester Prerequisite: None
 Career Bridge enhances a smooth transition to college course work through helping the student identify a career direction, learn techniques of study, and build confidence in the pursuit of his or her educational goal. Positive behavioral choices will also be taught, including time management, the elimination of self-defeating behaviors, and increased self-esteem. (F, Sp, Su)
- SDEV 124 Techniques of Study** 2
Semester Prerequisite: None
 Students examine their study habits and work toward practicing skills to enhance classroom performance. Classes include weekly lectures, discussions, and assignments. Skills covered include goal-setting, time management, note-taking, reading and memory strategies, library use, and taking exams. A valuable aid for beginning and advanced students. (F, Sp, Su)
- SDEV 125 Career Planning** 2
Semester Prerequisite: None
 Students learn a career planning process by identifying their interests, values, and skills through a variety of self-assessment exercises. Students will utilize available resources to research career options and participate in classroom discussions on topics relating to career decision-making. (F, Sp, Su)
- SDEV 126 Elimination of Self-Defeating Behavior** 2
Semester Prerequisite: None
 Learning how self-defeating behaviors are started, maintained, and how they can be eliminated is the goal of the course. Behavior change is aimed at teaching people how to live life more fully and happily by identifying and cultivating life-giving behaviors. (F, Sp, Su)
- SDEV 128 Career Research** 1
Semester Prerequisite: None
 This accelerated course is designed for students who have already identified career options. The emphasis in this course is research of these options through self-assessment, participation in classroom discussion and the development of a plan of action. (F, Sp, Su)
- SDEV 130 Job Search Skills** 1
Semester Prerequisite: None
 Skills and techniques in the job search process are taught. Course content covers filling out application, writing resumes and cover letters, interviews, and other techniques used in seeking employment. Group discussions focus upon personal attitude toward job hunting. (F, Sp, Su)

SDEV 142 Assertiveness I 2
Semester Prerequisite: None
 Assertive behavior is interpersonal behavior in which a person expresses her or her opinions, feelings, beliefs, wants, personal rights, and values in such a way that the rights of others are not violated. Techniques covered teach participants to identify and practice exercising interpersonal rights and assertive skills. (F, Sp, Su)

SDEV 145 Organizing Time 2
Semester Prerequisite: None
 The most effective and efficient use of time is learned through structured discussions, audiovisuals, written exercises, and readings dealing with goal-setting, getting organized, time and work analysis, procrastination, and other barriers to successful time and task management. (F, Sp, Su)

SDEV 150 Divorce Adjustment 1
Semester Prerequisite: None
 This course is designed for those who are experiencing or who have recently completed a divorce. The student-centered atmosphere is supportive and geared toward coping with and finding constructive alternatives to the emotional crisis of divorce. (F, Sp)

SDEV 153 Men's Discussion Group 1
Semester Prerequisite: None
 This course will explore the male mode of relating in relationships. The impact of societal cultural expectations of men will be examined and how these expectations affect men's work, communication with one another, and their families. (F, Sp, Su)

SDEV 156 I'm OK/You're OK 2
Semester Prerequisite: None
 This course shows the basic concepts related to transactional analysis (T.A.) and how these concepts can enrich our lives. Within each of us is a child, an adult, and a parent reacting to the world around us. Increased personal awareness about ourselves can help us to be more effective. (F, Sp, Su)

SDEV 157 Single Parenting 2
Semester Prerequisite: None
 This course includes such topics as communication, discipline, time-structuring, and the unique concerns of adults faced with the responsibilities of raising children in a single parent family. (F, Sp)

SDEV 169 Women as Winners 1
Semester Prerequisite: None
 This course is designed to offer participants new tools for insight, self-awareness, and understanding so that they can learn to set their own goals, emancipate themselves from the boundaries they have set for themselves, and, therefore, learn to become more authentic and self-actualizing. (F, Sp, Su)

SDEV 171 Rational Living 2
Semester Prerequisite: None
 Using the teachings of Rational Emotive Training, a variety of approaches will be used to provide students with insight into the sources of problems. Techniques are offered to avoid frustration when the world is not the way it "should" be and for overcoming difficult situations at school, home, and on the job. (F, Sp)

SDEV 173 Breaking the Codependency Trap 2
Semester Prerequisite: None
 Students will learn that codependency is an unhealthy way of relating to oneself and others. New techniques will be learned so that healthier relational choice can be made. Emphasis will be on the conviction that each person can grow and heal, and engage in conscious, committed, cooperative relationships. (F, Sp, Su)

SDEV 190 Success Group 1
Semester Prerequisite: None
 Designed to stress improvement of academic performance, the course provides mutual support and deals directly with the problems of underachievement. Students will learn to set and achieve short-term goals, identify motives and attitudes, and study behaviors that lead to success and those that are related to failure. (F, Sp)

SDEV 192 Counseling for College Success 2
Semester Prerequisite: None
 Designed to stress improvement of academic performance, the course provides mutual support and is solution-focused on setting and achieving short-term goals. Students learn to identify motives, attitudes, and behaviors that lead to success. Group interaction will enhance understanding. (F, Sp, Su)

SDEV 195 Building Healthy Relationships 2
Semester Prerequisite: None
 For those who wish to take a serious look at "what helps" and "what hurts" in building human relationships. Insights can be applied to any type of relationship and will help participants focus on changes they can/need to make in building a healthier relational lifestyle. (F, Sp, Su)

SDEV 202 Teach Yourself a New Way to Think 2
Semester Prerequisite: None
 Sessions are designed to break traditional mind patterns to assist the change process. Students study a variety of thinking strategies and learn new creative thinking techniques. These include imagination, motivation, humor, forced relationships, visualization, and fantasy. This course is general in approach and not specific to any one academic discipline. (F, Sp)

SDEV 204 Self-Defense and Women I 1
Semester Prerequisite: None
 This seminar is a combination of consciousness-raising and skill-building experiences intended to increase students' understanding, resources, and skills in sexual assault prevention and self-defense. Self-defense techniques taught in this seminar will focus on responses to unarmed attacks. (F, Sp, Su)

SDEV 205 Self-Defense and Women II 1
Semester Prerequisite: SDEV 204
 This seminar is both a review and expansion of the techniques and skills taught in Women and Self-Defense I (SDEV 204). Self-defense techniques taught in this class will focus on "ground defense," responses to armed attacks, multiple attackers, and special assaultive situations. (F, Sp, Su)

SDEV 220 Parenting Skills 2
Semester Prerequisite: None
 This course is designed for anyone interested in the development of parenting skills. Skills will include active listening, problem solving, and resolution of family conflict. Application of skills involves infants, pre-schoolers, school-age, and older children. (F, Sp)

SDEV 237 Black Women's Awareness 1
Semester Prerequisite: None
 This class is an exploration of concerns and issues confronting the Black woman in America today. Students will have the opportunity to share their viewpoints and life experiences in response to such questions as: Who is the African-American woman? What are her needs? How can those needs be met? (F, Sp)

SDEV 240 Empathy Training—Listening Skills/Facilitating Decisions 2
Semester Prerequisite: None
 The student will learn how to use empathy as a technique to deal with emotions, values, and decision-making in the communication process. The skills will be taught in a small group emphasizing a supportive, experiential atmosphere. (F, Sp, Su)

SDEV 245 Dealing With Stress 1
Semester Prerequisite: None
 This course is designed to promote awareness of how stress affects mental, emotional and physical health, and behavior. The goal is to help participants to achieve lifetime coping skills. Topics include personal stressors, mental and physical coping strategies, dietary influences, communication, job or role stress, and coping with loss. (F, Sp, Su)

SDEV 271 Living Alone Creatively 1
Semester Prerequisite: None
 Designed for both single men and single women this course focus on creative and positive aspects of living alone (or with others). Information will be shared to increase self-awareness, develop skills, and create a support system to further the goal of living alone creatively. (F, Su)

SIGN - SIGN LANGUAGE

SIGN 160 Orientation to Deafness 2
Semester Prerequisite: None
Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
 This course is designed to introduce the student to pathological and cultural perspectives on deafness, and the implications those perspectives have, for persons who are deaf. Topics will be explored through discussions, readings, audiovisual presentations, and guest lecturers. (F, Sp, Su)

SIGN 161 American Sign Language I	3	SIGN 262 Mock Quality Assurance (QA)	3
Semester Prerequisite: SIGN 160/Concurrently/Departmental Approval Designed for students who wish to develop basic knowledge of American Sign Language vocabulary and grammar. There is also emphasis in the use of pantomime to explore nonverbal communication and its function within ASL. (F, Sp, Su)		Semester Prerequisite: SIGN 261/Departmental Approval This course is designed to provide students with simulated testing interpreter/transliterating settings using interactive videotapes of hearing and deaf individuals with the purpose of developing skills necessary for interpreter evaluation. (Su)	
SIGN 162 American Sign Language II	3	SIGN 263 Intermediate Sign to Voice	3
Semester Prerequisite: SIGN 161/Departmental Approval Designed to increase students' knowledge and use of American Sign Language vocabulary and grammar, as well as to focus on specific grammatical elements for more in-depth analysis and practice. (F, Sp, Su)		Semester Prerequisite: SIGN 167/Departmental Approval This course is designed to develop and refine necessary basic skills and fluency in receptive sign language and for voicing all levels of communication of deaf individuals. Techniques taught include interpreter task analysis, listening, attending, internal message formulation, vocabulary search, and monitoring output. (Sp)	
SIGN 163 American Sign Language III	3	SIGN 264 Advanced Sign to Voice	3
Semester Prerequisite: SIGN 162, SIGN 166 Designed to provide additional vocabulary and synthesis of grammatical elements of American Sign Language through expressive and receptive use of conversational sign language. (F, Sp, Su)		Semester Prerequisite: SIGN 263/Departmental Approval This course is an advanced class in skill development and fluency in voicing for all communication levels of deaf persons. Techniques taught are voice projection, breathing and relaxation, analysis of sign information, anticipation and prediction, closure, modality switching, correction, image search, décalage, and pacing. (F)	
SIGN 164 American Sign Language IV	3	SIGN 265 Advanced Interpreting and Transliterating Techniques	3
Semester Prerequisite: SIGN 163/Departmental Approval This course is intended to build conceptual understanding and use of American Sign Language. Students will develop American Sign Language skills by interpreting in ASL paragraphs which are presented in English context. (F)		Semester Prerequisite: SIGN 262/Departmental Approval This course is designed to continue the development of skills necessary for interpreter evaluation/qualification. Students will be provided with simulated testing situations using interactive videotapes of hearing/deaf individuals requiring students to interpret/transliterate. (F)	
SIGN 166 Fingerspelling	2	SIGN 267 Sign Internship I	3
Semester Prerequisite: SIGN 162/Concurrently Provides the student with concentrated instruction and practice in both expressive and receptive fingerspelling skills. (F, Sp, Su)		Semester Prerequisite: SIGN 261/Departmental Approval Combines student transliterated lectures and supervised placement in various interpreting settings to allow directed observation and application of practical interpreting skills. Students will spend a total of 32 clock hours in their placement setting. (Sp)	
SIGN 167 Beginning Sign to Voice	3	SIGN 268 Sign Internship II	3
Semester Prerequisite: SIGN 162 Designed to increase the student's receptive skills in conversational sign language focusing on comprehension of the various manual communication systems utilized by deaf persons. Sign-to-voice techniques and practice will be introduced through use of prepared videotapes. (F, Su)		Semester Prerequisite: SIGN 267/Departmental Approval Combines student interpreted lectures and supervised placement in various interpreting settings to allow directed observation and application of practical interpreting skills. Students will spend a total of 32 clock hours in their placement setting. (Su)	
SIGN 168 Expressive Manual Communication	2	SOCL - SOCIOLOGY	
Semester Prerequisite: SIGN 162 This course focuses on synthesizing grammatical elements of American Sign Language and using them in an expressive mode. It creates awareness of conversational behaviors used by the deaf community and provides practice of those behaviors in classroom and other settings. (Su)		SOCL 120 Introduction to Sociology	4
SIGN 170 Creative Arts Signing	2	Semester Prerequisite: None Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>) A survey of major theoretical perspectives, concepts, and methods of sociology. Emphasis is given to societal origins, evolution, and organization; culture; socialization; stratification; social institutions; and social change. (F, Sp, Su)	
Semester Prerequisite: SIGN 162/Departmental Approval This class explores uses, considerations, and techniques for signing elements of the creative arts including poetry, storytelling, and song. (Su)		SOCL 185 The Africans	2
SIGN 176 Advanced Fingerspelling	2	Semester Prerequisite: None A survey of the cultural, social, political, and economic importance of Africa in the modern world. The course will include the television series, "The Africans." (Sp)	
Semester Prerequisite: SIGN 166 Provides the student with advanced concentrated instruction and practice in both expressive and receptive fingerspelling skills. (F, Sp, Su)		SOCL 196 Japan Adventure Orientation	1
SIGN 250 Deaf Culture and History	3	Semester Prerequisite: None This course is designed specifically for the Japan Adventure participants in order to offer them information on the background, nature, activities, and related rules and regulations of the Japan Adventure Program. (F)	
Semester Prerequisite: SIGN 163/Departmental Approval This course looks closely at the unique experiences of those in the deaf community. Examines the history of the deaf community in America and the sociology of the hearing-impaired (both deaf and the hard-of-hearing). (Sp)		SOCL 254 Marriage and Family	3
SIGN 260 Linguistic Principles of American Sign Language	3	Semester Prerequisite: SOCL 120/PSYC 200 A study of the changes in society over the past century in terms of their dramatic impact on sexual relationships, marriage, and family life. Topics will include sex and gender roles, sexual behavior, values, psychological needs, divorce, and parenting. (F)	
Semester Prerequisite: SIGN 163/Departmental Approval An overview of the linguistic organization of ASL, including a linguistic perspective on how ASL is learned and how it is (and is not) influenced by English. Topics relevant to interpreting, such as language variation and translation, will be emphasized. (F)		SOCL 255 Contemporary Social Problems	3
SIGN 261 Principles of Interpreting	3	Semester Prerequisite: SOCL 120 Consideration of current social problems, such as family stability, environmental decline, educational decline, health care, public and private indebtedness, racism, poverty, crime, and/or urbanization, from a framework of sociological theory and recent empirical studies. (Sp)	
Semester Prerequisite: ITP Screening/Departmental Approval Surveys basic interpreting through lecture, role-playing, and classroom discussion. Introduces the ethics of interpreting, roles, and responsibilities of the interpreter. Examines the role and necessary skills of the interpreter in various settings: educational, mental health, vocational rehabilitation, legal, religious, phone, television, medical, deaf, blind, and minimal language skills. (F)			

SOCL 260 Minority Groups 3**Semester Prerequisite:** SOCL 120

An introduction to the culture and contemporary lifestyles of American minorities. Emphasis is placed on basic sociological and anthropological concepts with respect to selected minority groups, particularly the African American, Mexican American, Native American, and Asian American. (F)

SOCL 295 One-Credit Independent Study in Sociology 1**Semester Prerequisite:** Departmental Approval

Independent project involving research, reading, and experience in sociology and/or anthropology. The project, chosen by the student, must be approved by the department chair and be supervised by a faculty member. The project must meet specific academic goals. (F, Sp, Su)

SOCL 296 Two-Credit Independent Study in Sociology 2**Semester Prerequisite:** Departmental Approval

Independent project involving research, reading, and experience in sociology and/or anthropology. The project, chosen by the student, must be approved by the department chair and be supervised by a faculty member. The project must meet specific academic goals. (F, Sp, Su)

SOCL 297 Three-Credit Independent Study in Sociology 3**Semester Prerequisite:** Departmental Approval

Independent project involving research, reading, and experience in sociology and/or anthropology. The project, chosen by the student, must be approved by the department chair and be supervised by a faculty member. The project must meet specific academic goals. (F, Sp, Su)

SOWK - SOCIAL WORK**SOWK 101 Introduction to Social Work** 3**Semester Prerequisite:** None

This course introduces the principles of social work practice. Emphasis is on social work careers, description of methods, skills and standards of practice, definitions of the helping roles, survey of helping agencies and institutions, and overview of social issues and client needs relative to social work practice. (F, Su)

SOWK 203 Social Work Interviewing: Concepts and Skill Practice 3**Semester Prerequisite:** SOWK 101/HUSE 100

This course examines the purposes and basic concepts of the interview relationship with emphasis on the helping interview. It provides instruction in the techniques of interviewing with an opportunity to engage in practice interviews, including videotaping and feedback. (Sp)

SOWK 205 Social Welfare 3**Semester Prerequisite:** SOWK 101/HUSE 100

This course introduces the definition and concept of social welfare, its history, programs, attitudes, values, and philosophy. It emphasizes the development of private and public services, changing patterns of services, the evolving changes in the Social Security Act and community action, with attention to current issues in social welfare policy. (Sp)

SOWK 209 Community Organization 3**Semester Prerequisite:** SOWK 101/HUSE 100

This course introduces the principles, concepts, and methods of community organization techniques. Emphasis is on the introduction of basic practice skills and intervention techniques within a framework of beginning theoretical knowledge. (F)

SPAN - SPANISH**SPAN 115 Conversational Spanish I** 3**Semester Prerequisite:** None

First course of a two-semester sequence in conversational Spanish. Designed for persons who have no knowledge of Spanish and who wish to develop basic conversational skills in the language. Course emphasizes pronunciation of Spanish sounds, practical vocabulary, culture, and essential grammar for communication. Class taught largely in Spanish. (F, Sp, Su)

SPAN 116 Conversational Spanish II 3**Semester Prerequisite:** SPAN 115/Equivalent

Second course of a two-semester sequence in conversational Spanish. Designed for persons who have some knowledge of the language and wish to continue developing basic conversational skills. Course emphasizes practical vocabulary, some aspects of Hispanic cultures, and essential grammar for communication. Class taught largely in Spanish. (F, Sp, Su)

SPAN 121 Elementary Spanish I 4**Semester Prerequisite:** None

First course of a two-semester sequence in elementary Spanish. Designed for persons with no knowledge of Spanish who wish to develop basic language skills. Elementary practice in listening comprehension, speaking, reading, and writing. Provides useful information about the Spanish-speaking world. Class taught largely in Spanish. (F, Sp, Su)

SPAN 122 Elementary Spanish II 4**Semester Prerequisite:** SPAN 101/SPAN 121/Equivalent/Approval

Second course of a two-semester sequence in elementary Spanish. Introduces more complex structures while developing a foundation in the essentials of the language. Emphasizes practice in listening comprehension, speaking, reading, and writing. Provides useful information about the Spanish-speaking world. Class taught largely in Spanish. (Sp)

SPAN 201 Intermediate Spanish I 4**Semester Prerequisite:** SPAN 102/SPAN 122/Equivalent/Approval

First course of a two-semester sequence in intermediate Spanish. Begins with intermediate review of grammar, intensive vocabulary building, listening comprehension, and writing compositions. Encourages conversation by introducing discussions about the cultures of the Spanish-speaking world. Class taught entirely in Spanish. (F)

SPAN 202 Intermediate Spanish II 4**Semester Prerequisite:** SPAN 201/Equivalent/Approval

Second course of a two-semester sequence in intermediate Spanish. Continues an intermediate review of grammar, intensifies vocabulary building, strengthens listening comprehension and composition-writing, and improves oral fluency through intense discussions on the cultures of the Spanish-speaking world. Class taught entirely in Spanish. (Sp)

SPAN 295 Independent Study 1**Semester Prerequisite:** Departmental Approval

Special research projects and/or individual readings in Spanish. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)

SPAN 296 Independent Study 2**Semester Prerequisite:** Departmental Approval

Special research projects and/or individual readings in Spanish. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)

SPCH - SPEECH COMMUNICATION**SPCH 110 Oral Communication in the Workplace** 3**Semester Prerequisite:** None

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Introduction to oral communication skills in business and technology. Students will learn to interact effectively in diverse workplace situations. Activities include participating in interviews, managing group dynamics, orienting employees, giving planned presentations, and using current technology to enhance business communication. (F, Sp, Su)

SPCH 120 Dynamics of Communication 3**Semester Prerequisite:** None

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Introduction to the theory and practice of speaking and listening effectively in interpersonal, group, and public communication situations. The course utilizes readings, lectures, discussions, learning activities, and oral and written assignments to help students both understand the communication process and become more skillful interpersonal, group (team), and public communicators. (F, Sp, Su)

SPCH 130 Fundamentals of Public Speaking 3**Semester Prerequisite:** None

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Helps beginning speakers develop the skills and confidence needed to speak effectively to audiences in public situations. Through a carefully planned series of speaking assignments, students learn the proper techniques for researching, developing, organizing, outlining, and delivering effective informative and persuasive speeches. (F, Sp, Su)

SPCH 140 Interpersonal Communication	3
Semester Prerequisite: None	
Introduction to fundamental principles and skills of interpersonal communication. Students investigate techniques for interacting effectively in family, intercultural, and male/female relationships. Class discussions, learning activities, and assignments assist students in examining the impact of their communication on others and in developing effective interpersonal skills. (F, Sp, Su)	
SPCH 260 Nonverbal Communication	3
Semester Prerequisite: None	
Introduction to the ways people communicate without words. Students investigate nonverbal communication theory and research and learn the messages that gestures, facial expressions, vocal cues, physical appearance, clothing, touch, distance, and time convey in American and foreign cultures. Students' nonverbal communication skills are enhanced through assignments and in-class learning activities. (F)	
SPCH 270 Mass Communication	3
Semester Prerequisite: None	
Introduction to broadcast, film, and print media and their impact on the individual and society. Students investigate theory and research on topics including values the media convey, media stereotypes, violence, news, advertising, and the role of media in political campaigns. Assignments and observational projects help students become enlightened media consumers. (Sp)	
SPCH 280 Intercultural Communication	3
Semester Prerequisite: None	
Introduction to the theory and practice of successful intercultural communication. Students will investigate how communication is affected by such factors as: dimensions of cultures, cultural values, world views, relationships, and social institutions. Readings, guest speakers, discussions, learning activities, and assignments will help students become ethical and skillful intercultural communicators. (Sp)	
SPCH 295 Independent Study in Speech I	1
Semester Prerequisite: Departmental Approval	
Individual projects in speech communication. Students will spend at least two hours a week for each credit in independent study. (F, Sp, Su)	
SPCH 296 Independent Study in Speech II	2
Semester Prerequisite: Departmental Approval	
Individual projects in speech communication. Students will spend at least two hours a week for each credit in independent study. (F, Sp, Su)	

SPEL - SPELLING DEVELOPMENT

SPEL 005 Spelling Laboratory	0
Semester Prerequisite: None	
SPEL 005 arranges the days and times when students will attend spelling lab courses. Students must register for both a spelling lab course, such as SPEL 109, and a section of SPEL 005. (F, Sp)	
SPEL 109 Spelling Development I	3
Semester Prerequisite: Placement Test	
Focuses on basic spelling problems and principles progressing from elementary three-letter words through words frequently used but commonly misspelled. Prepares students for Spelling Development II. (F)	
SPEL 110 Spelling Development II	3
Semester Prerequisite: SPEL 109/Placement Test	
Advances from intermediate to college level. Covers words frequently misspelled and misused in general college work and practical adult life situations. Includes meaning, pronunciation, and the most useful spelling principles plus their exceptions. (Sp)	
SPEL 165 Business Spelling	2
Semester Prerequisite: SPEL 110/Placement Test	
Covers sophisticated and specialized college-level words frequently misspelled and misused in business. Includes general spelling principles and their exceptions, unusual and unexpected spellings in the context of dictation, pronunciation, proof-reading, and correct usage. (F, Sp)	

STAT - STATISTICS

STAT 170 Introduction to Statistics	3
Semester Prerequisite: 2.0 Minimum in MATH 121/Placement Test	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
This is a survey course in statistics for students in social science, psychology, education, and other nonbusiness disciplines. Topics studied include descriptive statistics, probability, random variables, normal distribution, t distribution, chi-square distribution, F distribution, confidence intervals, hypotheses testing, correlation, and linear regression. In addition, students will solve applied problems by completing required computer assignments using a statistical software package. (F, Sp, Su)	
STAT 215 Introduction to Probability and Statistics for Business	4
Semester Prerequisite: 2.0 Minimum in MATH 122/MATH 126/MATH 130/MATH 141/Placement Test	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)	
This is a first course in probability and statistics with emphasis on business applications. Topics studied include descriptive statistics, laws of probability, random variables, normal distribution, t distribution, chi-square distribution, F distribution, confidence intervals, hypothesis testing, correlation, and linear regression. In addition, students will solve applied problems by completing required computer assignments using a statistical software package. (F, Sp, Su)	

SURG - SURGICAL TECHNOLOGY

SURG 100 Fundamental Surgical Technician	3
Semester Prerequisite: Admission to Program	
Introduction to role and function of the surgical technologist as a member of the surgical team. Lectures present all skills, procedures, and protocol necessary to participate in the operating room. (F)	
SURG 101 The Surgical Patient	2
Semester Prerequisite: Admission to Program	
Lectures will present the protocol and procedures directly affecting the care and safety of the patient. This includes the ethical, legal, and moral responsibilities of the technologist, the concepts of patient care, and preoperative routines. (F)	
SURG 103 Surgical Asepsis	2
Semester Prerequisite: Allied Health Professional	
This course defines and describes pathogenic microorganisms and the causes and prevention of infection in the hospital. The student will be introduced to sterilization, disinfection, and other methods of controlling microbial growth. The process of wound healing is discussed. (F)	
SURG 104 Operative Procedures	6
Semester Prerequisite: 2.5 Minimum in SURG 100, SURG 101	
Lectures will present indications for surgery, patient preparation, special equipment and supplies, purpose and expected outcome, and possible complications. (Sp)	
SURG 121 Applied Surgical Techniques I	1
Semester Prerequisite: Admission to Program	
First clinical session at an assigned hospital. Application of theory in the use of surgical supplies and equipment before scrubbing in actual procedures. (F)	
SURG 122 Applied Surgical Techniques II	3
Semester Prerequisite: 2.5 Minimum in SURG 121	
Clinical session at hospital. Students' first experience of application of theory and clinical skills in actual surgical procedures. (F)	
SURG 123 Applied Surgical Techniques III	5
Semester Prerequisite: 2.5 Minimum in SURG 122	
Clinical session at hospital. Continued application of theory and clinical skills in advanced surgical procedures. (Sp)	
SURG 124 Applied Surgical Techniques IV	2
Semester Prerequisite: 2.5 Minimum in SURG 123	
Clinical session at hospital. Application of theory and clinical skills in advanced surgical procedures and surgical specialty areas. (Sp)	

TDTP - TRUCK DRIVER TRAINING PROGRAM

- TDTP 110 Truck Train I** 3
Semester Prerequisite: Program Admission
 This is the initial course in a sequence of three. This course is intended to prepare the student to pass the State of Michigan CDL written exam, review D.O.T. rules and proper driver's log book reporting. Some vehicle orientation is included. (F, Sp, Su)
- TDTP 111 Truck Train II** 3
Semester Prerequisite: TDTP 110
 This is the second course in a sequence of three. Students will operate the vehicles on the driving range and local roads, developing the skills necessary to interact with highway traffic. (F, Sp, Su)
- TDTP 112 Truck Train III** 3
Semester Prerequisite: TDTP 111
 This is the final course in the Truck Driver Training Program. The students will complete range driving and backing, do local highway driving, and complete an extensive road trip. The CDL third-party exam will be administered during this course. (F, Sp, Su)

TECH - TECHNOLOGY GENERAL

- TECH 115 Technical Related Seminar** 1.5
Semester Prerequisite: None
 This course will cover a variety of topics in technical related fields. For individuals already employed in the technical environment seeking to upgrade their skills or anyone looking to be employed in a particular technology. (F, Sp, Su)
- TECH 164 Boat Building** 2
Semester Prerequisite: None
 The students learn to build a boat with materials and processes using wood and modern adhesives and coatings in a manner suitable for work in a small shop. Subjects covered include boat design, alternate construction methods, materials required, and laying out the hull. (F, Sp, Su)
- TECH 181 Technical Related Seminar** 1
Semester Prerequisite: None
 This course will cover a variety of topics in technical related fields. For individuals already employed in the technical environment seeking to upgrade their skills or anyone looking to be employed in a particular technology. (F, Sp, Su)
- TECH 183 Technical Related Seminar** 3
Semester Prerequisite: None
 This course will cover a variety of topics in technical related fields. For individuals already employed in the technical environment seeking to upgrade their skills or anyone looking to be employed in a particular technology. (F, Sp, Su)
- TECH 184 Technical Related Seminar** 4
Semester Prerequisite: None
 This course will cover a variety of topics in technical related fields. For individuals already employed in the technical environment seeking to upgrade their skills or anyone looking to be employed in a particular technology. (F, Sp, Su)

THEA - THEATER

- THEA 041 Art and Craft of Acting: Scene Study Workshop for High School Students** 4
Semester Prerequisite: Departmental Approval
 Students work on basic acting, voice, and movement skills, analyze dramatic literature, and present a final classroom performance. Designed for motivated high school students. (Su)
- THEA 091 Studio Performance Workshop: Play Performance for High School Students** 5
Semester Prerequisite: Approval by Audition
 Students will perform an entire production of a chosen script. Focus in the workshop will be on basic acting skills, script analysis, script scoring, rehearsal techniques and strategies, and production skills. (Su)

- THEA 109 Introduction to the Stage Technology Industry** 2
Semester Prerequisite: Departmental Approval
 This course is an introduction to the stage technology industry for apprentices in the Michigan Stage Technician Apprenticeship Program. It presents the history and current status of the various segments of the industry and introduces basic skills, terminology, safety concerns, and legal issues designed to prepare the apprentice for on-the-job training. (Su)
- THEA 110 Introduction to Theatre** 3
Semester Prerequisite: None
 Introduction to Theatre includes definition and analysis of theatrical art, incorporating script analysis, theatre history, the relationship between theatre and the culture from which it comes, and the roles of theatre practitioners. (F, Sp, Su)
- THEA 111 Production Practicum** 2
Semester Prerequisite: Departmental Approval
 Introduction to the techniques of stage craft for the performing arts: the basic fundamentals involved in tool usage and safety, stage lighting, lighting plot interpretation, and understanding of the organization of backstage production. (F, Sp, Su)
- THEA 116 Design Practicum I** 3
Semester Prerequisite: None
 Introduction to the elements of design and how they relate to performance. Introduction to color theory as it relates to paint, light, and fabric. Techniques of rendering, translation of a picture to three-dimensionality, spatial relationships, and development of a design concept also covered. (Sp)
- THEA 120 Introduction to Acting** 2
Semester Prerequisite: None
 Explores various acting techniques and introduces the beginning student to the skills necessary to maintain a sustained dramatic performance. Theatre games and improvisation exercises to overcome stage fright and to develop concentration and listening skills are heavily emphasized. Students present final short scene. (F, Sp, Su)
- THEA 131 Studio Theatre Performance I** 1
Semester Prerequisite: Departmental Approval
 Course includes rehearsal, performance, and evaluation of a contemporary script. Focus is on an understanding and implementation of skills acquired in THEA 141 and the relationships experienced between actor and director. (F, Sp)
- THEA 132 Studio Theatre Performance II** 1
Semester Prerequisite: Departmental Approval
 Course includes rehearsal, performance, and evaluation of verse script or scenes from Shakespeare or the classical Greeks. Focus on application of skills acquired in THEA 142, and on relationship between actor and director. Majors only. (Sp, Su)
- THEA 141 Acting I - Contemporary** 2.5
Semester Prerequisite: Departmental Approval
 Fundamentals of acting, including improvisational techniques; mask work; the physical, vocal, and internal development of character; analysis and scoring by beats of a contemporary script. Majors only. (F, Sp)
- THEA 142 Acting II - Classics** 2.5
Semester Prerequisite: Departmental Approval
 Fundamentals of acting in heightened context. Students will pursue improvisational work, mask work, and scoring. Students will develop an understanding of the power of language through verse scansion and the physical, vocal, and internal development of characters from classical literature. Majors only. (Sp, Su)
- THEA 171 Dramatic Form and Function I** 3
Semester Prerequisite: Departmental Approval
 An analysis of modern contemporary classics of the theatre. The student will read and analyze a minimum of eight contemporary scripts from Ibsen to Shepard. The student will develop a comprehensive production concept for one of these scripts. (F, Sp)
- THEA 172 Dramatic Form and Function II** 3
Semester Prerequisite: Departmental Approval
 Dramatic Form and Function II focuses on the writings of Shakespeare and the classical Greeks. The student will read a minimum of eight classical scripts, analyze them using Aristotelian analysis, and research one script in terms of production styles through history. (Sp, Su)

THEA 181	Improvisation	2.5
Semester Prerequisite: Departmental Approval		
By using the improvisational techniques of mask work and developmental exercises, this course will train the student in long-term, in-depth character development. (F)		
THEA 210	Theatre History	3
Semester Prerequisite: None		
Examination of the history of drama from primitive times to the present, introducing the overall pattern of theatre history with emphasis on European and American development. Required for all majors. (F)		
THEA 222	Directed Study	2
Semester Prerequisite: Instructor Approval		
Directed study for advanced students working under the guidance of faculty on special projects outside the scope of standard classroom instruction. (Sp)		
THEA 223	Directed Study	3
Semester Prerequisite: Instructor Approval		
Course for advanced students working under the guidance of faculty on special projects outside the scope of standard classroom instruction. (F, Sp, Su)		
THEA 224	Special Subjects in Theatre	2
Semester Prerequisite: Departmental Approval		
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		
Seminar: Special Subjects in Theater is offered each summer and allows students to take a variety of short-term courses in various theater techniques. The seminar will offer either state-of-the-art techniques or an opportunity to work with professionals. Seminars may include: stage combat, playwriting, new techniques in acting. (Su)		
THEA 233	Studio Theatre Performance III	1
Semester Prerequisite: Departmental Approval		
Studio Theatre Performance III provides rehearsal and performance opportunities in oral interpretation and/or readers theatre presentations. Usually offered in eight-week format. Second-year theatre majors only. (F)		
THEA 234	Studio Theatre Performance IV	1
Semester Prerequisite: Departmental Approval		
Studio Theatre Performance IV provides rehearsal and performance opportunities during a four-week format on an outdoor stage. Students will develop one character and work on physical and vocal projection for large spaces. Limited to individuals who have been selected as cast members in Turner House Festival Productions. (Su)		
THEA 235	Studio Theatre Performance V	2
Semester Prerequisite: Departmental Approval		
Studio Theatre Performance V provides the second-year theatre major an opportunity to explore a specific theatrical period or style in both rehearsal and performance. (F, Sp)		
THEA 237	Theatre Special Projects	2
Semester Prerequisite: Departmental Approval		
Student will be given the opportunity to direct, design, perform, or produce productions for College functions on the main stage or comparable space. Limited to individuals who have been selected as cast members or technical or design staff in a scheduled LCC performance. (F)		
THEA 238	Theatre Special Projects	2
Semester Prerequisite: Departmental Approval		
Students will be given the opportunity to direct, design, produce, or perform in College-supported outdoor theatrical events in the amphitheatre or a comparable space. Students will also participate in company class, in which new ideas in acting training will be presented. (Su)		
THEA 241	Acting III - Creating Theatre	2.5
Semester Prerequisite: Departmental Approval		
Explores acting techniques and styles of different historical periods and/or cultures. Student will survey a cross-section of acting styles and periods then focus on in-depth exploration of particular period or style. Class limited to second-year majors. In-depth area of study selected by instructor. (Sp)		
THEA 251	Stage Voice for the Actor	3
Semester Prerequisite: Departmental Approval		
Course will cover strategies in vocal production and variety; will focus on exercises to develop vocal flexibility from Lessac, Linklater, and/or Berry techniques; and will experience vocal techniques which lead to greater emotional awareness and responsiveness. For second-year theater majors. (F)		

THEA 261	Movement for the Actor	2
Semester Prerequisite: Departmental Approval		
Course will cover strategies developing student's physical endurance, strength, flexibility, and grace. Student may explore movement to music, stage combat, pantomime, and/or dance styles, and techniques from many world cultures. For second-year theatre majors. (F)		
THEA 271	Dramatic Form and Function III	3
Semester Prerequisite: Departmental Approval		
Student will study a particular topic through different theatrical forms, plays, and historical periods. The class culminates in each student's selection of a topic and completion of research into the theatrical response to that topic. For second-year theater majors. (Sp)		
THEA 281	Advanced Improvisation II	1
Semester Prerequisite: Departmental Approval		
Students will edit and polish scripts and performances. Students may also work improvisationally with local student groups to develop spontaneity, creativity, and cooperation. (Sp)		
THEA 283	Audition Workshop	1
Semester Prerequisite: Departmental Approval		
An intense workshop in which participants prepare and polish audition materials suited for a professional audition or audition for advance training. Course usually taught by guest actors, agents, or teachers from larger theatrical or film markets. (Sp)		
THEA 285	Stage Makeup	2
Semester Prerequisite: None		
A course in the application of stage makeup to develop a character and to assist the actor in sustaining the character in performance. Emphasizes skills in the use of different kinds of makeup, hairstyling, and appearance changes. (Sp)		
THEA 295	Acting Styles I	2
Semester Prerequisite: Departmental Approval		
An elective course for advanced students, this course will give the student an opportunity to explore theatrical styles from musical theater to the Greeks. Style is selected by instructor previous to given semester. Usually offered in eight-week format. (F)		
THEA 296	Acting Styles Performance	2
Semester Prerequisite: Departmental Approval		
Students choose to rehearse and perform an in-class presentation of skills developed in THEA 295. Usually offered in eight-week format. (Sp)		
TRVL - TOURISM, AIRLINE AND TRAVEL AGENCY OPERATIONS		
TRVL 100	Introduction to Travel Agency Operations	3
Semester Prerequisite: None		
An introduction to the career opportunities in travel agency, airline, and tour escorting operations. This class is designed to provide an overview of the travel industry—past, present, and anticipated future. (F, Sp, Su)		
TRVL 110	Travel Agency Ticketing Domestic/International	3
Semester Prerequisite: TRVL 100 Recommended		
The fundamentals of air scheduling, reading, and correctly using domestic and international air tariffs, and calculating the correct fares for air itineraries. Learning correct procedures for issuing accountable and non-accountable tickets. (F, Sp, Su)		
TRVL 120	North American Travel I	3
Semester Prerequisite: None		
History and development of the 50 U.S. states, Canada, and Mexico with specific location and identification projects. Major points of tourism interest will be discussed along with climate, ethnic influences, distances, and time zones. (F, Sp)		
TRVL 125	Foreign Country Travel II	3
Semester Prerequisite: None		
The history and development of Central America, South America, and the Caribbean with specific location and identification projects. These will include countries, capitals, principal cities, rivers, lakes, and mountains. Major points of tourist interest will be discussed along with climate, distances and time zones, passports, visas, and other entry requirements. (F, Sp, Su)		

TRVL 130 Foreign Country Travel III	3	TRVL 210 Group Travel Escorting Operations	4
Semester Prerequisite: None		Semester Prerequisite: None	
A study of history and development of the Middle East and Europe, with specific location and identification projects. Major points of tourist interest will be discussed along with climate, distances and time zones, passports and visas, and other entry requirements. (F, Sp, Su)		An overview of group tours and tour escorting operations, and policies and procedures required by most tour companies. Content includes how to locate groups, how to organize group travel, how to assemble the group tour package, and how to be an effective tour leader. (F, Sp)	
TRVL 131 Foreign Country Travel IV	3	TRVL 220 International Relations	3
Semester Prerequisite: None		Semester Prerequisite: None	
A study of history and development of Africa, Asia, and the Pacific with specific location and identification projects. Major points of tourist interest will be discussed along with climate, distance, and time zones. Passports, visas, and other entry requirements will be covered. (F, Sp)		Discusses political, social, and economic relationships between countries and their effects on the travel and tourism industry. Defining and discussing cultural differences, introducing foreign currencies, discussing travel tips, and adjusting to intercultural living experience. (F)	
TRVL 135 Airline/Airport Operations	3	TRVL 230 Travel and Tourism Law and Current Events	3
Semester Prerequisite: None		Semester Prerequisite: None	
An introduction of tasks performed by airline and airport personnel along with the basic structure and functions of an airport and the airline carriers. Topics to be discussed include ticket counter operation, the gate area, cargo handling and loading, aircraft weight and balance, and various principles of aeronautics. (F, Su)		A travel law course for travel agents and their personnel, as well as individuals interested in travel agency operations. The class creates an awareness of the responsibilities and rights which the law imposes upon and grants to the travel agent. The course will also discuss the consequences caused by failure in those responsibilities. (F, Sp)	
TRVL 140 Computer Reservation Training	3	TRVL 250 Advanced Computer Ticketing	3
Semester Prerequisite: TRVL 100/Ability to Type 30 WPM		Semester Prerequisite: TRVL 110, TRVL 140	
This is the first of a three-course sequence in instruction and use of the American Airlines SABRE airline reservation system. This course is designed to give the student the basic skills required for making airline computer reservations and use of SABREWORKS to create correspondence relating to the travel industry. (F, Sp, Su)		The course will begin with review of materials learned in TRVL 140 and progress to pricing and ticketing, followed by fare construction, fare rules, car, and hotel reservations. SABREvision, the hotel display with pictures and maps, will be utilized, and further uses of SABREWorks will be taught. (F, Sp, Su)	
TRVL 145 Introduction to Cruise Sales and Ground Transportation	3	TRVL 251 Sabre Windows Conversion and Review	1
Semester Prerequisite: None		Semester Prerequisite: TRVL 250/Departmental Approval	
An analysis of cruise, railroads, car rentals, and bus transportation, including how to sell the above. Other information will include costs, selling techniques, and how to select the best transportation for your client using current profiles and listings and reference materials for domestic and international destinations. (Sp, Su)		This course is designed for the previously trained SABRE student to convert and/or review their knowledge and skills of SABRE to SABRE WITH WINDOWS. This course begins with a review of materials and progresses to hands-on training using Windows applications to create reservations. (F, Sp, Su)	
TRVL 146 Seminar at Sea	2	TRVL 255 Advanced Sabre Training	3
Semester Prerequisite: None		Semester Prerequisite: TRVL 250	
A course designed to develop a basic understanding of cruise lines and their ships. Students will be able to gain firsthand knowledge of cruise lines and pier/dock facilities and also have dialogue with cruise ship staff members and observe daily cruise activities. (Sp)		A course designed to give extended use of the American Airlines SABRE computer. Skills will be taught in the expanded capabilities of the computer in use of international reservations and ticketing, tour bookings, fare storing, and destination information. Skills taught in the use of SABREWorks, using spreadsheets and databases. (F, Sp, Su)	
TRVL 150 Tourism/Travel Operations	3	TRVL 260 Travel Agency Accounting	2
Semester Prerequisite: None		Semester Prerequisite: None	
An introduction to the principles of tourism, practices, and philosophies that offers a practical and realistic education in the business of tourism. (F, Sp)		A course designed to explain and describe basic travel agency accounting concepts. Approximately one-half of the course will be dedicated to the compilation and interpretation of financial statements. The other half of the course will discuss how accounting systems should be constructed for the travel agency business. (F, Su)	
TRVL 170 Opening/Operating/Franchising a Travel Agency	3	VCBL - VOCABULARY IMPROVEMENT	
Semester Prerequisite: None		VCBL 109 Vocabulary Improvement	2
The description and explanation of the procedures involved in starting a new travel agency or acquiring an existing agency. The advantages and disadvantages of co-ops, consortiums, and franchising will also be discussed. This course will provide insight into travel agency operations from a management perspective. (F, Sp)		Semester Prerequisite: None	
TRVL 180 Your Career/Flight Attendant	3	Basic Skills Prerequisite: Reading Level: Writing Level (See <i>Course Schedule</i>)	
Semester Prerequisite: None		Knowledge of and extensive practice with word parts (roots, prefixes, and suffixes) are used to develop skills in building vocabulary. Emphasis given to correct oral and written usage, dictionary skills, and mastery of troublesome words. (F)	
To provide information and practical knowledge of a career as a flight attendant via lectures, discussion, films, and demonstrations both in the classroom and on an aircraft. Information on the duties and responsibilities of the pilot and flight crew will be discussed. (F, Sp)		WELD - WELDING TECHNOLOGY	
TRVL 190 Internship and Seminar	3	WELD 100 Combination Welding	4
Semester Prerequisite: Credits in Travel Program		Semester Prerequisite: None	
Available to students who have completed or are approaching 200 hours of work experience in tourism or travel agency operations. A term project is required. (Sp, Su)		This is a beginning theory and practice course which will introduce the safe operations and applications of oxyacetylene welding, cutting, brazing, and shielded metal arc welding. Practice will consist of these methods of joining steel in the horizontal, flat, and vertical positions. Destructive testing will also be provided. (F, Sp, Su)	
TRVL 200 Profitable Travel Sales, Marketing, and Counseling	3	WELD 101 Advanced Arc Welding	4
Semester Prerequisite: None		Semester Prerequisite: WELD 100	
An introduction to methods and techniques used in the modern travel agency covering the marketing environment, identifying consumer needs, and examining the product, price, and promotion. To accomplish the above, the art of negotiations, role-playing, telephone etiquette, and human relations skills will be included in the course content. (F, Sp, Su)		Students will develop the skills necessary to produce quality multiple pass filler and groove welds on steel plates. Conventional and low hydrogen electrodes are used in preparation of passing performance tests in all positions. Destructive testing methods, weld profiles, and welding symbols as related to arc welding are introduced. (F, Sp, Su)	

WELD 110 Gas Metal Arc Welding 4**Semester Prerequisite:** WELD 100

Provides technical understanding and applications of gas metal arc welding and flux cored arc welding. Fundamentals, safety, equipment adjustments, metal transfers, and shielding gases will be covered. Develops manual skill in all positions on different thicknesses and types of metals, including basic programming of an automated robot cell. (F, Sp, Su)

WELD 111 Gas Tungsten Arc Welding 4**Semester Prerequisite:** WELD 100

Students will develop the skills, principles, and applications of gas tungsten arc welding and plasma arc welding. Welds will be done on different thicknesses of ferrous and non-ferrous metals in all positions. Proper material cleaning, fit up, and safety are also introduced. (F, Sp, Su)

WELD 120 Structural Fabrication and Inspection 4**Semester Prerequisite:** WELD 101

Introduction to steel fabrication in accordance with the American Welding Society Structural Welding Code D1.1 applications and requirements. The student will be introduced to the numerous destructive and nondestructive methods of welding inspections. Satisfactory completion of this course will assist the student in passing a welding certification test. (F, Sp)

WELD 125 Structural Blueprint Reading for Welders 2**Semester Prerequisite:** MATH 050**Basic Skills Prerequisite:** Math Level (See *Course Schedule*)

Blueprint and welding symbols are the universal language of the welding industry. It is developed for students, apprentices, technicians, and others who must develop the ability to read and accurately interpret blueprints. Teaches awareness of the advancement in metallurgy, welding processes, consumables, and strict code enforcement used in industry today. (F)

WELD 194 Welding Project Lab 4**Semester Prerequisite:** Departmental Approval

Further welding skills in maintenance welding, production welding, resistance welding, and/or tool and die welding, depending on the direction the student would like to take his or her welding skills. (F, Su)

WELD 201 Tool and Die Welding 4**Semester Prerequisite:** WELD 101, WELD 111, MACH 135

Theory and practice methods involved in welding various alloyed metals, preheating and postheating of metals, recognition of materials, alloying elements, and their effects. Also, the proper usage of air, oil, and water hardening steels. (F, Sp)

WELD 205 Pipe Welding 4**Semester Prerequisite:** WELD 101, WELD 120

Theory, cutting, fit up, and practice on different sizes of pipe using shielded metal arc welding. Varied weld and base metal testing methods are used to the strict code requirements. Focus on low hydrogen type electrodes in groove and fillet welds in the 2G, 5G, and 6G positions. (F)

WELD 210 Aircraft Welding 2**Semester Prerequisite:** Departmental Approval

Presents welding applications and methods used in repairs and inspection of aircraft structures in accordance with approved aviation maintenance techniques. (F, Sp)

WRIT – WRITING**WRIT 005 Writing Laboratory** 0**Semester Prerequisite:** None

WRIT 005 arranges the days and times when students will attend writing lab courses. Students must register for both a writing lab course and a section of WRIT 005. (F, Sp, Su)

WRIT 101 Writing Laboratory I 1**Semester Prerequisite:** Departmental Approval

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Designed to teach fundamental writing skills and improve confidence and self-esteem. Provides a personal program combining one-to-one tutoring with directed practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

WRIT 102 Writing Laboratory II 2**Semester Prerequisite:** Departmental Approval

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Designed to teach fundamental writing skills and improve confidence and self-esteem. Provides a personal program combining one-to-one tutoring with directed practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

WRIT 103 Writing Laboratory III 3**Semester Prerequisite:** None

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Designed to teach fundamental writing skills and improve confidence and self-esteem. Provides a personal program combining one-to-one tutoring with directed practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

WRIT 104 Writing Laboratory IV 4**Semester Prerequisite:** None

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Designed to teach fundamental writing skills and improve confidence and self-esteem. Provides a personal program combining one-to-one tutoring with directed practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

WRIT 110 Confidence in Writing 4**Semester Prerequisite:** None

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Designed to help students understand the writing process, reduce writing anxiety, and develop basic writing skills. Emphasizes planning, composing, and revising strategies for experiential writing. Provides frequent writing practice in a supportive workshop environment. Students who earn exit competency in this will have a writing skill level of 3. (F, Sp, Su)

WRIT 111 Writing Preparation I 2**Semester Prerequisite:** None

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Prepares students for Writing Preparation II by teaching students to see themselves as writers, to take responsibility for developing their writing and editing skills, and to use language skills interactively to support their writing projects. The classroom offers a supportive workshop environment; the lab offers individualized tutorial assistance with editing skills. (F, Sp, Su)

WRIT 114 Business English 3**Semester Prerequisite:** None

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
This course is designed to review all parts of grammar, punctuation, and sentence structure. There will be special emphasis on usage of rules covering proper usage of punctuation, capitalization, possessives, number usage, plurals, and mechanics for written business communication. Business English is required for machine transcription and business communication. (F, Sp, Su)

WRIT 117 Writing Preparation II 4**Semester Prerequisite:** None

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Designed to help students improve their writing in preparation for transfer-level academic courses. Students who earn exit competency in this course will have a writing skill level of 6. (F, Sp, Su)

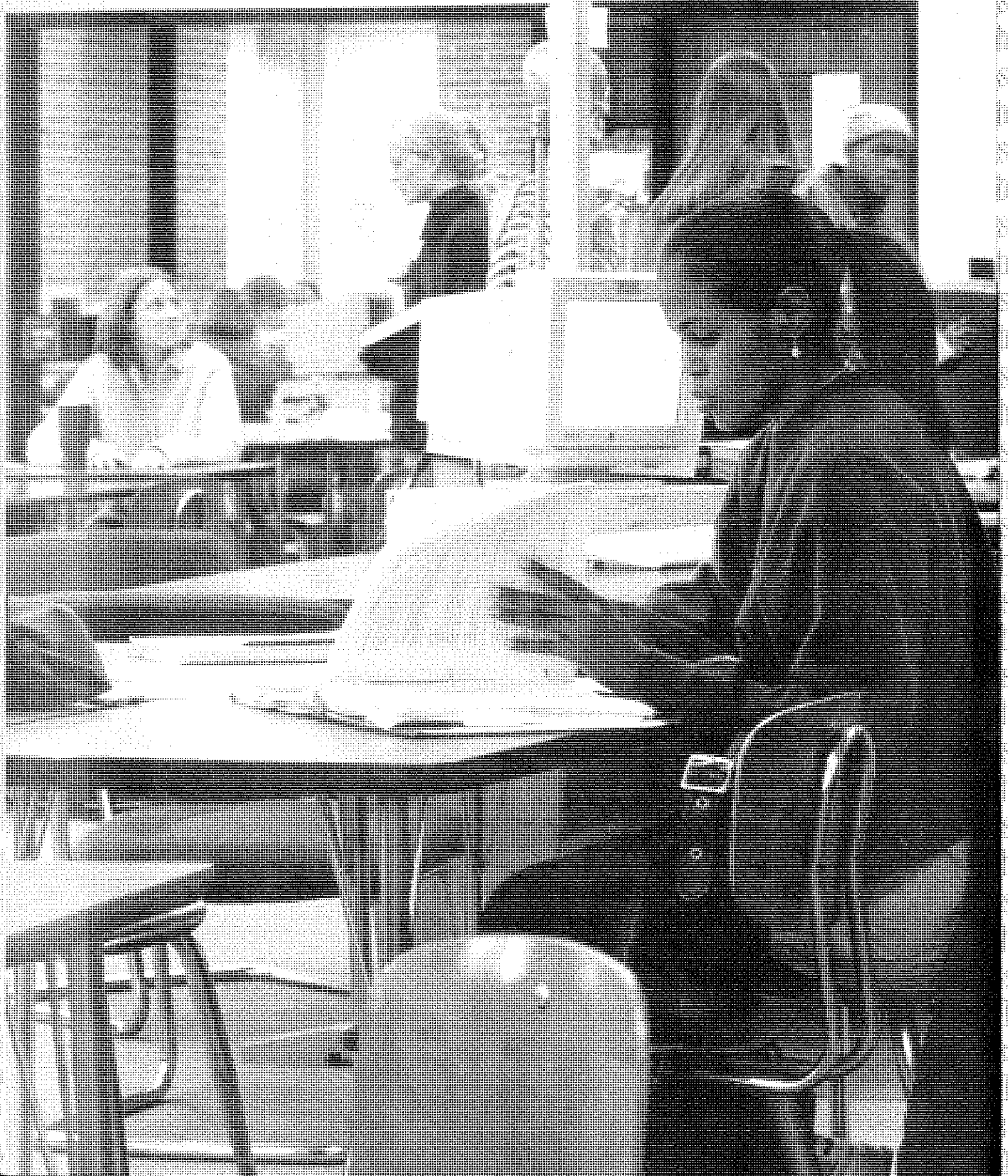
WRIT 118 Personal Writing 3**Semester Prerequisite:** None

Explores the various forms of personal writing (diaries, journals, letters, personal narratives, and autobiography) through written exercises and selected readings. The student's observations and life experiences are the focus of written assignments. Emphasizes language, style, and tone appropriate to the different forms of personal writing. (F, Sp)

WRIT 119 Writing Skills Review 1**Semester Prerequisite:** None

Basic Skills Prerequisite: Reading Level; Writing Level (See *Course Schedule*)
Designed to help WRIT 121-122 composition students, and others, improve their basic sentence and mechanics skills by providing intensive writing and editing practice in a workshop setting. (F, Sp, Su)

WRIT 121 Composition I	4	WRIT 269 Reviewing the Arts	3
Semester Prerequisite: None		Semester Prerequisite: WRIT 122/ENGL 122/Departmental Approval	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		Develops criteria for evaluating the visual and performing arts, music, and literature. Sharpens the student's skills as a reviewer of the arts through reading, writing, and viewing mass media presentations, exhibits, and performances on- and off-campus. Concepts of form, content, style, and medium of expression will be introduced. (Sp)	
The study and practice of expository and argumentative discourse to help students write more effectively. Emphasizes content development, organization, and style, and includes instruction in basic library skills. Students will write summaries, reports, and analytical expository and argumentative essays. Some sections use word processing and networked computer classrooms. (F, Sp, Su)			
WRIT 122 Composition II	4	WRIT 281 Writing for Publication	3
Semester Prerequisite: 2.0 Minimum in WRIT 121		Semester Prerequisite: 2.0 Minimum in WRIT 121/Equivalent/Departmental Approval	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		Study of freelance writing and marketing, with focus on nonfiction. Students review a variety of effective writing techniques, study marketing information for their particular fields such as analyses of potential publishers and query letters, and discuss their writing in a workshop setting. Students prepare manuscripts for submission to editors. Word processing available. (F)	
Builds upon the writing skills developed in WRIT 121 to help students write argumentative essays which use logical support and appropriate documentation. Emphasizes research techniques and use of sources, and the development, structure, and style of the research paper. Some sections use word processing and networked computer classrooms. (F, Sp, Su)			
WRIT 124 Technical Writing	3	WRIT 282 Forum for Authors	3
Semester Prerequisite: None		Semester Prerequisite: WRIT 281/WRIT 285/Departmental Approval	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		An advanced course in freelance writing for authors working on manuscripts. Students meet in a workshop setting to refine ideas, critique writing, solve problems, and develop material for submission to periodical or book editors. Includes advanced study of effective writing techniques and market information. Occasional speakers. Word processing available. (Sp)	
A college-level course in the study and practice of technical writing in a variety of formats for select audiences. Covers writing business letters, short reports and memos, formal reports, instructions and definitions, and job application letters and resumes. Students learn basic research techniques. Students will work individually and collaboratively. (F, Sp, Su)			
WRIT 127 Business Communications	3	WRIT 285 Creative Writing I	3
Semester Prerequisite: None		Semester Prerequisite: None	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		WRIT 285 is designed to help students develop expressive abilities in writing poetry and short stories. Emphasizes narrative modes of the short story, traditional meter, and free verse forms of poetry. Includes models from students and masters in both fiction and poetry. (F, Sp)	
College-level study of the theory and practice of business communication in a variety of forms, with emphasis on letters, memoranda and written reports, including research-based reports. Also covers job applications and resumes, collaborative oral reports, and employment interviews. (F, Sp, Su)			
WRIT 128 Business Report Writing	3	WRIT 286 Creative Writing II	3
Semester Prerequisite: None		Semester Prerequisite: WRIT 285/Departmental Approval	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		Emphasizes improving the ability to write effective poems, short stories, and novellas. Students select their own subjects and receive immediate responses through group discussion. (F)	
This course defines the wide range of reports required in the business world. It emphasizes conducting research, using primary and secondary sources and writing both informal and formal business reports and proposals. An oral presentation is also required. (F, Sp)			
WRIT 131 Honors Composition I	4	WRIT 287 Writing Workshop	3
Semester Prerequisite: Departmental Approval		Semester Prerequisite: Departmental Approval	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		Examines language and style as the most critical choices a creative writer makes in directing the reader's perception of and response to the work. Develops the writer's ability to control tone and style. Manuscripts will be reproduced and discussed in a workshop setting. (Sp)	
Covers the same material as WRIT 121 but with additional work to challenge the superior writer. (F, Sp)			
WRIT 132 Honors Composition II	4	WRIT 295 Independent Study in Writing I	1
Semester Prerequisite: 3.5 Minimum in WRIT 121/WRIT 131/Equivalent, Departmental Approval		Semester Prerequisite: Departmental Approval	
Basic Skills Prerequisite: Reading Level; Writing Level (See <i>Course Schedule</i>)		Individual projects in writing or journalism. Students will spend at least two hours a week for each credit in independent study. (F, Sp, Su)	
Builds upon the writing skills developed in WRIT 121 to help students write argumentative essays which use logical support and appropriate documentation. Emphasizes research techniques and use of sources, and the development, structure, and style of the research paper. Some sections use word processing and networked computer classrooms. (F, Sp)			
WRIT 195 Writing User Documentation	3	WRIT 296 Independent Study in Writing II	2
Semester Prerequisite: None		Semester Prerequisite: Departmental Approval	
Designed for data processing students and professionals. Teaches students to write effective documentation for users of computer systems. Focuses on writing step-by-step procedures explaining the responsibilities and activities of users. Emphasizes the clear, precise communication necessary for successful system operation and smooth work flow. (F, Sp)		Individual projects in writing or journalism. Students will spend at least two hours a week for each credit in independent study. (F, Sp, Su)	
WRIT 262 Prose Style	3	WRTR - WRITING RESTRICTED	
Semester Prerequisite: None		WRTR 101 Writing Practice I	1
An advanced study of non-fictional prose writing. Extensive directed practice helps experienced writers make their own writing clear, precise, direct, and graceful. Workshop sessions include a study of the expectations and choices in various types of writing, and of the relationships among purpose, structure, words, sentences, grammar, punctuation, and style. (Sp)		Semester Prerequisite: Departmental Approval	
		May be taken concurrently with other writing courses to provide extra individualized instruction and practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)	
		WRTR 102 Writing Practice II	2
		Semester Prerequisite: Departmental Approval	
		May be taken concurrently with other writing courses to provide extra individualized instruction and practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)	
		WRTR 103 Writing Practice III	3
		Semester Prerequisite: Departmental Approval	
		May be taken concurrently with other writing courses to provide extra individualized instruction and practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)	
		WRTR 104 Writing Practice IV	4
		Semester Prerequisite: Departmental Approval	
		May be taken concurrently with other writing courses to provide extra individualized instruction and practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)	





Special
Courses

The following courses are generally not offered for enrollment by individual students. These courses are designed in cooperation with various organizations such as businesses, governmental agencies, school districts, labor organizations, or other groups to meet their special needs.

DESCRIPTIONS

CHEM 115 Environmental Issues of Japan 3

Semester Prerequisite: None

The course will include a discussion of several global environmental problems as they relate to Japan. Specific topics include air pollution, water pollution, solid waste management, the ozone layer, the greenhouse effect, nuclear energy, and disposal of radioactive wastes. (Su)

COOP 271 Cooperative Education MDOT I 3

Semester Prerequisite: MDOT Employees Only

Provides first-year civil technology students with practical work experience in their career field. The student works for the Michigan Department of Transportation (MDOT) in jobs related to highway and bridge construction, as well as attending in-class instruction. Enrollment is restricted to MDOT Civil Technology cooperative education students. (Su)

COOP 272 Cooperative Education MDOT II 3

Semester Prerequisite: MDOT Employees Only

Provides second-year civil technology students with practical work experience in their career field. The student works for the Michigan Department of Transportation (MDOT) in jobs related to highway and bridge construction, as well as attending in-class instruction. Enrollment is restricted to MDOT Civil Technology cooperative education students. (F, Su)

FIRE 290 Fire Officer Seminars 1

Semester Prerequisite: Certified Michigan Firefighter

This seminar consists of 18 individual weekend seminars leading to certification as Fire Officer I, II, III. These courses are presented by the National Fire Academy through the auspices of the Michigan Fire Fighter's Training Council. (F, Sp)

FIRE 291 Fire Officer Seminars .75

Semester Prerequisite: Certified Michigan Firefighter

This seminar consists of 18 individual weekend seminars leading to certification as Fire Officer I, II, and III. These courses are presented by the National Fire Academy through the auspices of the Michigan Fire Fighter's Training Council. (F, Sp)

FIRE 292 Fire Officer Seminars .5

Semester Prerequisite: Certified Michigan Firefighter

This seminar consists of 18 individual weekend seminars leading to certification as Fire Officer I, II, and III. These courses are presented by the National Fire Academy through the auspices of the Michigan Fire Fighter's Training Council. (F, Sp)

FIRE 293 High Angle Rescue 3

Semester Prerequisite: FIRE 101/Firefighter

A hands-on seminar for fire department members who desire to participate in high angle rescue operations. Equipment is provided for the class. (F, Sp, Su)

FIRE 294 Tactical and Heavy Rescue Operations 4

Semester Prerequisite: Firefighter/Police Officer/EMS

Tactical rescue encompasses low angle trench and confined space rescue elements. This seminar is hands-on. Adherence to safety requirements is stressed. (F, Sp, Su)

FIRE 298 Confined Space Rescue 1

Semester Prerequisite: FIRE 101/Firefighter

The Confined Space Rescue emphasizes practical techniques and considerations when effecting rescue from vessels, sowers, tanks, and other confined areas. This seminar is hands-on. Adherence to safety requirements is stressed. (F, Sp, Su)

HMFS 170 Menu Design and Layout 3

Semester Prerequisite: None

This course includes the basics in menu planning, analysis, and pricing. Menu layout and design fundamentals are covered; and the integration of the menu into the operational aspects of purchasing, production, and service is explored. Project required. (F, Su)

HMFS 177 Introduction to Hotel and Food Service Operations 1

Semester Prerequisite: None

An introduction to the hotel-motel-food service industry, its management departments, and responsibilities. Designed specifically for Japan Adventure/Horizon students. (F, Sp, Su)

HMFS 180 Japan Adventure Internship 2

Semester Prerequisite: None

Attend morning meeting each working day. Perform work duties as assigned by the student supervisor(s) and the host company. (F, Sp, Su)

HMFS 181 Japan Adventure Internship 2

Semester Prerequisite: None

Attend morning meeting each working day. Perform work duties as assigned by the student supervisor(s) and the host company. (F, Sp, Su)

HMFS 183 Practicum in Japanese Culture 2

Semester Prerequisite: Program Approval

Introducing the principles and philosophy of Japanese calligraphy and the use of abacus and understanding of various types of Japanese traditional dresses. Practical training in calligraphy and abacus. (F, Sp, Su)

HMFS 185 Practicum in Japanese Culture 3

Semester Prerequisite: Program Approval

Introducing the principles and philosophy of Japanese calligraphy and the use of abacus and understanding of various types of Japanese traditional dresses. Practical training in calligraphy and abacus. (F, Sp, Su)

HUMS 125 Japan: Past and Present 3

Semester Prerequisite: None

This course traces the development of Japan's tradition with strong emphasis on history, religion, and literature. Further, this course demonstrates that modern Japan can best be understood in light of its distinctive traditions. (Sp)

MDCR 224 Introduction to Negotiating Skills .5

Semester Prerequisite: None

Certain basic negotiating skills can be applied to a number of different situations both business and personal. This training will focus on strategies for conducting negotiation sessions with employees, customers, and suppliers. It will not cover strategies for negotiating union contracts. (F, Sp, Su)

MDCR 252 Supervisory Skills Training .5

Semester Prerequisite: None

This seminar is an eight-hour program that will address the basic concepts and skills for new supervisors in addition to providing some self-assessment. (F, Sp, Su)

MDCR 281 Dealing With Difficult People .5

Semester Prerequisite: None

Difficult people create problems. In this practical seminar participants will observe and practice effective strategies for handling difficult people. Participants will be able to reduce the problems difficult people create. (F, Sp, Su)

MDCS 270 Management II 1.75

Semester Prerequisite: None

Management II is a four-day course for supervisors with limited or no experience. It focuses on the special needs of transition into management and fundamental concepts and issues needed when someone becomes a supervisor. Further, it gives participants an opportunity to learn from each other about special concerns and how to handle various management problems. (F, Sp, Su)

MDCS 271 Management III 1.75

Semester Prerequisite: None

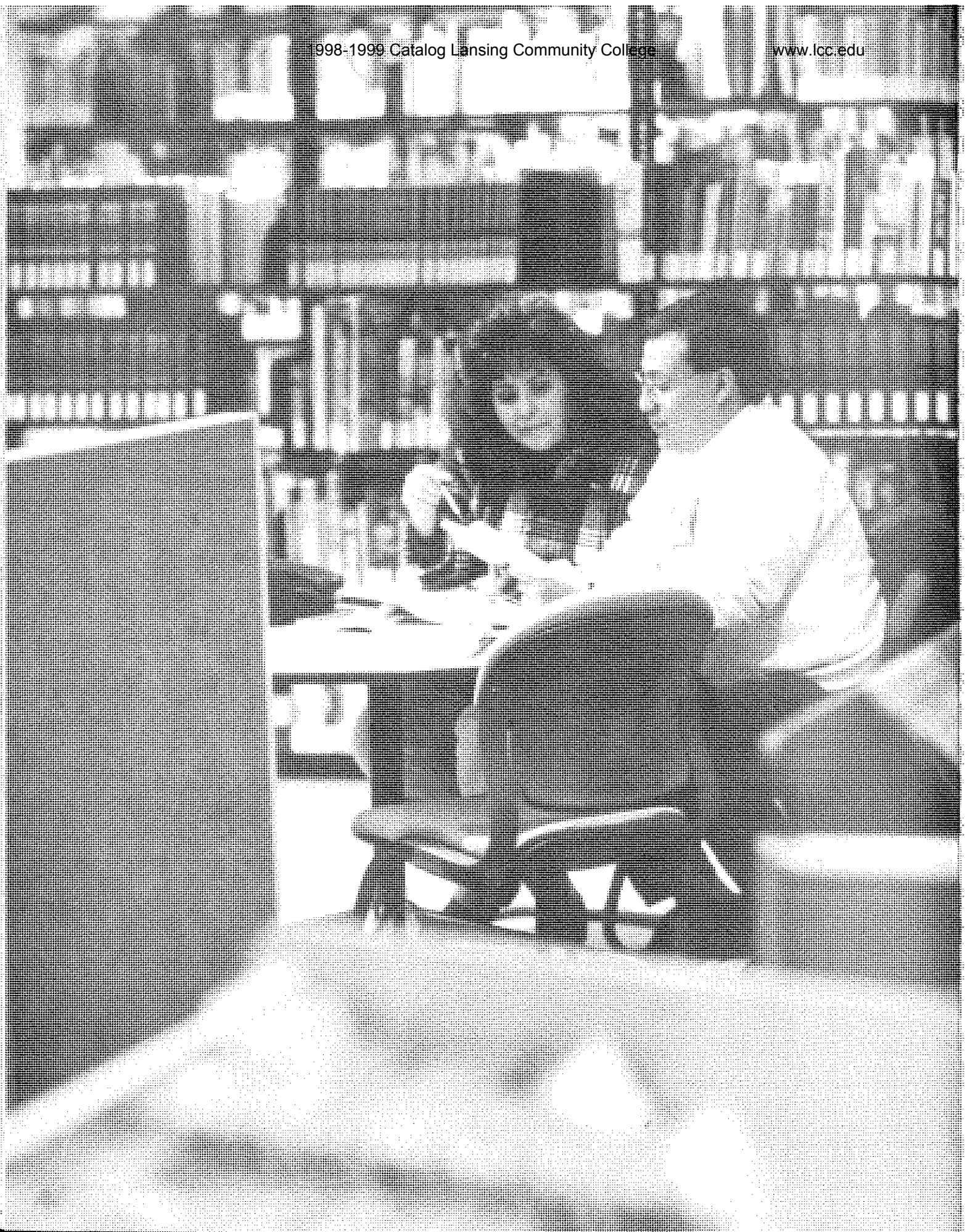
Management III is a four-day course for experienced managers. It concentrates on skills necessary to build and supervise more effective work groups through participative management. (F, Sp, Su)

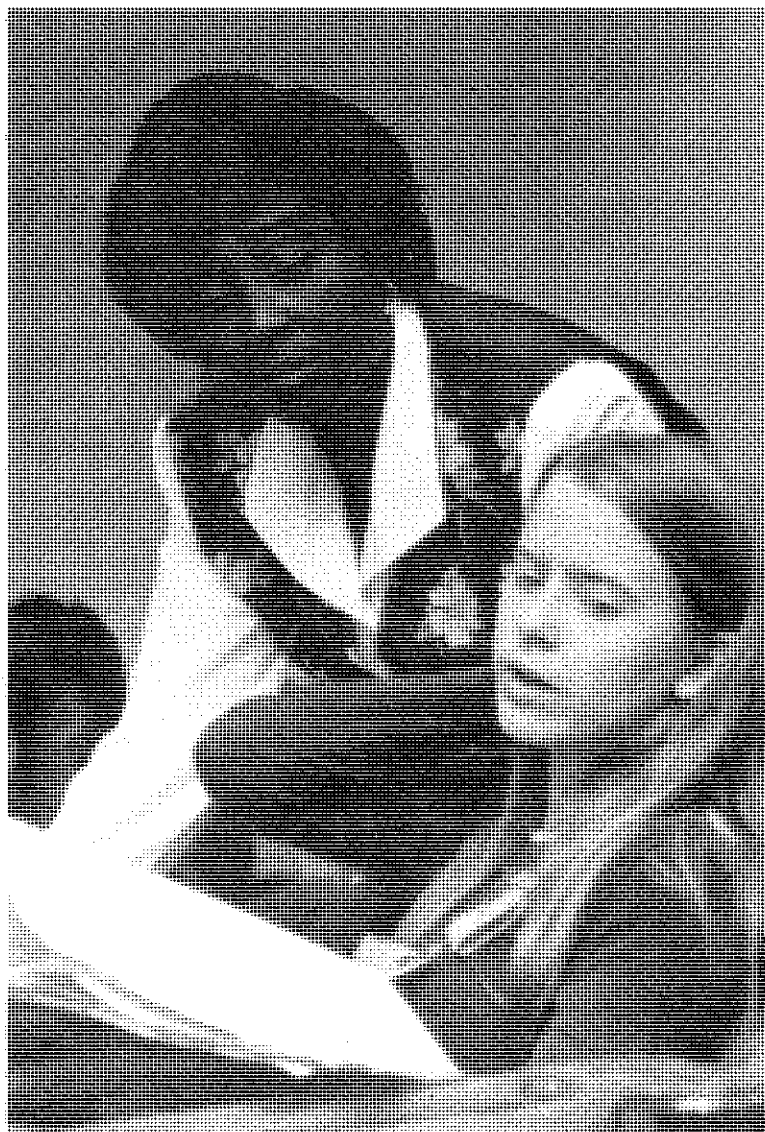
MDCS 272 Management IV 1.75

Semester Prerequisite: None

Management IV is a four-day course for experienced managers. It examines group dynamics and processes and synergistic functioning; provides techniques for organizational development, for improving organizational climate, and for attaining organization goals; emphasizes group decision-making, problem solving, project/program management, and team building. (F, Sp, Su)

POLS 280 Politics and Government of Japan	3	QSEM 131 Quality Assurance Seminar	3.75
Semester Prerequisite: None		Semester Prerequisite: None	
An introduction to the Japanese governmental structures and political process, with emphasis on the unique characteristics of Japanese political culture, Japanese style of decision-making, and Japanese concepts of democracy. (F, Sp)		Seminar content is dependent upon course requirement. (F, Sp, Su)	
QSEM 005 Quality Assurance Seminar	.5	QSEM 135 Quality Assurance Seminar	3.5
Semester Prerequisite: None		Semester Prerequisite: None	
Seminar content is dependent upon course requirement. (F, Sp, Su)		Seminar content is dependent upon course requirement. (F, Sp, Su)	
QSEM 110 Quality Assurance Seminar	1	QSEM 140 Quality Assurance Seminar	4
Semester Prerequisite: None		Semester Prerequisite: None	
Seminar content is dependent upon course requirement. (F, Sp, Su)		Seminar content is dependent upon course requirement. (F, Sp, Su)	
QSEM 115 Quality Assurance Seminar	1.5	QSEM 145 Quality Assurance Seminar	4.5
Semester Prerequisite: None		Semester Prerequisite: None	
Seminar content is dependent upon course requirement. (F, Sp, Su)		Seminar content is dependent upon course requirement. (F, Sp, Su)	
QSEM 120 Quality Assurance Seminar	2	QSEM 150 Quality Assurance Seminar	5
Semester Prerequisite: None		Semester Prerequisite: None	
Seminar content is dependent upon course requirement. (F, Sp, Su)		Seminar content is dependent upon course requirement. (F, Sp, Su)	
QSEM 125 Quality Assurance Seminar	2.5	RSEM 120 Resource and Operations Management Systems Seminar	2
Semester Prerequisite: None		Semester Prerequisite: None	
Seminar content is dependent upon course requirement. (F, Sp, Su)		Course content varies with seminar. (F, Sp, Su)	
QSEM 130 Quality Assurance Seminar	3	SOCL 280 Introduction to Japanese Culture	3
Semester Prerequisite: None		Semester Prerequisite: None	
Seminar content is dependent upon course requirement. (F, Sp, Su)		An introduction to contemporary Japan in its cultural context. Emphasis is on the unique features of the Japanese way of life in terms of Japanese values, social system, and cultural background. (F, Sp)	





Faculty *and* Staff

Faculty and Staff

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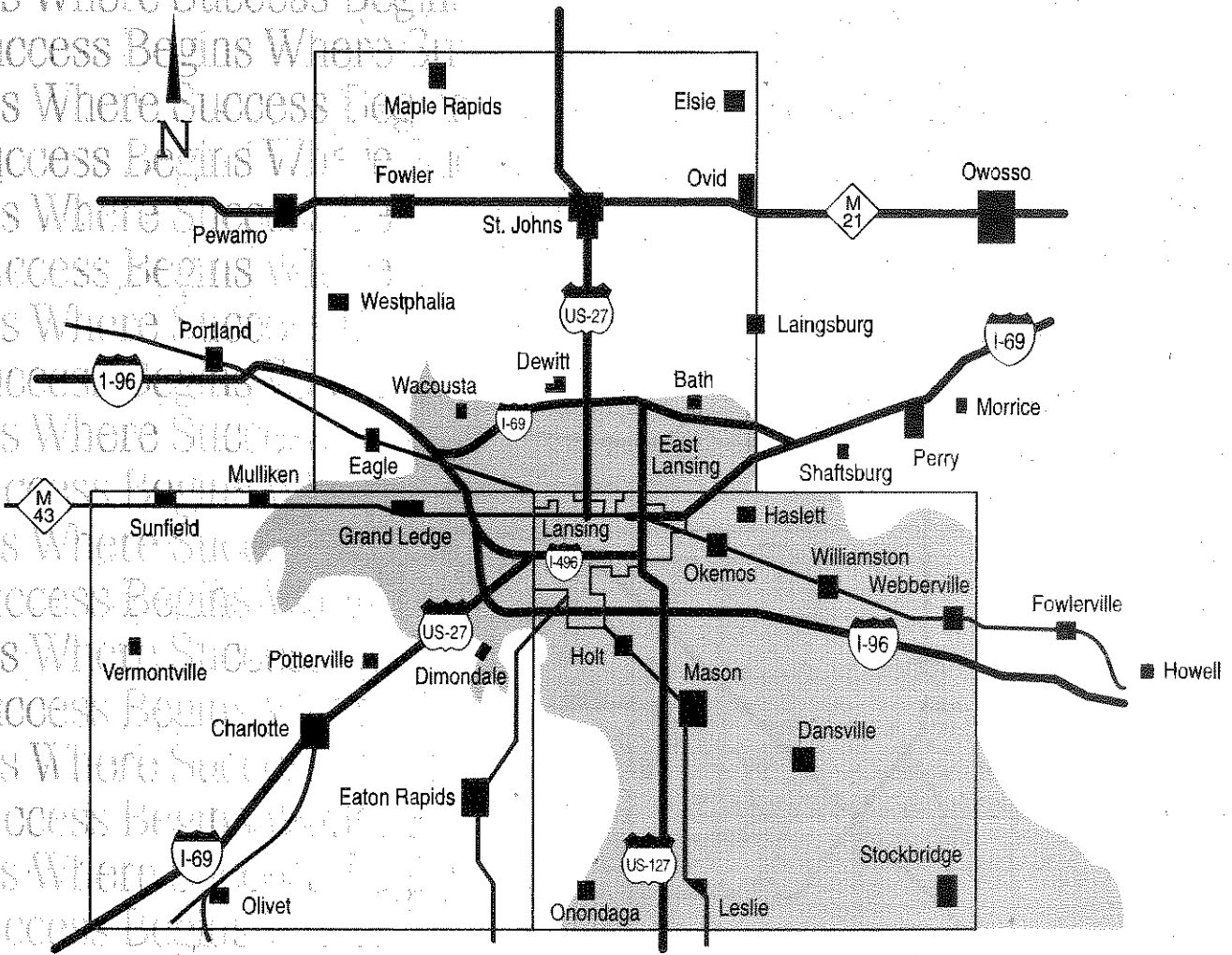
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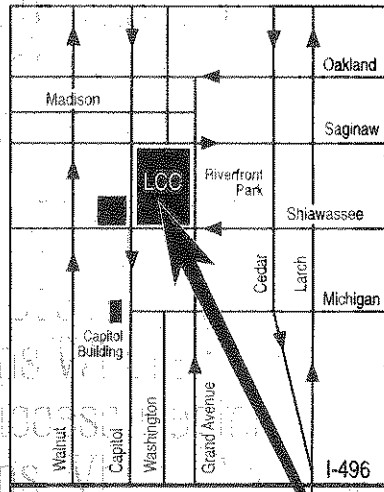
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Service Area Map



 The following School Districts constitute the LCC Resident District

Lansing Area Map



Lansing Community College Where Success Begins

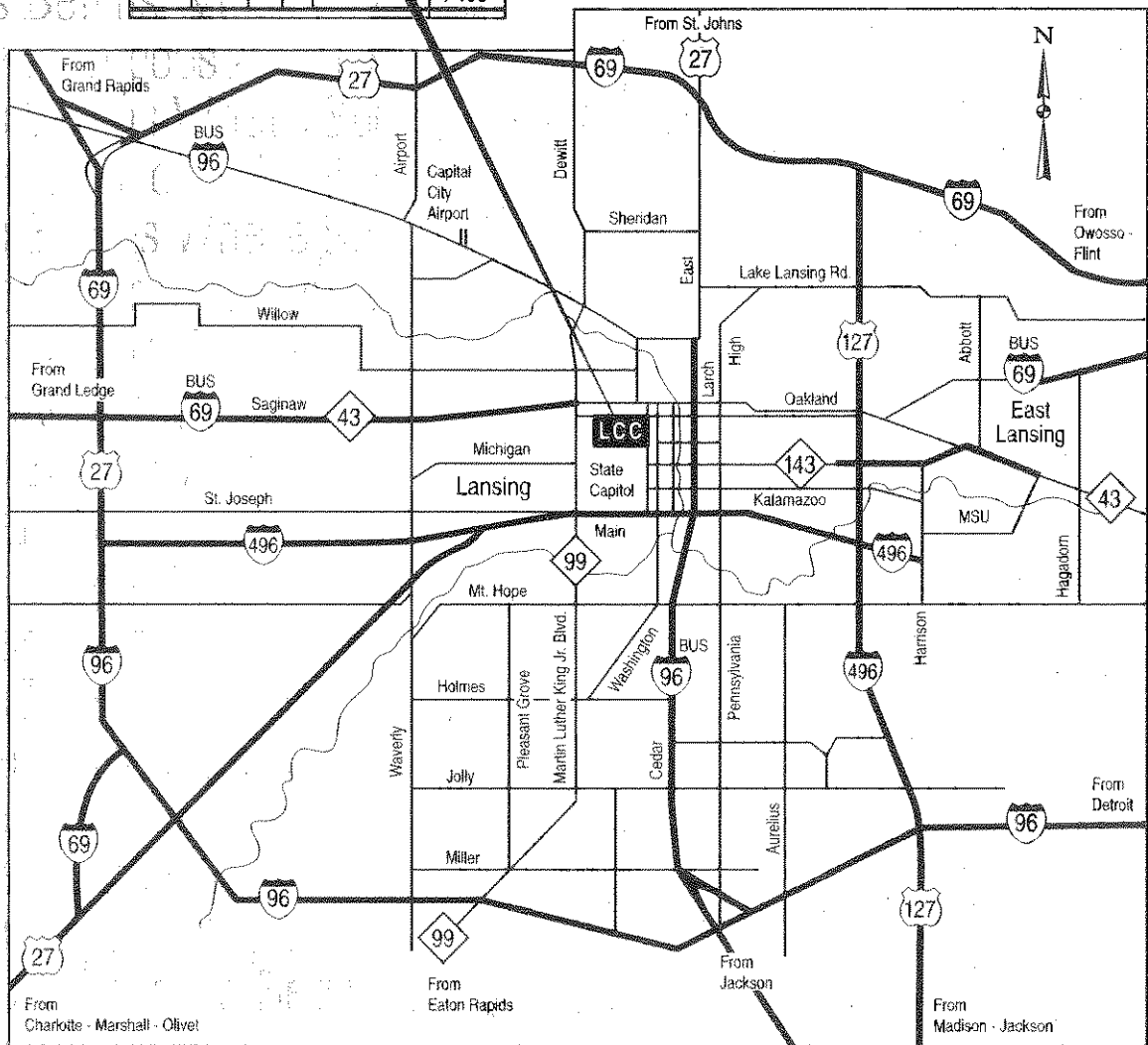
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Lansing Community College is an equal educational opportunity college. Discrimination on the basis of religion, race, color, national origin, age, sex, height, weight, marital status, handicap, sexual orientation, or any other category protected by law is prohibited.

Lansing Community College is accredited by North Central Association of Colleges and Schools.

Abel B. Sykes, Jr., President, Lansing Community College



Visitors to Lansing Community College

The LCC Visitor Parking Area is located in the AutoCenter Courtyard in the 400 block of Grand Avenue.

Entering the lot

1. Traveling north on Grand Avenue, the AutoCenter Courtyard is located just past the intersection of Grand Avenue and Shiawassee Street.
2. Visitor parking is located along the south wall of the Courtyard (on your left as you drive in). All visitor spaces are posted with signs.
3. Attach your visitor parking permit (using the sticky tape) to the left rear window (not the side window) so the permit is visible from the rear of the car.
4. Throw away your visitor parking permit (after the expiration date) when use is completed.

Learning Center Locations

Extension and Community Education

CHARLOTTE

Charlotte High School

DANSVILLE

Dansville High School

DEWITT

Dewitt High School

EAST LANSING

Bailey Community Center

East Lansing High School

FOWLER

Fowler High School

FOWLerville

Fowlerville High School

GRAND LEDGE

Grand Ledge High School

Grand Ledge Sawdon

HASLETT

Haslett High School

HOLT

Holt Computer Center

Holt High School

Holt Junior High School

HOWELL

Howell Center

Howell High School

LANSING

Cristo Rey Community Center

Crown Boxing Center

E.W. Sparrow Hospital

Lansing Catholic Central

Lansing School District

Michigan Capital Medical Center

Black Child and Family Institute

MASON

Capital Area Career Center

Heartwood School

Mason High School

OKEMOS

Okemos Community

Education Center

OWOSSO

Owosso High School

PORTLAND

Portland High School

SHIAWASSEE COUNTY

Byron High School

Corunna High School

Durand High School

Laingsburg High School

Morrice High School

Perry High School

Shiawassee RESD

ST. JOHNS

Rodney B. Wilson School

St. Johns High School

STOCKBRIDGE

Stockbridge High School

WAVERLY

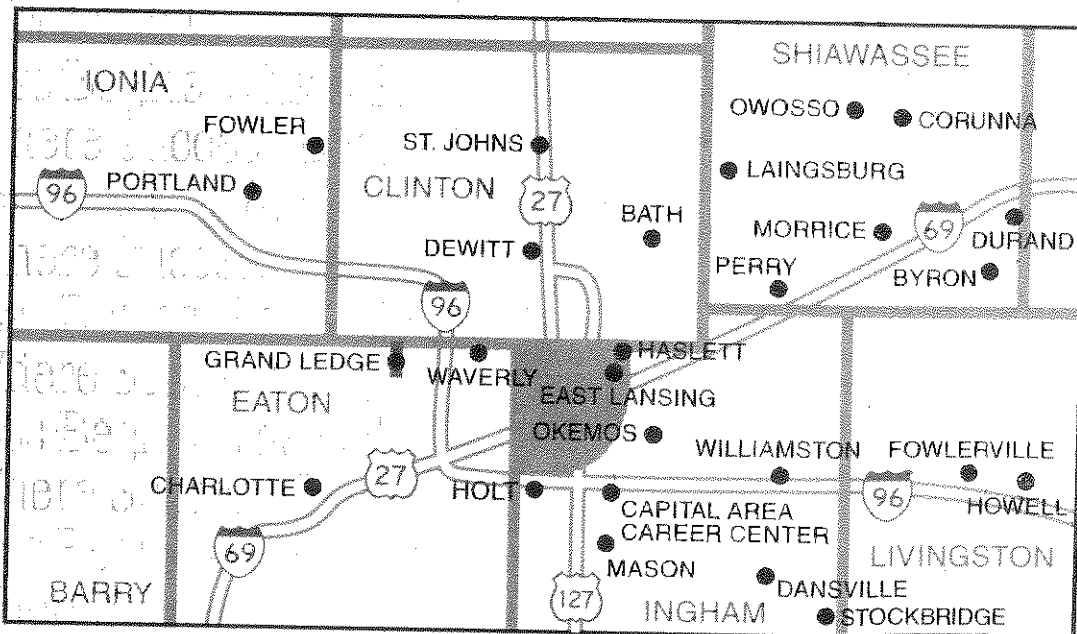
Waverly High School

Waverly Middle School

WILLIAMSTON

Williamston Community Center

Williamston High School



● LCC classes are held at local schools in partnership with Community Education Offices in these locations.

For more information call the
Extension and Community Education Office
 at (517) 483-1860