

2000-2001

# Catalog



Lansing Community College  
*Where Success Begins*



# Lari Barber's



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  
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World Wide Web: <http://www.lansing.cc.mi.us>

Accredited by North Central Association of Colleges and Schools

## LCC: SUCCESS BEGINS HERE

Lansing Community College has been committed to the best in education for over forty years. As one of the largest, most comprehensive community colleges in the country, we are continuing that commitment into the new millennium. Year round classes are offered on our 28-acre, capital city campus. There are more than 140 degree and certificate programs and over 2,500 classes. The first two years of a liberal arts education can be earned at LCC and transferred to a four-year college or university. We offer a comprehensive mix of education and training, and we provide state-of-the-art computer labs and classrooms as well as a continuously updated media services center and library within the Abel B. Sykes, Jr. Technology and Learning Center.

In addition to our main campus, we operate the Aviation Center at Capital City Airport in Lansing, the Truck Driver Training Center near Battle Creek, and the STAR Institute career training center. Our Business & Community Institute delivers customized training, business, and personal development services for business, industry, government, and working professionals. We also offer international programs such as our Japan Adventure program.

We have Learning Centers in more than 20 communities within a 30-mile service district which makes Lansing Community College accessible to more people in more areas. For the ultimate in accessibility, we offer a series of Internet courses through our Virtual College.

Lansing Community College is accredited by the North Central Association of Colleges and Schools and serves nearly 40,000 people annually. We are committed, as ever, to lifelong education for all.

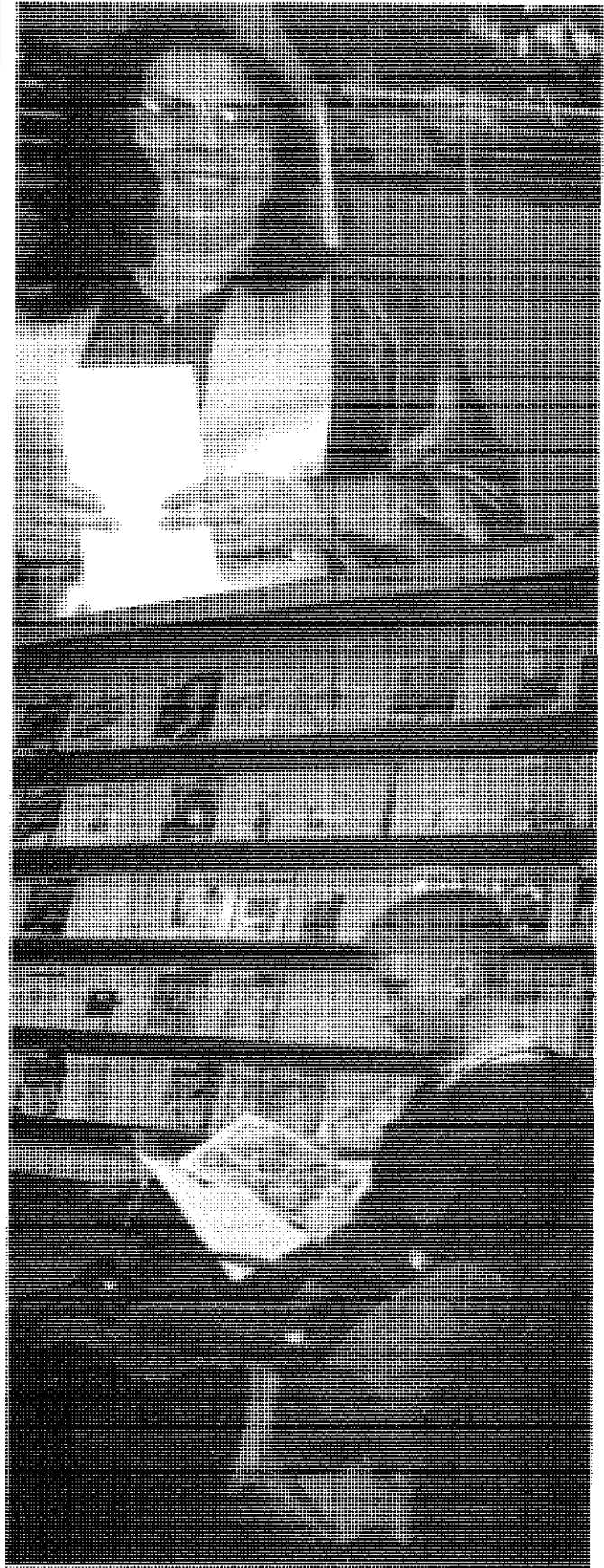
*Lansing Community College—Success Begins Here!*

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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 Planning and College Relations at Lansing Community College.





## MISSION STATEMENT

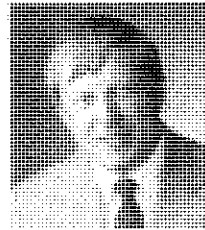
Lansing Community College exists so that all people have educational and enrichment opportunities to improve their quality of life and standard of living.

Lansing  
Community  
College

# BOARD OF TRUSTEES



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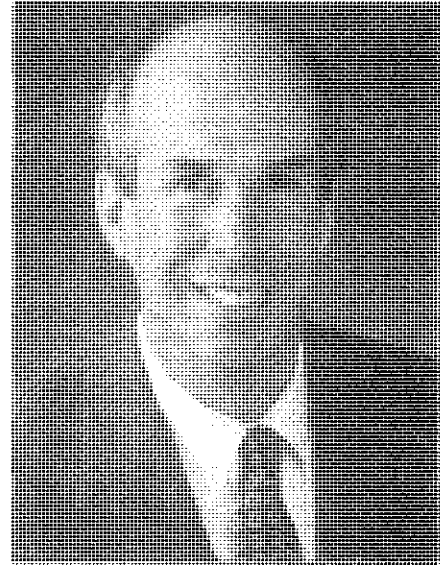
Thomas Rasmusson  
Trustee

The Board of Trustees abides by the Open Meetings Act which allows opportunities for student and/or public comment.

## MESSAGE FROM THE PRESIDENT

*Dear Student,*

*Welcome to Lansing Community College. I know your educational experiences here will be challenging, exciting, and fulfilling. You will be enriched by many new opportunities and experiences. Together, faculty, staff, administration, and students can accomplish much. We want your experiences here to improve the educational, social, and economic qualities of your life.*



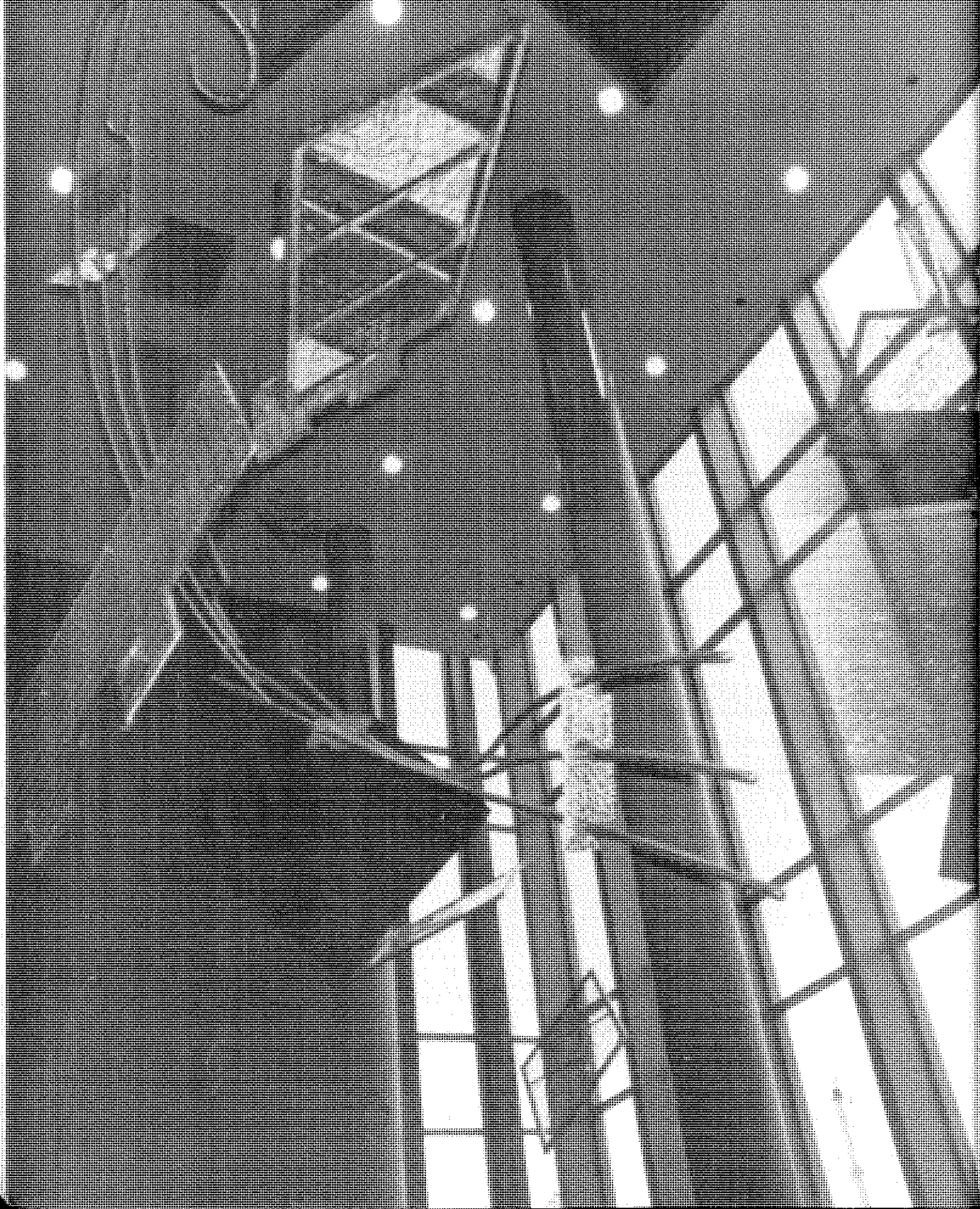
*Whether you have come to Lansing Community College to start or to continue your college career, to learn new career skills, or to pursue a personal interest, we are confident we can help you achieve your goals. We offer many opportunities. Most important are our many outstanding programs and courses, each presented with state-of-the-art teaching and technology. We also offer a wide range of career exploration, international, and transfer programs to enrich your classwork.*

*LCC provides many diverse and interesting extracurricular activities. You might participate in programs offered by the Student Leadership Academy, Volunteer Services, The Lookout (LCC's student newspaper), performing arts, student clubs, our radio and television stations, and athletics or athletic events.*

*We value you and are working diligently to have your LCC experience exceed your expectations. Please help us do that by communicating suggestions and ideas for improving any area of this—YOUR college. You can do that by contacting faculty or staff members or by communicating with me personally.*

*I wish you all the best.*

**James F. Anderton, IV**  
President  
Lansing Community College



LANSING COMMUNITY COLLEGE 2000-2001 CATALOG

# General Information

General Information





2000-2001 Catalog Lansing Community College  
**DIRECTORY OF DEPARTMENTS**

www.lcc.edu

(Area Code 517)

**Careers Division**

**Career Services (GVT 2430)** ..... 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  
 Travel and Tourism ..... 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 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  
 Police Academy (OC 129B) ..... 483-5248  
 Radiologic Technology ..... 483-1410  
 Social Work ..... 483-1410  
 Surgical Technology ..... 483-1410

**Technology Careers (GVT 136)** ..... 483-1336  
 Agriculture ..... 483-9675  
 Apprentice Programs ..... 483-1336  
 Architecture ..... 483-1327  
 Art, Design and Multimedia (AOF 314) ..... 483-1476  
 Automotive/Auto Body ..... 483-1336  
 Aviation/Avionics (Airport) ..... 483-1406  
 Building Maintenance ..... 483-1404  
 Building Trades ..... 483-1361  
 Civil Technology ..... 483-1336  
 Computer-Aided Drafting and Design ..... 483-9819  
 Computer Graphics ..... 483-1476  
 Computer Repair Technician ..... 483-1351  
 Computerized Numerical Control  
     Program ..... 483-1390  
 Electrical Technology ..... 483-1360  
 Electronics Technology ..... 483-1336  
 Geographic Information Systems ..... 483-9675

Heating, Ventilating, and Air Conditioning ..... 483-1404  
 Horticulture ..... 483-9675  
 Interior Design ..... 483-9679  
 Landscape Architecture ..... 483-9675  
 Machine Tool Technology ..... 483-1358  
 Machine Maintenance ..... 483-1358  
 Media Technology (TLC 123) ..... 483-1670  
 Motion Picture Technology ..... 483-1476  
 Photo Imaging Technology (PC 117) ..... 483-1673  
 Quality Assurance ..... 483-9678  
 Residential Builder ..... 483-1361  
 Stage Technology ..... 483-1336  
 Truck Driver Training ..... (517) 483-1336  
     (Fort Custer, Battle Creek) ..... (616) 731-4125  
 Welding Technology ..... 483-9682

**Business & Community Institute**

**Business and Industry Training** ..... 483-1965

**Continuing Professional Education** ..... 483-1179

**Facilities Rentals/Conference Services** ..... 483-1881

**Instructional Services** ..... 483-1181

**Small Business Development** ..... 483-1921

**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  
 Sign Language ..... 483-1040  
 Speech ..... 483-1040  
 Writing/Journalism ..... 483-1040

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

**Math and Computer Science (A&S 406)** ..... 483-1087  
 Applied Math ..... 483-1087  
 Computer Science ..... 483-1087  
 Statistics ..... 483-1087  
 Transfer Math ..... 483-1087

**Physical Fitness and Wellness (GVT 354)** ..... 483-1227  
 Activities (Aquatics, Dance & Outdoors) ..... 483-1227  
 Cardiac Rehab/Adult Fitness ..... 483-1437  
 Combative/Weight Training ..... 483-1227  
 Fitness (Health & Cardiac) ..... 483-1227  
 Individual & Team Sports ..... 483-1227

Kinesiology ..... 483-1227  
 Professional ..... 483-1227

**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**

**Assessment Center (GVT 2100)** ..... 483-5500

**Athletics (GVT 452)** ..... 483-1624

**Enrollment Services**  
 Counseling (GVT 2300) ..... 483-1904  
     Advising Center (GVT 2300) ..... 483-1904  
     Disability Support Services (GVT 2300) ..... 483-1904  
     TDD ..... 483-1207  
 Student Development Courses (GVT 2300) ..... 483-1904  
 Women's Resource Center (GVT 2300) ..... 483-1199  
 Entry Services (GVT 2200) ..... 483-1266  
 Admissions (GVT 2200) ..... 483-1200  
 Limited English Proficiency (GVT 2381) ..... 483-1216  
 Minority Outreach and Recruitment (GVT 2381) ..... 483-9755  
 Multicultural Center (GVT 2370) ..... 483-1059  
 Native American Leadership Program (GVT 2381) ..... 483-9803  
 Office of the Registrar (GVT 2200) ..... 483-1200  
 Financial Aid (GVT 2200) ..... 483-1200  
 Veteran's Services (GVT 2200) ..... 483-1296

**Honors (A&S 211)** ..... 483-1040

**Instructional and Student Support**

Library Information Services (TLC 201A) ..... 483-1657  
     Tutorial Services (A&S 103) ..... 483-1206  
 Media Services (TLC 123) ..... 483-1670  
     Interactive Learning Center (OC 200) ..... 483-1566  
     Telecourse Hotline (TLC 123) ..... 483-1695  
     Telelearning (TLC 123) ..... 483-1670  
 Student Life (GVT 200F) ..... 483-1285

**Language Skills (A&S 253G)** ..... 483-1061  
 Learning Center (A&S 253) ..... 483-1060  
 Limited English Proficiency Courses (A&S 253G) ..... 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 2000-2001 Fall Semester, Spring Semester, and Summer Session, point your Web Browser to:

[www.lansing.cc.mi.us](http://www.lansing.cc.mi.us)

or call our Information Center at:

1-800-644-4LCC or 1-517-483-1620

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

### Fall Semester 2000

Classes Begin .....	August 24
Labor Day .....	September 4
Thanksgiving .....	November 23, 24
Classes End .....	December 17

### Spring Semester 2001

Classes Begin .....	January 13
Martin Luther King, Jr. Holiday .....	January 17
Spring Break .....	March 5-11
Classes End .....	May 11
Graduation .....	May 12

### Summer Session 2001

Classes Begin .....	June 6
Independence Day .....	July 4
Classes End .....	August 1



# 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 Program* 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 or class.

### 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, SUITE 2200. 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*).

### ACADEMIC ASSESSMENT AND PLACEMENT TESTING FOR STUDENT SUCCESS

#### General Information

Lansing Community College cares about student success and believes that strong basic academic skills are the student's passport to achieving school and job success. The following basic skill areas are particularly important: reading, writing, mathematics, computing, communicating, critical thinking, and study skills.

Many courses at LCC have minimum skill level requirements in reading, writing, and/or mathematics. These levels must be met before a student will be permitted to enroll in those courses. Skill levels are listed along with other prerequisites required for each course in the *College Catalog*, the *Course Schedule*, and on the College's World Wide Web home page <http://www.lansing.cc.mi.us/>. Students meet these skill prerequisites either by achieving the required scores on placement tests or successfully passing specific courses at LCC. (See *Other Options to Meet Skill Prerequisites* in this section for other alternatives.) Students who have attended LCC previously may need to take or retake one or more of the placement tests. An advisor or counselor can determine if this is needed. Students attending START (Student Testing and Registration Times) orientation are required to take the tests.

Any exceptions to prerequisites or skill levels are determined by the department offering the course.

#### What the Tests Are Like

Reading, writing, and some mathematics tests are administered on computers. The tests are adaptive, and each item's difficulty is based on the student's response to the preceding question. The tests are not timed. The average amount of time spent on a test is about 30 minutes, so students should allow about two hours for all skill placement tests.

The results of the tests are available immediately.

#### Where Testing Centers Are Located

Drop-in placement testing is available on-campus in the Assessment Center in room 2100 Gannon Vocational-Technical Building. For testing hours and information call (517) 267-5500. Placement tests are also available at the off-campus Learning Centers. Contact the off-campus Learning Centers or the LCC Extension and Community Education Office, (517) 483-1860, for more information.

#### Other Options to Meet Skill Prerequisites

Students who have taken the SAT, the ACT, or Advanced Placement courses should have their scores sent to the LCC Admissions Office. The results may satisfy the reading and/or writing or the mathematics prerequisites. The Advanced Placement examination results may also result in the awarding of credit for a specific course.

Students who have earned credits from an accredited college or university should have their official transcript sent to the LCC Admissions Office. An evaluation of transfer credits will determine if some of the courses meet skill prerequisites.

Students who have an earned degree (associate, bachelor, or higher) can have the reading and writing prerequisites waived. An official transcript from all institutions previously attended should be sent to the LCC Admissions Office.

#### Academic Advising for Student Success

Faculty advisors and counselors are available to provide information on skill prerequisites, help students plan class schedules, discuss curriculum choices, and provide academic and personal support. Students are encouraged to meet with an advisor or counselor prior to their first semester and at least annually thereafter. As students progress in their program of study, advisors or counselors can identify courses that remain to be completed. The Counseling Services Department has advisors and counselors in Room 2300 of the Gannon Vocational-Technical Center, (517) 483-1904.

In addition to these regular advising sessions, students are encouraged to confer with the advisors or counselors about transferring to another college. Advisors and counselors have information on most Michigan colleges and universities.

Faculty advisors and counselors are also available during special advising times in the off-campus Learning Centers. Contact the Learning Center or the LCC Extension and Community Education office, (517) 483-1860, for additional information.

### 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 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
- Histologic Technology, Associate in Applied Science

- 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
- 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, and letter of authorization to the LCC Admissions Office prior to enrolling in classes.
4. 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.

(See *Appeal Process for Denial of College Admission* for appeal procedures.)

### Special Admission Program

This program is designed to provide an opportunity for qualified high school freshmen and sophomores to earn college credit. High school credit may or may not be granted according to the discretion of the participating high school. The Special Admission Program affords students educational enrichment in specific areas where unusual ability and interest are displayed, especially in courses and academic areas not available in the student's high school.

### 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.
3. Have attained 14 years of age by December 1 of the student's freshman year.

### 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. Obtain written consent from the student's parent/guardian and his/her authorized high school official each semester.
4. 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.
5. 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.

Special admission is contingent upon receiving departmental/divisional approval for each class for which the student intends to enroll.

(See *Appeal Process for Denial of College Admission* for appeal procedures.)

### 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/division 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.

(See *Appeal Process for Denial of College Admission* for appeal procedures.)

### 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.

(See *Appeal Process for Denial of College Admission* for appeal procedures.)

### 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 of Admissions within two working days of the denial.

#### STEP 2: Director of Admissions

(If admission was originally denied by the Director of Admissions, 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 of Admissions at least one working day prior to the appeal meeting. The Director of Admissions 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 of Admissions shall discuss Step 3 of the appeal process with the applicant. If the applicant wishes to appeal the denial, the Director of Admissions 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 of Admissions
- 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. The 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

Resources that do 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. Please consult the Office of Student Financial Aid/Veteran Services Department or Office of Admissions for 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.

- Additional information on these as well as a free scholarship search service are available at <http://www.lansing.cc.mi.us/sas/finaid/>.

### 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 \$3,300 (subject to change).
  - 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 in-district 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 grants are awarded to needy students who do not qualify for Federal Pell Grants on a funding available basis.
  - 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.

### Student Employment

Job opportunities are 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 via the World Wide Web through the Financial Aid lab located in the Student Personnel Services Building, Student Financial Aid/Veteran Services Department. Processing time is 14 to 21 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 via the Internet (FAFSA on the WEB). The URL is <http://www.fafsa.ed.gov/>. All necessary instructions are provided. Please note all signature requirements.

Students will receive an Award Letter no later than fourteen days 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: 1111 ADMISSIONS, LANSING COMMUNITY COLLEGE, 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 throughout the year. Please consult the Student Financial Aid/Veteran Services Department or call the LCC Foundation Office at (517) 483-1985 for additional information.

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 and the federal government assume that parents and students have the primary 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. If you purposely give false or misleading information, you may be fined \$10,000, sent to prison, or both by the federal government.

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.

## 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 REFUNDS

### Check Distribution

Checks are issued two times each semester. They may be mailed or available for pick up 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. Book advance checks are printed during the first week of the semester. Book 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 book 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.

Final checks are printed by the 14th day of the semester. Students who receive an advance check normally receive a final check.

## 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.

## FINANCIAL AID TUITION REFUNDS/WITHDRAWALS

Tuition refunds for financial aid students are based on federal regulations. In addition, federal refunds are calculated for students who completely withdraw through the 60 percent period of the semester. Effective Fall semester 2000, federal refunds are calculated by calendar days and the student will owe a portion of unearned Title IV funds. Tuition refunds and federal refunds are returned in the following order for any programs received that semester:

- a. Unsubsidized FFEL loans
- b. Subsidized FFEL loans

- c. Unsubsidized (other than parent loans) Federal Direct loans
- d. Subsidized Federal Direct loans
- e. Federal Perkins loans
- f. FFEL PLUS loans
- g. Federal Direct PLUS loans

If excess funds remain after repaying all outstanding loan amounts, then the remaining amount is credited to grant programs in the following order:

- h. Federal Pell Grants
- i. Federal SEOG
- j. Other Title IV assistance for which a return of funds is required
- k. State financial aid awards
- l. Institutional financial aid awards
- m. Private or public donor awards
- n. Other institutional awards
- o. 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 one semester or its equivalent 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 who fail 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, excluding loans, 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 aver-

age to a 2.0 or greater and has completed at least 70 percent of all credit hours attempted.

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.

Students with cumulative GPAs lower than 2.0 and/or students who have earned less than 70 percent of credit hours attempted after thirty-six (36) attempted credit hours 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.

## 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 (*Academic Standing Policy*).

## 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.

### VIRTUAL COLLEGE

Virtual College allows students to earn an *associate degree* utilizing the power and connectivity of the Internet. Independent, highly motivated learners, as well as those who face time and place constraints, will find the option especially attractive. Students enrolled in LCC's Virtual College program will be guided by dedicated instructors whose courses have been specifically designed to deliver all the benefits of traditional learning but without the requirement to visit an LCC campus. The Internet component of these courses enables students to interact with each other and with the instructor. Though in most cases a textbook provides the content for these discussions, many courses have the lessons online as well. See the current *Course Schedule* or visit the Virtual College Web site at <http://vcollega.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 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:
- The student has resided within the LCC district at least six months immediately prior to the first day of the semester.
  - 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.
  - 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.

- 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
- Paid property tax receipts
- Rental or lease agreement
- 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

- 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.
- 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.
- 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.
- 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.
- 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.

- Department of Defense 214, Separation from Active Duty Form, showing separation date within 120 days from the first day of the semester;
- Department of Defense 899, Change of Station Form, showing the Lansing area as the duty station;
- 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.
- 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.

- 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.
- 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.
- 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 .....	\$ 49.00
Nonresident Students .....	\$ 78.00
Out-of-State Students .....	\$107.00
International Students .....	\$107.00

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)	
.01-6 credit hours .....	\$ 1.50
6.01-11 credit hours .....	\$ 4.50
11.01 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 12-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 third week of the course
Change credit/audit status	Prior to the end of the fourth week of the course

**12-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 fifth week of the course
Change credit/audit status	Prior to the end of the sixth week of the course

\*The 100% refund period for courses offered by BCI is seven (7) working days (or more) before the first day of class. The refund amount for classes dropped from two (2) to six (6) working days before the class begins is 70%. For classes dropped one (1) working day before the first day of class or later, there is no refund.

**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 or other equivalent dates as specified for variable length courses.

**AUDITING COURSES**

A student who registers as an auditor attends class regularly but does not take the final examination, does not receive an achievement grade, and does not receive credit for the course. Students wishing to audit must meet all prerequisites required for the course and indicate their intention to audit at the time they register for the course. Audited courses cannot be applied toward a degree or certificate and cannot be used to meet prerequisites.

The College allows students to change from *credit* to *audit* or from *audit* to *credit* by the end of the sixth week of 16-week classes (and other equivalent dates as specified for variable length courses). 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. Changes from *credit* to *audit* through the end of the sixth week for 16-week courses (and other equivalent dates as specified for variable length courses) do not require instructor approval. 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 (or other equivalent dates as specified for variable length courses), instructor approval is not needed, 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. A student may withdraw from a semester-length class after the end of the sixth week of the semester (or other equivalent dates as specified for variable length courses) only if he or she is completing the course requirements at a passing level (1.0 or higher) at the time the W is requested. If the instructor finds that the student was not able to apply for the W in a timely fashion, the instructor may grant the student's request for a W if the student was passing the course on the date of the event that caused the application for withdrawal. A student may withdraw from a class up until the last week of the class unless a different date is specified in the course syllabus. The instructor's signature is required to withdraw, and the student will receive a grade of W.

**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. The instructor has the right to 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 in writing 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 student 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 (or other equivalent dates as specified for variable length courses) 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. After the sixth week of the semester (or equivalent date as specified for variable length courses), the student will receive a W grade only if he or she was completing the course requirements at a passing level (1.0 or higher) up until the date of the event that caused the administrative withdrawal. If the student has not done passing work, he or she will receive a 0.0.

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 recorded on the official academic record. At least one-third of the credits required for this certificate must be earned in attendance at Lansing Community College.

**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. "Incompletes" will not be counted toward the establishment of an earned grade point average (GPA) or toward graduation from Lansing Community College. All requests for incompletes are initiated by the student. An instruc-

tor may assign an "I" grade at the student's request when the following conditions are met: the student is unable to complete a course for some good and serious reason (for example, incapacitating illness, legal involvement that cannot be rescheduled, or changing work obligation); the student has demonstrated successful progress in class; and the student has completed approximately 80 percent of the course work. (Note: 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 issuing an "I" grade, the instructor will also indicate what grade will be assigned if no further work is completed. All incompletes must be made up by the end of the sixth week of the 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 (or other equivalent dates as specified for variable length courses), no grade will be recorded on the student's academic record. For withdrawals after the sixth week of the semester (or other equivalent dates as specified for variable length courses), a W is given only if the student has done passing work (1.0 or higher). If the student has not done passing work, he or she will receive a 0.0.

### COMPUTING GRADE POINT AVERAGE

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

NUMERICAL GRADE	GPA 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 GPA points. To compute the grade point average (GPA), the number of GPA points is divided by GPA hours (credits) taken during the semester.

### PASS/FAIL GRADING (P-Z)

The pass (P)/fail (Z) grading system has been established as a departmental option. This system is reserved for special course offerings where a pass/fail 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 pass/fail 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 (pass) 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 (fail) 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. Policies pertaining to the issuing of "W" and "I" grades also apply to courses graded on the P-Z system (see *Grading System* above).

### REPEATING A COURSE

When a student repeats a course for a higher grade, the student's academic record and transcript will reflect every grade received for the course. However, only the highest grade is used in computing the LCC cumulative GPA and credits earned.

### 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 POLICY

Students must maintain at least a 2.00 cumulative Grade Point Average (GPA) at Lansing Community College to remain in Good Standing, which indicates satisfactory academic progress. Students whose cumulative GPA falls below 2.00 will be placed on either "Warning" or "Probationary" standing which indicate unsatisfactory academic progress. While on Warning or Probationary standing, the student may have limits on registration for classes. In addition, students on Warning or Probationary standing may be required to meet with a counselor and sign a Success Contract prior to registering. Students can return to Good Standing by earning a cumulative GPA of 2.00 or higher. Continuing to earn a GPA below 2.00 may result in being academically recessed from LCC.

NOTE: Only course work completed at LCC is considered for determination of academic standing. The academic standing is determined at the end of each semester (Fall, Spring, Summer).

### Summary of Academic Standing Policy

- Good Standing:** Cumulative Grade Point Average (GPA) 2.00 or above
- Warning:** Cumulative GPA below 2.00; suggested that the student meet with a counselor
- Probation:** Continued cumulative GPA below 2.00; registration limited to 12 or fewer credits for Fall and Spring Semesters and six or fewer for Summer Session, and student is required to meet with a counselor
- Academic Recess:** Continued cumulative GPA below 2.00; student not eligible to register and must sit out one semester or Summer Session. Upon return following the semester of recess, a student must meet with a counselor to plan his or her academic success and sign a Success Contract. Satisfactory completion of this plan as well as semester-by-semester subsequent plans will allow further enrollment until a satisfactory cumulative GPA places the student in good standing.

Students receiving financial aid or veterans benefits are required to satisfy specific additional academic standards to continue receiving financial assistance. See the *Financial Aid* section of this Catalog.

Students in certain selective admission programs may have different standards for academic standing.

## ACADEMIC AMNESTY

Lansing Community College recognizes that students are unsuccessful academically for a variety of reasons. Those students may return years later to find their low GPA is a barrier to fields they might otherwise be ready to enter. LCC has an Academic Amnesty Policy in order to allow such students a second chance. Qualified students may receive academic amnesty for a maximum of eighteen semester hours (or the quarter/term equivalent) of grades of 0.0. They will no longer be calculated into the student's GPA, and the "forgiven" grades will remain on the transcript along with a special notation explaining the Academic Amnesty Policy at LCC. The student must apply to the Registrar for academic amnesty, and the application must be signed by an academic advisor or counselor. In order for a student to qualify for academic amnesty, the following conditions must be met:

1. Five or more years must have elapsed since the last grade for which amnesty is requested.
2. The student must have earned twelve semester credit hours in courses numbered 100 or above at LCC and have a cumulative GPA of at least 2.0 since the last grade for which amnesty is requested.
3. Academic amnesty may be granted only once to any student and is irrevocable.
4. Academic amnesty, when granted, applies only to LCC courses—not to any courses at other institutions. Further, there is no guarantee, expressed or implied, that academic amnesty will be recognized by any other college, university, or employer.

## 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 signature of the Registrar. The transcript includes courses waived, courses attempted and completed, courses and credits transferred, credits awarded for experiential learning, credit hours, GPA points, Lansing Community College grade point average, current program and major, associate degrees, certificates of achievement, and certificates of completion 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 three 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 Suite 2200 of the Gannon Vocational-Technical Center, 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. 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 of 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 or advisor.

## 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/or 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*. More specific information about guidelines and procedures for accepting credits in transfer may be obtained from the Office of the Registrar.

### 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. Credits for courses graded Pass/Fail are not accepted in transfer.
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 review of 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 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.

## CREDITS EARNED IN FOREIGN INSTITUTIONS

Students with foreign education credentials (other than credits at Lansing Community College sister institutions) should contact one of the following National Association of Credential Evaluation Services, Inc. (NACES) member credential evaluation services and request a **course-specific evaluation**. (A course-specific evaluation converts grades, educational experiences, and levels of study into U.S. equivalents.)

- Educational Credential Evaluators, Inc., P.O. Box 92970, Milwaukee, WI 53202-0970; e-mail: eval@ece.org
- World Education Services, Inc., P.O. Box 745 Old Chelsea Station, New York, NY 10113-0745; e-mail: info@wes.org
- International Education Research Foundation, Inc. (medically-related credentials), P.O. Box 66940, Los Angeles, CA 90066; e-mail: info@ierf.org

When LCC receives a NACES evaluation report, the Registrar's Office will compare it to the course requirements for the program indicated on the application. If LCC grants credit based on this report, it will become part of the student transcript at LCC.

## 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 LCC.

### 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) and the Advanced Placement Examination (AP). 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 AND CERTIFICATES OF COMPLETION

Certificates of achievement and certificates of completion are groups of designated courses in occupational areas. To receive a certificate of achievement or certificate of completion 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 for a certificate of achievement and 29 or fewer semester credits for a certificate of completion with no more than 10 percent of these credits acquired on the pass/fail (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 one-third of the semester credits for the certificate 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 or certificate of completion 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 pass/fail (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.

Those students who maintain a 3.75 or higher grade point average will be graduated Summa Cum Laude (with highest honors); those who maintain a 3.50–3.74 grade point average will be graduated Magna Cum Laude (with high honors); those with a 3.25–3.49 will be graduated Cum Laude (with honors). 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 asso-

ciate 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, and 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

All students 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 the ways listed below. **Students should be aware that placement test scores, evidence of an earned associate degree, waiver of a specific Core course, and combinations and/or portions of courses do NOT satisfy or waive the LCC Core requirement for mathematics.**

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)

(Students must meet prerequisites prior to enrolling in these courses. See 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 122	College Algebra II and Trigonometry	(3)
MATH 126	College Algebra and Trigonometry	(5)
MATH 130	Finite Mathematics	(3)
MATH 141	Calculus with Applications	(3)
MATH 151	Calculus I	(4)
MATH 152	Calculus II	(4)
MATH 201	Math for Liberal Arts I	(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 (AP), the College Level Examination Program (CLEP), 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	(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	(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 Writing	(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 (AP), the College Level Examination Program (CLEP), 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, CERTIFICATE OF ACHIEVEMENT, OR CERTIFICATE OF COMPLETION

Prior to submitting an application for a degree or certificate, students should consult with an advisor to review progress toward completing requirements. Substitutions or waivers for program requirements must be approved on an authorized form signed by the department offering the program. (Substitutions and waivers are not allowed for institutional degree or certificate requirements. See *Institutional Requirements for Certificates of Achievement and Certificates of Completion* and *Institutional Requirements for Associate Degrees* in this section.) The process of applying for a degree or certificate takes approximately one semester, so students should apply at least one semester in advance of the semester they plan to graduate.

Procedures are as follows:

1. Complete an Application for Diploma/Certificate. This application is available in the Registrar's Office.
2. Attach a copy of the curricular guide (program of study) for the degree or certificate being sought. NOTE: Students may not follow a curricular guide that predates their first semester of enrollment. The requirements must be met by the semester the curricular guide expires.
3. Return the application and the curricular guide to the Registrar's Office. If a department has authorized program substitutions or waivers, the completed and signed form(s) must accompany the application.
4. If the Registrar's Office determines that there are requirements NOT met, the student will receive a report specifying the unmet requirements which must be completed. Students have until one year after the date of the application to satisfy the unmet requirements.
5. If all the requirements are met, the student will receive a letter indicating that the degree or certificate will be awarded.
6. The LCC transcript will show the degree or certificate awarded.
7. Diplomas are mailed to students during the semester after degrees or certificates have been awarded.

### 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.

Most 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.

### 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.

### 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 in-

dividuals 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/lcinfo/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 is called an Interim Due Process Suspension. Interim Due Process Suspensions 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 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 current I.D. card whenever they check out books at the College libraries, use the Abel B. Sykes TLC Computer Lab, 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 willfully 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. Periodically completing Student Evaluation Forms at the conclusion of courses. 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. 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 initiate 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. Any questions regarding Due Process should be directed to the office of Director of Student Relations at (517) 483-1163.

### 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, at 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.
- The student shall be entitled to receive the decision of the Judicial Board in writing.
- The College shall make a record of the hearing. The record shall be the property of the College.
- 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 Equal Employment Opportunity Commission's guidelines and 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 indi-

vidual 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, racial harassment, and all other allegations of discrimination. The investigation of these complaints will be handled through the Office of Equal Opportunity and Diversity Programs, GUT 2376, telephone (517) 483-5232.

#### I. Responsibility to Report

Sexual harassment and allegations of 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 (517/483-5232). Complaint forms are available in the offices of College Human Resources, Divisional Deans, Vice Presidents, and Equal Opportunity. Students and staff should not investigate or discuss the complaint with others. Confidentiality should be maintained by all involved in the complaint to protect the credibility 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 Investigation Teams

The responsibilities of the Investigation Teams are:

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.

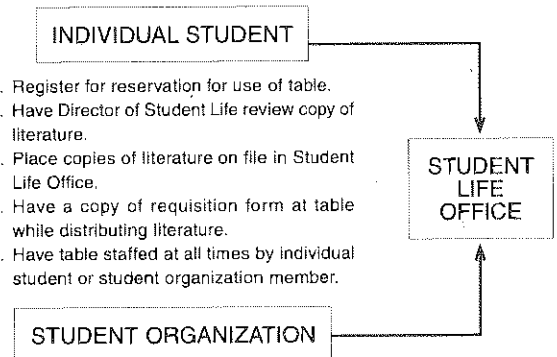
The following statements are designed to facilitate student distribution of literature within the College facilities, while providing students and College personnel and property reasonable protection from commercial exploitation and legal actions. Court rulings have determined that College buildings, 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 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



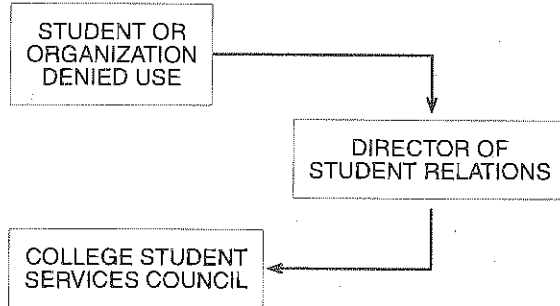
### Appeal of Denial of Use of Literature Table

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 Director 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 the *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 make a standard course syllabus available to students 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 (CES)** assists individuals with career choices and planning, job search activities, and career and professional goals. Licensed Professional Counselors are available to assist with the planning, changing, or confirming of a job or career. All activities, from making initial inquiries to developing a career plan, take place with the assistance of a licensed counselor and experienced staff. Areas of specialization include career counseling, assessment, decision-making and planning assistance, and competency and licensure testing. To assist in the job search and acquisition of information (including Web-based information), CES provides counseling, résumé development reference material and consultation, and other activities related to successfully obtaining employment. A Web-based job posting system is available for use by students and alumni and consists of all jobs posted with the college. Access to the system is available 7 days a week, 24 hours a day, via the Internet. CES also assists in the placement of students in student employment jobs for the College.

**Counseling and Advising Services** include personal counseling to identify and assist in resolving students' personal and interpersonal issues and concerns; referral to community human services agencies for further professional assistance; career counseling and educational planning to facilitate career decisions, choice of major, and course selection.

**Extension and Community Education** provides LCC classes conducted in locations within a 40-mile radius of the College's main Lansing campus. A week-end degree program is also offered in certain locations. Information and services about distance learning, off-campus classes and extension centers is provided by the Extension and Community Education Office.

**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 private sector fund-raising in the 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, and Internet access to the library catalog and electronic databases from on and off-campus. The library also has 600 study seats, including 33 multimedia and 15 group study rooms.

The **Multicultural Center** advocates for minority students and facilitates the students' access to appropriate services to ensure their career and academic success. Programs within the Multicultural Center include:

- **The Limited English Proficiency Program**—provides counseling, academic advising, registration assistance, financial and assistance, and intensive English training for students with limited English skills.
- **Minority Outreach and Recruitment**—assists in the recruitment of 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.
- **Native American Leadership Program (NALP)**—provides counseling and academic advising and assistance with admissions, registration, and financial aid for Native American students.
- **Mentoring Program**—provides mentors for first-semester students to advise and support them during their time of transition and adjustment to Lansing Community College.

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.

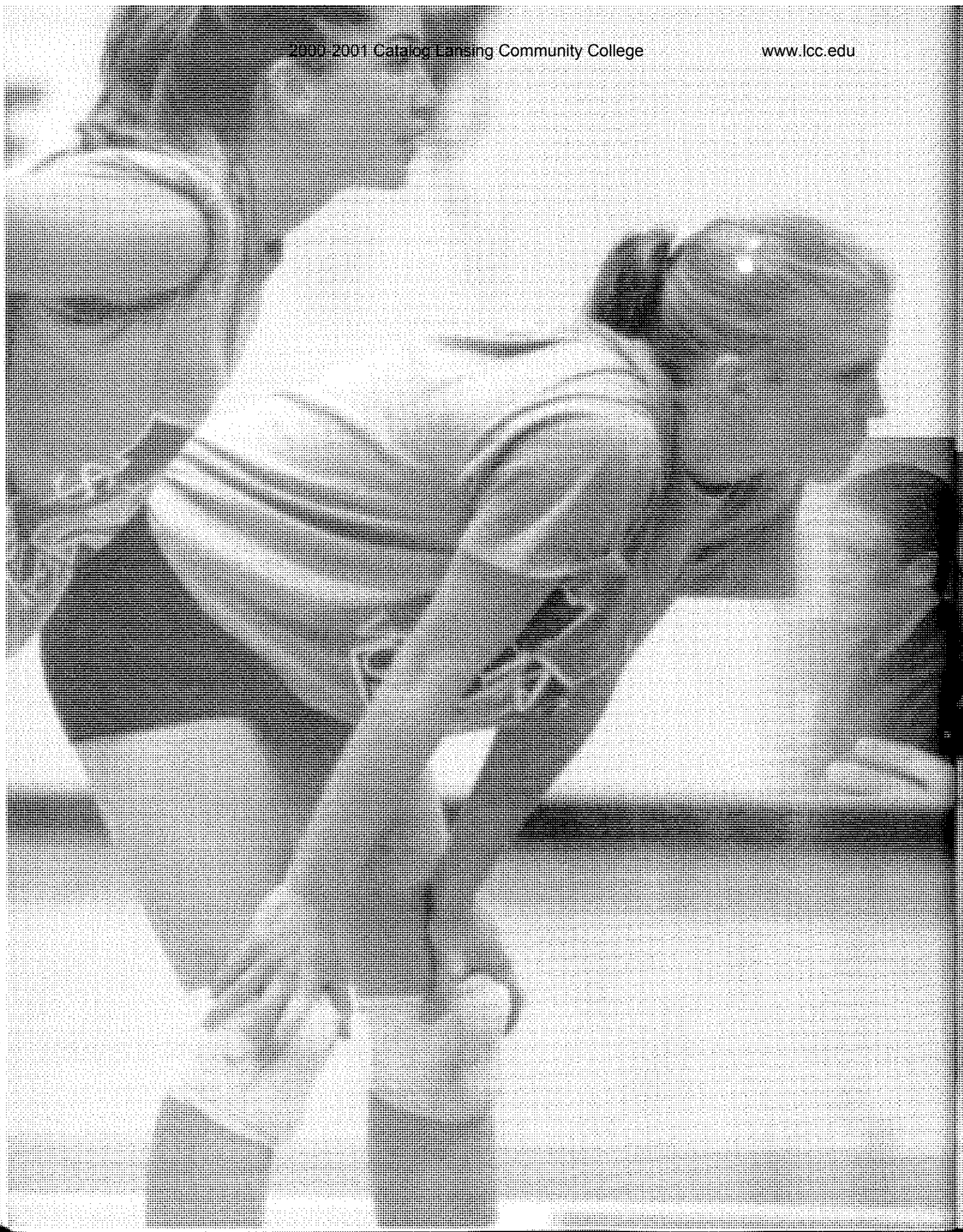
The **Women's Resource Center** offers services and programs in support of women and men at Lansing Community College, including financial assistance, displaced homemaker services, childcare assistance, and referral services.

### 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 at Disability Support Services (517) 483-1904 (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. 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. Starting fall semester 2000, students must have documentation of a disability on file in ODSS offices before services and accommodations for classes can be provided.

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

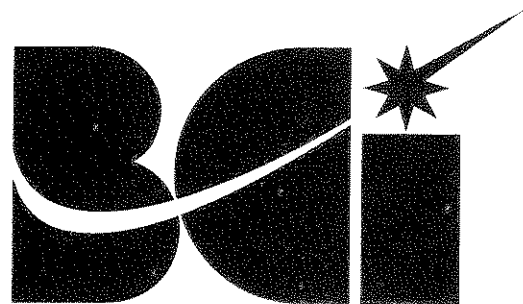


LANSING COMMUNITY COLLEGE 2000-2001 CATALOG

# Business & Community

# Institute

Business & Community Institute



**BUSINESS & COMMUNITY  
INSTITUTE**  
LANSING COMMUNITY COLLEGE

Training and Services  
for Business, Industry,  
Government and  
Professionals

### **Mission/Purpose of the Business & Community Institute**

We deliver customized business and professional development services that contribute to our customers' success. We build partnerships for workforce, economic and community development.

### **What BCI Can Do for You**

The Business & Community Institute (BCI) can work with your business or organization to develop the training and business solutions needed in today's business climate. BCI provides customized training and consulting in a wide variety of leadership, management, supervisory, and technical areas.

BCI's account executives will help you to identify training programs that will increase productivity and reduce costs at your company or that will help you to meet your staff members' professional continuing education goals. BCI specializes in designing custom training programs to meet the workforce development needs of a variety of organizations. Employees of more than 350 different organizations have used these services in the past year.

### **Types of Programs and Services Offered**

BCI can provide your organization with a variety of programs, either non-credit/CEU-based courses and seminars or college credit courses selected from this Catalog. Other services of BCI include training needs assessment, job profiling and skill development, organization development consulting, and facilities rental and conference services. The Small Business Development Center offers counseling and training to help you start and maintain your own small business.

Here is a sampling of areas addressed by our training programs:

- Small Business Development
- Microcomputer Software Applications/Business Software
- Technical Skills
- Human Resource Development
- Quality Assurance and Productivity Improvement
- Nursing and Dental Continuing Education
- EMT/Paramedic and Allied Health Training
- Criminal Justice
- Leadership and Management Skills
- Computer-Aided Design and Computer-Aided Manufacturing (CAD/CAM)
- Continuing Medical Education for Physicians (New)

### **Where Programs Are Offered**

Programs can be offered on-site at your place of business. Programs may also be held on the LCC campus in downtown Lansing, at the Howell Extension Center, at one of our suburban Learning Center sites, or at any suitable location arranged between BCI and the sponsoring employer. Our Laptop Lab has traveled to many companies to provide on-site computer software training. We can train on-site using company equipment for some customized technical training programs. You choose what best suits your needs.

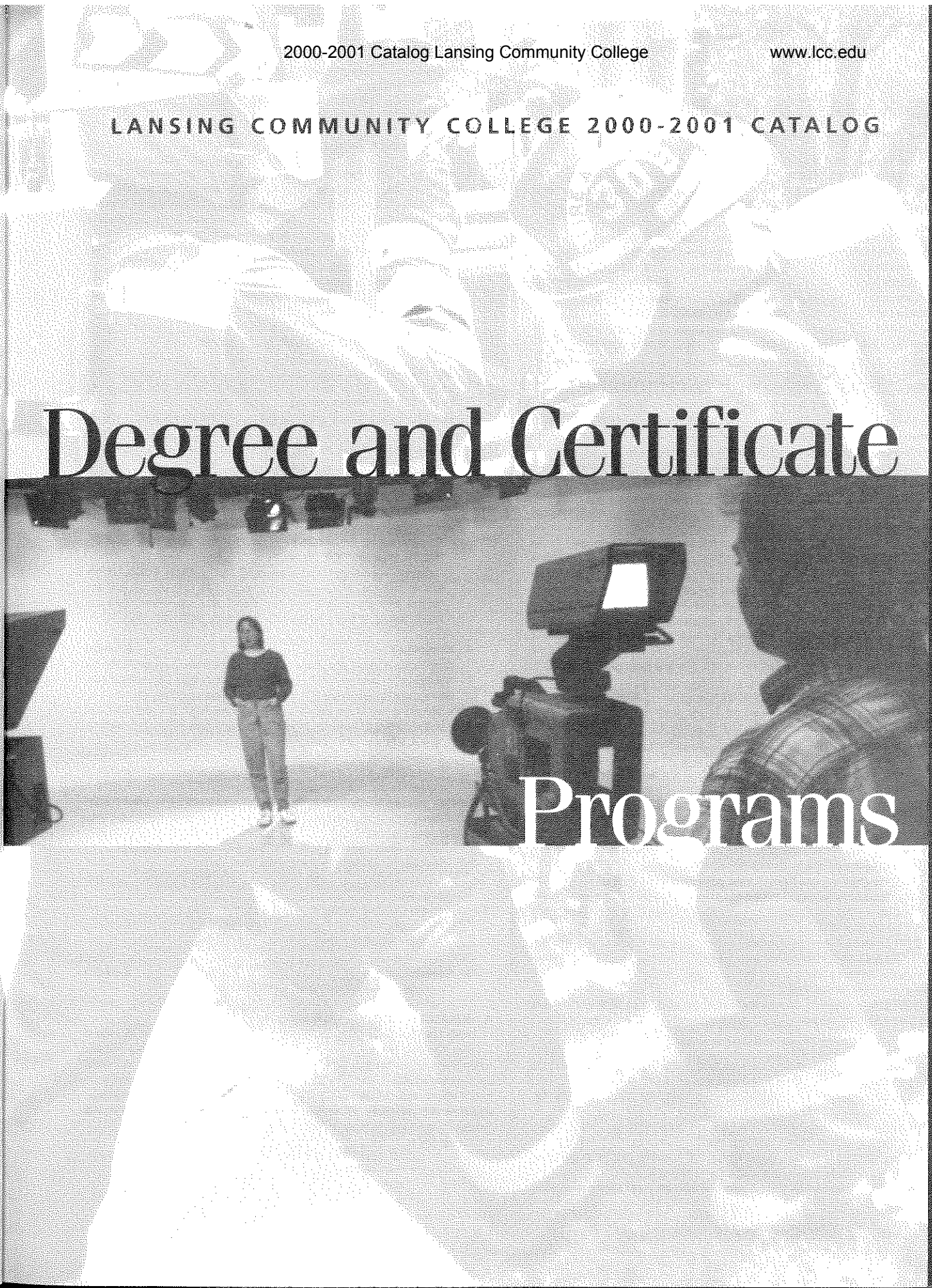
Let BCI staff partner with you to meet your business needs in a cost-effective way. Call the Business & Community Institute at (517) 483-1857. Or call LCC's toll-free line at 1-800-644-4LCC and ask to be connected to the BCI today.

LANSING COMMUNITY COLLEGE 2000-2001 CATALOG

# Degree and Certificate

# Programs

Degree and Certificate Programs





## ASSOCIATE IN ARTS DEGREE

EFFECTIVE FALL 2000-SUMMER 2005

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 2300, Gannon (GVT) 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 116, Arts and Sciences Building.

### I. GENERAL EDUCATION REQUIREMENTS Minimum 35 credits

By following the directions in this section and earning at least a 2.0 in each course, 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 2300 of the GVT 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 have an asterisk (\*) preceding them.)

#### 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 asterisked (\*) course from A or B will satisfy the LCC General Education Core Requirement in science and technology. Completing any asterisked (\*) course from C will satisfy the LCC General Education Core Requirement in mathematics. If C is not chosen, 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: \*ASTR 201 (4), \*CHEM 135 (4), \*CHEM 151 & 161 (5), GEOL 221 (4), GEOL 222 (4), GEOL 230 (4), \*ISCI 121 (4), \*ISCI 131 (4), \*METR 220 (4), PHYS 201 & 225 (5), \*PHYS 215 & 225 (6)
- B. Biological Science: ANAT 145 (4), ANAT 151 (3), ANAT 201 (4), BIOL 120 (4), BIOL 121 (4), BIOL 127 (4), BIOL 128 (4), \*BIOL 210 (4), BIOL 260 (4), BIOL 265 (4), ISCI 122 (4), MICR 203 & 204 (4), PFWH 123 (3), \*PHGY 202 (4)
- C. Mathematics and Statistics: \*MATH 121 (4), \*MATH 122 (3), \*MATH 126 (5), MATH 128 (3), \*MATH 130 (3), \*MATH 141 (3), \*MATH 151 (4), \*MATH 152 (4), \*MATH 201 (3), STAT 170 (3), STAT 215 (4)

#### 3. Social Science Minimum of 8 credits

Completing at least one asterisked (\*) course from Category 3 (Social Science) OR Category 4 (Humanities) 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 4-6 credits from the following: ANTH 270 (3), ECON 120 (4), ECON 201 (3), ECON 202 (3), GEOG 120 (3), GEOG 200 (4), \*POLS 260 (3), PSYC 200 (4), PSYC 202 (3), PSYC 203 (3), PSYC 205 (3), PSYC 250 (3), \*SOCL 120 (4), SOCL 255 (3)

#### 4. Humanities 8 credits

Completing at least one asterisked (\*) course from Category 3 (Social Science) OR Category 4 (Humanities) will satisfy the LCC General Education Core Requirement in Global Perspectives and Diversity.

- Complete one of the following combinations: HIST 211 and HIST 212 or 214, \*PHIL 211 and \*212, \*HUMS 213 and \*214, RELG 211 and 212, \*ENGL 211 and \*212. OR
- Complete eight (8) credits from the list below in two different areas. (Note that MSU does not accept Foreign Language as meeting the MACRAO/Integrative Studies Humanities requirement.)
  - Art History: HUMS 120, \*211, \*212
  - Foreign Language: FREN 201, 202, GERMN 201, 202, JAPN 201, 202, SPAN 201, 202
  - History: HIST 150, 210, 211, 212, 214, 220, 230, 240, 250, 260
  - Humanities: HUMS 160, \*213, \*214, 215
  - Literature: ENGL 201, 202, 203, \*211, \*212, 255, 256, 260, 266, 267, 270, 290
  - Performing Arts: MUSC 199, 240, 241, THEA 210
  - Philosophy: PHIL 151, 152, 153, \*211, \*212, 260
  - Religion: RELG 211, 212, 241, 242, 250

#### 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: 0254

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	Intro to Probability and Stats (4)
4. Complete one of the following (3-4 credits):
 

CISB 100	Intro to Computer Info Systems (3)
CISB 120	Intro to Programming/Logic (4)
CPSC 120	Introduction to Computers (3)
5. Complete one of the following (3 credits):
 

MATH 122	College Algebra II and Trig (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: 0137

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 & Revolution in South 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: 0142

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 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: 0746

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: 0232

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	Intro to Computer Info Systems (3)
CPSC 120	Introduction to Computers (3)
5. Complete one of the following (3-4 credits):
 

ECON 213	U.S. Economic/Business History (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	Intro to Probability and Stats (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: 0146

1. Complete the following required courses (15 credits):
 

CJUS 101	Intro to Criminal Justice (3)
CJUS 102	Crime Causes and Conditions (3)
CJUS 103	Criminal Law (3)
CJUS 106	Intro to Juvenile Justice (3)
CJUS 131	Introduction to Corrections (3)
2. Complete a minimum of 10 credits from the following:
 

CJUS 255	Human Relations/Criminal Just (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: 0230*

- Complete ECON 201 and ECON 202 to satisfy part of the Social Science General Education Requirements.
- Complete MATH 121 to satisfy part of the Science and Mathematics General Education Requirements.
- Complete the following required courses (**6 credits**):
 

CPSC 120	Introduction to Computers (3)
MATH 122	College Algebra II and Trig (3)
- 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	U.S. Economic/Business History (3)
MATH 141	Calculus with Applications (3)
MATH 151	Calculus I (4)
MATH 152	Calculus II (4)
MATH 253	Calculus III (4)
MATH 254	Intro: Differential Equations (3)
MATH 260	Linear Algebra (3)
PSYC 200	Introduction to Psychology (4)
SOCL 120	Introduction to Sociology (4)
STAT 215	Intro to Probability and Stats (4)

Any foreign language with course numbers 121, 122, 201, or 202 (4).  
A second science course so that you complete both a biological science and a physical science (4-6)

**ELEMENTARY EDUCATION***Curriculum Code: 0747*

- Complete POLS 120 and SOCL 120 to satisfy part of the Social Science General Education Requirement.
- Complete the following required courses (**21 credits**):
 

ARTS 240	Art for Elementary Teachers (3)
EDUC 201	Teacher Education Practicum (2)
EDUC 220	Introduction to Education (3)
MATH 201	Math for Liberal Arts I (3)
MUSC 200	Music Fund for Elem Teachers (3)
PSYC 200	Introduction to Psychology (4)
PSYC 204	Educational Psychology (3)
- Complete **4-6 credits** from the following list:
 

ANTH 270	Cultural Anthropology (3)
GEOG 121	Physical Geography (3)
GEOG 200	World Regional Geography (4)
ENGL 220	Science Fiction (4)
ENGL 255	American Literature I (4)
ENGL 256	American Literature II (4)
ENGL 267	British Literature II (4)
PSYC 205	Human Growth and Development (3)
PSYC 221	Child Psychology (3)
SOCL 260	Minority Groups (3)

**FINE ARTS***Curriculum Code: 0748*

- Complete HUMS 211 and HUMS 212 to satisfy the Humanities General Education Requirement.
- 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)

- Complete **8 credits** from the following:
 

ARTS 140	Printmaking I (4)
ARTS 141	Printmaking II (4)
ARTS 145	Screen Printing I (4)
ARTS 146	Screen Printing II (4)
ARTS 200	Painting I (4)
ARTS 201	Painting II (4)
ARTS 204	Watercolor I (4)
ARTS 205	Watercolor II (4)

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

**FOREIGN LANGUAGE***Curriculum Code: 0132*

- Complete the following required course (**3 credits**):
 

SPCH 280	Intercultural Communication (3)
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- 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)
- 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: 0749*

- Complete GEOG 200 to satisfy part of the Social Science General Education Requirement.
- 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)
- 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 Geographic Info Sys (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: 0197

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 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 & Revolu Southrn Africa (4)
RELG 250	Religions of East Asia (4)

**HUMANITIES**

Curriculum Code: 0119

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 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	Intro: Logic & Critical Think (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: 0252

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)
ANTH 271	Medical 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)
PHIL 211	World Philosophies I (4)
PHIL 212	World Philosophies II (4)
POLS 280	Politics & 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	Intro to African-American Study (3)
SOCL 260	Minority Groups (3)
SOCL 280	Intro to Japanese Culture (3)

**LIBERAL ARTS**

Curriculum Code: 0251

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: 0124

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	Intro: Logic & Critical Think (4)
	RELG 241	Old Testament Literature (4)
	Any foreign language with course numbers 121, 122, 201, or 202 (4)	
B.	EDUC 201	Teacher Education Practicum (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: 0159

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 151 Intro: Logic & Critical Think (4)
  - PHIL 211 World Philosophies I (4)
  - PHIL 212 World Philosophies II (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) (*See Note 1*)
  - HUMS 214 World Civilizations II (4) (*See Note 1*)
  - HUMS 225 Grt Lake Native Amer: Hist & Trad (4)
  - PHIL 152 Introduction to Ethics (4) (*See Note 2*)
  - PHIL 153 Knowledge and Reality (4) (*See Note 2*)
  - 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: 0750

1. Complete POLS 120 *and* SOCL 120 to satisfy the Social Science General Education Requirement.
2. Complete HIST 211 and 212 to satisfy the Humanities General Education Requirement.
3. Complete the following required courses (**7 credits**):
  - POLS 121 State and Local Government (4)
  - POLS 260 Comparative Political Systems (3)
4. 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 Amer Pol Parties/Interest Grps (3)
  - POLS 270 International Relations (3)
  - POLS 280 Politics & 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: 0215

1. Complete PSYC 200 to satisfy part of the Social Science General Education Requirement.
2. Complete MATH 121 to satisfy part of 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 two courses (**3 credits**):
  - PSYC 202 Psychology of Personality (3)
  - PSYC 250 Abnormal Psychology (3)
7. Complete a minimum of **10 credits** from the following:
  - ANTH 270 Cultural Anthropology (3)
  - ANTH 271 Medical Anthropology (3)
  - CPSC 120 Introduction to Computers (3)
  - POLS 240 Introduction to Public Policy (3)
  - PSYC 175 Psychology of Death: A Preparation for Living (3)
  - PSYC 240 Psychology of Human Sexuality (3)
  - SOCL 120 Introduction to Sociology (4)
  - SOCL 254 Marriage and Family (3)
  - STAT 170 Introduction to Statistics (3)
  - STAT 215 Intro to Probability and Stats (4)
 Any foreign language with course numbers 121, 122, 201, or 202 (4)

**RELIGION**

Curriculum Code: 0751

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) (*See Note 1*)
  - PHIL 260 Contemporary Ethical Problems (4) (*See Note 1*)
  - 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)

**NOTE**

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

**SECONDARY EDUCATION***Curriculum Code: 0752*

1. Complete POLS 120 and SOCL 120 to satisfy the Social Science General Education Requirement.
2. Complete the following required courses (**12 credits**):
 

EDUC 201	Teacher Education Practicum (2)
EDUC 220	Introduction to Education (3)
PSYC 200	Introduction to Psychology (4)
PSYC 204	Educational Psychology (3)
3. Complete a minimum of **13 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: 0121*

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	Amer Pol Parties/Interest Grps (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 271	Medical Anthropology (3)
	ANTH 275	Physical Anthr and Archeology (3)
	ANTH 276	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: 0753*

1. Complete POLS 120 *and* SOCL 120 to satisfy the Social Science General Education Requirement and the Global Diversity Core Requirement.
2. Complete the following required courses (**9 credits**):
 

ANTH 270	Cultural Anthropology (3)
PSYC 203	Social Psychology (3)
SOCL 255	Contemporary Social Problems (3)
3. Complete a minimum of **16 credits** from the following:
 

ANTH 271	Medical Anthropology (3)
ANTH 275	Physical Anthropology (3)
ANTH 276	World Archaeology (3)
CJUS 102	Crime Causes and Conditions (3)
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)
GERO 100	Introduction to Aging (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: 0136*

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 Communic 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	Intro: Logic & Critical Think (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 CPSC GEOG HUMS MATH PHIL RELG STAT  
 ANTH ECON GEOL ISCI METR PHYS SOCL WRIT  
 ASTR EDUC GRMN JAPN MICR POLS SOWK  
 BIOL ENGL HIST JRNL PFKN PSYC SPAN  
 CHEM FREN HONR LING PHGY READ SPCH
  
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, 200, 201, 203, 204, 205, 206, 253  
 BUSN 118, 201, 250  
 CHDV 101, 111, 120, 121, 188, 189, 220, 221  
 CISB 100, 120, 122, 170, 175, 180, 250, 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, 126, 132, 134, 165, 191, 201, 202, 203, 204, 211, 212   |
| 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, 163, 164, 168, 169, 179, 180, 182, 183, 188, 193, 194, 199, 200, 240, 241, 246, 247, 253, 263, 264, 270, 276, 280, 293, 294, 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 2000 – SUMMER 2005**

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/Physics
Computer Science	Medical Pre-Professional
Environmental Science	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 2300, Gannon (GVT) 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 of the Arts and Sciences Building.

**I. GENERAL EDUCATION REQUIREMENTS Minimum of 35 credits**

By following the directions in this section and earning at least a 2.0 in each course, 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 22 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.

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 2300 of the GVT Building, telephone number (516) 483-1904.

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 have and asterisk (\*) preceding them.*)

**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), \*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, 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 asterisked (\*) course from A or B will satisfy the LCC General Education Core Requirement in science and technology. Completing any asterisked (\*) course from C will satisfy the LCC General Education core Requirement in mathematics. If C is not chosen, 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: \*CHEM 151 & 161 (5), GEOL 221 (4), GEOL 222 (4), \*METR 220 (4), PHYS 201 & 225 (5), \*PHYS 215 & 225 (6)
- B. Biological Science: ANAT 201 (4), BIOL 120 (4), BIOL 121 (4), BIOL 127 (4), BIOL 128 (4), \*BIOL 210 (4), BIOL 260 (4), BIOL 265 (4), MICRO 203 & 204 (4), \*PHGY 202 (4)
- C. Mathematics: \*MATH 121 (4), \*MATH 122 (3), \*MATH 126 (5), MATH 128 (3), \*MATH 130 (3), \*MATH 141 (3), \*MATH 151 (4), \*MATH 152 (4), \*MATH 201 (3), STAT 170 (3), STAT 215 (4)

**3. Social Science Minimum of 8 credits**

Completing at least one asterisked (\*) course from Category 3 (Social Science) OR Category 4 (Humanities) will satisfy the institutional 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: ANTH 270 (3), ECON 120 (4), ECON 201 (3), ECON 202 (3), GEOG 120 (3), GEOG 200 (4), \*POLS 260 (3), PSYC 200 (4), PSYC 202 (3), PSYC 203 (3), PSYC 205 (3), PSYC 250 (3), \*SOCL 120 (4), SOCL 255 (3)

**4. Humanities 8 credits**

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

- Complete *one* of the following combinations: HIST 211 and HIST 212 or 214, \*HUMS 213 and \*214, \*ENGL 211 and \*212, \*PHIL 211 and \*212, RELG 211 and 212, OR
- Complete eight (8) credits from the list below in two different areas. (Note that MSU does not accept Foreign Language as meeting the MACRAO/Integrative Studies Humanities requirement.)
  - Art History: HUMS 120, \*211, \*212
  - Foreign Language: FREN 201, 202, GRMN 201, 202, JAPN 201, 202, SPAN 201, 202
  - History: HIST 150, 210, 211, 212, 214, 220, 230, 240, 250, 260
  - Humanities: HUMS 160, \*213, \*214, 215
  - Literature: ENGL 201, 202, 203, \*211, \*212, 255, 256, 260, 266, 267, 270, 290
  - Performing Arts: MUSC 199, 240, 241, THEA 210
  - Philosophy: PHIL 151, 152, 153, \*211, \*212, 260
  - Religion: RELG 211, 212, 241, 242, 250

**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: 0221

1. Complete MATH 121, CHEM 151, and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (12 credits):
  - BIOL 127 Cell Biology (4)
  - BIOL 128 Organismal Biology (4)
  - CHEM 152 General Chemistry Lecture II (3)
  - CHEM 162 General Chemistry Lab II (1)
3. Complete a minimum of 15 credits from the following:
  - ANAT 201 Human Anatomy (4)
  - 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 252 Organic Chemistry Lecture II (4)
  - CHEM 272 Organic Chemistry Laboratory (2)
  - MICR 203 Microbiology (3)
  - MICR 204 Microbiology Laboratory (1)
  - PHGY 202 Human Physiology (4)
  - STAT 170 Introduction to Statistics (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
BIOL 127	BIOL 128
CHEM 151	CHEM 152
CHEM 161	CHEM 162
MATH 121	

**CHEMISTRY**

Curriculum Code: 0117

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):  
(Note: In order to complete sequences, MATH 253, PHYS 216, and PHYS 226 are also recommended.)
  - CHEM 152 General Chemistry Lecture II (3)
  - CHEM 162 General Chemistry Lab II (1)
  - CHEM 251 Organic Chemistry Lecture I (4)
  - CHEM 252 Organic Chemistry Lecture II (4)
  - CHEM 262 Quantitative Analysis (2)
  - CHEM 272 Organic Chemistry Laboratory (2)
  - MATH 152 Calculus II (4)
3. Complete a minimum of 8 credits from the following:
  - BIOL 127 Cell Biology (4)
  - PHYS 215 Physics I: Mechanics (5)
  - PHYS 225 Physics I Lab (1)
  - STAT 215 Intro to Probability and Stats (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	CHEM 152	CHEM 251	CHEM 252
CHEM 161	CHEM 162	CHEM 262	CHEM 272
MATH 151	MATH 152		

**COMPUTER SCIENCE**

Curriculum Code: 0169

1. Complete MATH 151, PHYS 215, and PHYS 225 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (20 credits):
  - CPSC 230 Algorithms and Computing w/ C++ (4)
  - CPSC 231 Computing and Data Structures (4)
  - CPSC 260 Computer Science Structures (4)
  - 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 Intro: Differential Equations (3)
  - MATH 260 Linear Algebra (3)
  - PHYS 216 Physics II: Electrom/Waves/Optic (5)
  - PHYS 226 Phys II Laboratory (1)
  - STAT 215 Intro to Probability and Stats (4)

**ENVIRONMENTAL SCIENCE**

Curriculum Code: 0755

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 Intro Organic Chemistry Lab (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 Beginning MicroStation (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: 0174

1. Complete MATH 122, 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 Lab II (1)
  - GEOL 221 Physical Geology (4)
  - GEOL 222 Historical Geology (4)
  - GEOL 230 Environmental Geology (4)

3. Complete a minimum of **10 credits** from the following:  
(NOTE: PHYS 215 and 216 may be substituted for PHYS 201 and 202 with the appropriate math background.)
- |          |                                 |
|----------|---------------------------------|
| CPSC 120 | Introduction to Computers (3)   |
| GEOL 210 | Geology Field Studies (1)       |
| METR 220 | Introduction to Meteorology (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 122			

**MATHEMATICS/PHYSICS***Curriculum Code: 0200*

- Complete MATH 151 and PHYS 215 and 225 to satisfy the Science and Mathematics General Education Requirement.
- Complete the following required courses (**20 credits**):
 

MATH 152	Calculus II (4)
MATH 253	Calculus III (4)
MATH 254	Intro: Differential Equations (3)
MATH 260	Linear Algebra (3)
PHYS 216	Phys II: Electrom/Waves/Optic (5)
PHYS 226	Physics II Laboratory (1)
- Complete a minimum of **5 credits** from the following:
 

CHEM 151	General Chemistry Lecture I (4)
CHEM 161	General Chemistry Lab I (1)
CPSC 230	Algorithms and Computing w/ C++ (4)
CPSC 231	Computing and Data Structures (4)
CPSC 260	Computer Science Structures (3)
MATH 281	Honors Math Seminar I (1)
STAT 215	Intro to Probability and Stats (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
MATH 151	MATH 152	MATH 253	MATH 254
	PHYS 215	PHYS 216	MATH 260
	PHYS 225	PHYS 226	

**MEDICAL PRE-PROFESSIONAL***Curriculum Code: 0754*

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

- Complete PSYC 200 to satisfy part of the Social Science General Education Requirement.
- Complete MATH 122, 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 Lab 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 122			

**PRE-ENGINEERING***Curriculum Code: 0112*

- Complete MATH 151, CHEM 151, and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
- Complete the following required courses (**21 credits**):
 

MATH 152	Calculus II (4)
MATH 253	Calculus III (4)
MATH 254	Intro: Differential Equations (3)
PHYS 215	Physics I: Mechanics (5)
PHYS 216	Phys II: Electrom/Waves/Optic (5)
- Complete a minimum of **5 credits** from the following:
 

PHYS 225	Physics I Laboratory (1)
PHYS 226	Physics II Laboratory (1)
CHEM 152	General Chemistry Lecture II (3)
CHEM 162	General Chemistry Lab II (1)
CPSC 230	Algorithms and Computing w/ C++ (4)
CPSC 231	Computing and Data Structures (4)
MATH 260	Linear Algebra (3)
STAT 215	Intro to Probability and Stats (4)
- It is recommended that a student take one of the following CAD courses. These courses may not transfer to all engineering programs.
 

DTDS 131	AutoCAD Basic 2-D (4)
DTDS 180	UNIGRAPHICS I (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	MATH 152	MATH 253	MATH 254
CHEM 161		PHYS 215	PHYS 216
MATH 151			

**GENERAL ASSOCIATE DEGREE**

Curriculum Code: 0863

**EFFECTIVE FALL 2000 – SUMMER 2005**

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 course work 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 2300 of the GVT 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***(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
Mathematics Competency <i>(See page 23 for information on how to fulfill this requirement. Course work may be needed.)</i>	

**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 <i>(See Note 2)</i>	Variable
Elective Credits <i>(See Note 3)</i>	Variable

**MINIMUM TOTAL****60****NOTES**

- Students should meet with an academic advisor or counselor prior to selecting courses for customized options.
- 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.
- 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.



**ACCOUNTING  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0162 (Effective Fall 2000–Summer 2005)

Graduates of this program are qualified to work as paraprofessionals 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, students may need to complete specific course work 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	Accounting Systems	4
LEGL 215	Busn Law I, Basic Principles	3

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

<b>CHOICE 1: General Education Core Areas</b>	<b>12 Credits</b>
<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
Mathematics Competency <i>(See page 23 for information on how to fulfill this requirement. Course work may be needed.)</i>	
<b>CHOICE 2: Accounting Specialty Area</b>	<b>11–12 Credits</b>
ACCG 160 Payroll Systems and 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
<b>CHOICE 3: Other Accounting &amp; Business Related <i>(See Note 1)</i></b>	<b>6 Credits</b>
ACCG 245 Accounting Internship	2
ACCG 271 Principles of Finance	3
INSU 265 Principles Risk and Insurance	3
LEGL 219 Adv Busn Law for Acct Majors	4
<b>MINIMUM TOTAL</b>	<b>60</b>

**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: 0714 (Effective Fall 2000–Summer 2005)

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 Taxes	2
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
ACCG 260	Accounting Systems	4
OADM 215	Records and Info Management I	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 11–15 CREDITS**  
Complete the indicated number of credits from each CHOICE listed below.

<b>CHOICE 1: Accounting Specialty</b>	<b>2–3 Credits</b>
ACCG 140 Income Tax Preparation	3
ACCG 235 Budgeting	2
<b>CHOICE 2: Word Processing</b>	<b>4 Credits</b>
CABS 113 Microsoft Word Office/ Int Key	4
CABS 119 Word for Windows	2
CABS 121 WordPerfect for Windows	2
CABS 219 Advanced Microsoft Word	2
<b>CHOICE 3: Office Skills</b>	<b>2–4 Credits</b>
OADM 195 Human Behavior in Work Place	3
OADM 203 Professional Office Procedures	2
OADM 220 Administrative Office Mgmt	4
<b>CHOICE 4: Written Communication</b>	<b>3-4 Credits</b>
WRIT 121 Composition I	4
WRIT 127 Business Writing	3

**ELECTIVES TOTAL: 2 CREDITS**  
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
ACCG 210	ACCG 160
OADM 215	ACCG 211
Lim.Ch.	ACCG 260
Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.
	Elec.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**ACCOUNTING, CPA EXAM PREP  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0255 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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	Accounting Systems	4
ACCG 290	Auditing	3
LEGL 215	Busn Law I, Basic Principles	3
LEGL 219	Adv Busn Law for Acct Majors	4

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

<b>CHOICE 1: General Education Core Areas (See Note 1)</b>	<b>12 Credits</b>
<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
Mathematics Competency <i>(See page 23 for information on how to fulfill this requirement. Course work may be needed.)</i>	
<b>CHOICE 2: Governmental/Fund Accounting</b>	<b>4 Credits</b>
ACCG 250 Advanced Accounting	4
ACCG 280 Governmental Accounting	4
<b>CHOICE 3: Accounting Related</b>	<b>2–4 Credits</b>
ACCG 231 Managerial Accounting	4
ACCG 295 CPA Review - Tax, Mgr, Cost, Gov	1
ACCG 296 CPA Review - Business Law	1
ACCG 297 CPA Review - Auditing	1
ACCG 298 CPA Review - Fin Acct/Report	1
ECON 201 Principles of Economics - Micro	3
<b>MINIMUM TOTAL</b>	<b>60</b>

**NOTE**

1. 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.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MANAGERIAL ACCOUNTING  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0247 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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
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	Accounting Systems	4
QUAL 100	Intro Quality Assurance	4
QUAL 103	Probability/Stats Qual Assur	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
Mathematics Competency <i>(See page 23 for information on how to fulfill this requirement. Course work may be needed.)</i>	

CHOICE 2: Accounting Related	9 Credits
ACCG 160 Payroll Systems and 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 <i>(Choose one subchoice)</i>	6–7 Credits
<b>Subchoice 3A</b>	
QUAL 104 Process Control Charting	3
QUAL 107 Problem-Solving Techniques	3
<b>Subchoice 3B</b>	
QUAL 121 Intro Statistical Process Cont	3
QUAL 203 Quality Systems Management	4

**MINIMUM TOTAL 62**

**NOTE**

- 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.

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**PRECISION AGRICULTURE  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0896 (Effective Fall 2000–Summer 2005)

This program prepares students for positions in site specific agricultural management, sustainable development, and related technological applications in today's agribusiness operations. Positions such as integrated pest management technologists, custom applicators, technology resource managers, crop advisory specialists, and dealer consultants are some of the newly-evolving careers in this exploding technology field. Emphasis on the geospatial computer technologies of Geographic Information Systems (GIS) and Global Positioning Systems (GPS) as well as remote sensing will be stressed. In addition, State Department of Agriculture pesticide re-certification credits are available upon successful completion of specific courses within this program. The National Science Foundation has selected this program as a national model curriculum. **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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS	TOTAL: 52 CREDITS
AGRI 101	Principles/Precision Agritech	2	
AGRI 106	Disease/Insect Agrinomic Crops	2	
AGRI 200	Vegetation and Weed Management	3	
AGRI 201	Prin/Sustainable Agriculture	3	
AGRI 202	Agri Soils and Crop Management	3	
AGRI 211	Agricultural Crop Production	3	
AGRI 212	Vegetable Crop Production	3	
AGRI 213	Ag Site Specific Research Tech	3	
GRET 205	Principles Geographic Info Sys	3	
GRET 210	Global Positioning Systems	3	
GRET 240	Cartography in GIS	3	
GRET 241	Remote Sens/AirPhoto Interpret	3	
GRET 243	ORACLE/Geographic Info Sys	3	
GRET 253	Basics of ARC/View	1	
GRET 255	Beginning ARC/Info	3	
GRET 256	Advanced ARC/Info	3	
HORT 102	Intro Ornamental Horticulture	2	
LAND 282	Computer Draft/Dsgn Land Arch	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
(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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	
<b>MINIMUM TOTAL</b>	<b>61</b>

**NOTE**

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
AGRI 101	AGRI 106	AGRI 200	AGRI 201
GRET 205	AGRI 202	AGRI 211	AGRI 212
GRET 240	GRET 241	GRET 210	AGRI 213
HORT 102	GRET 253	GRET 243	GRET 256
LAND 282	WRIT 124	GRET 255	Lim.Ch.
Lim.Ch.	Lim.Ch.		

**PRECISION AGRICULTURE  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0852 (Effective Fall 2000–Summer 2005)

Students completing this certificate will be prepared for entry level positions in precision agriculture and sustainable development and its various application areas in the agribusiness arena. Positions such 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.

**REQUIREMENTS**

**TOTAL: 30 CREDITS**

CODE	TITLE	CREDIT HOURS
AGRI 101	Principles/Precision Agritech	2
AGRI 106	Disease/Insect Agrinomic Crops	2
AGRI 200	Vegetation and Weed Management	3
AGRI 201	Prin/Sustainable Agriculture	3
AGRI 202	Agri Soils and Crop Management	3
GRET 205	Principles Geographic Info Sys	3
GRET 210	Global Positioning Systems	3
GRET 253	Basics of ARC/View	1
GRET 255	Beginning ARC/info	3
HORT 102	Intro Ornamental Horticulture	2
LAND 100	Intro to Landscape Drafting	2
LAND 282	Computer Draft/Dsgn Land Arch	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
AGRI 101	AGRI 200
AGRI 106	AGRI 201
GRET 205	AGRI 202
GRET 253	GRET 210
HORT 102	GRET 255
LAND 100	
LAND 282	



**ARCH TECH, COMPUTER GRAPHICS  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0226 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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	International 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
Mathematics Competency (See Note 1)	

**CHOICE 2: Computer Graphics 18 Credits**

ARCH 221	Architectural DataCAD I	4
ARCH 222	Architectural DataCAD II	4
ARCH 225	Arch DataCAD Independent Study	1–4
ARCH 231	Architectural AutoCAD I	4
ARCH 232	Architectural AutoCAD II	4
ARCH 235	Arch AutoCAD Independent Study	1–4
ARCH 237	Arch Computer Rendering	3
ARCH 251	Architectural MicroStation I	4
ARCH 252	Architectural MicroStation II	4
ARCH 255	MicroStation Independent Study	1–4

**CHOICE 3: History and Preservation 3 Credits**

ARCH 141	Architectural History I	3
ARCH 142	Architectural History II	3
ARCH 146	Preser/Adaptive Reuse Architec	3

<b>CHOICE 4: Materials, Structures and Systems 7–8 Credits</b>		
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 2) 4 Credits**

**MINIMUM TOTAL**

**70**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. 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	Lim.Ch.
ARCH 121	ARCH 271	Lim.Ch.	Lim.Ch.
MATH 121	BLDT 281	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

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**ARCH TECH, RESIDENTIAL DESIGN  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0758 (Effective Fall 2000--Summer 2005)

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, students may need to complete specific course work 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	International 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.

<b>CHOICE 1: General Education Core Areas</b>	<b>12 Credits</b>
<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
Mathematics Competency <i>(See Note 1)</i>	
<b>CHOICE 2: Computer Graphics</b>	<b>7-8 Credits</b>
ARCH 221 Architectural DataCAD I	4
ARCH 222 Architectural DataCAD II	4
ARCH 225 Arch DataCAD Independent Study	1-4
ARCH 231 Architectural AutoCAD I	4
ARCH 232 Architectural AutoCAD II	4
ARCH 235 Arch AutoCAD Independent Study	1-4
ARCH 237 Arch Computer Rendering	3
<b>CHOICE 3: Building Trades</b>	<b>7-8 Credits</b>
BLDT 100 Introduction to Construction	3
BLDT 121 Residential Framing	4
BLDT 277 Construction Cost Estimating	4
<b>CHOICE 4: Materials Structures and Systems</b>	<b>7-8 Credits</b>
ARCH 273 Environmental Systems	4
ARCH 276 Alternative Structures	3
ARCH 278 Energy Efficient Design	4
ARCH 283 Materials of Construction	4

<b>CHOICE 5: History</b>	<b>3 Credits</b>
ARCH 142 Architectural History II	3
ARCH 146 Preser/Adaptive Reuse Architec	3
INTR 232 Twentieth-Century Interiors	3

<b>CHOICE 6: Interior Design</b>	<b>6-7 Credits</b>
INTR 151 Computer-Aided Kitchen Design	4
INTR 190 Interior/Materials/Equipment	4
INTR 240 Fundamentals of Lighting	3
INTR 246 Residential Interiors Studio	3

<b>CHOICE 7: Architectural Related (See Note 2)</b>	<b>2-4 Credits</b>
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**MINIMUM TOTAL 70**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. 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	LAND 132
ARCH 128	BLDT 281	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.	

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**ARCHITECTURAL TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0233 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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: 33 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 202	Architectural Drafting IV	4
ARCH 211	Design Studio I	3
ARCH 271	Structural Theory	4
BLDT 281	International 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 <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
Mathematics Competency (See Note 1)	

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 Arch Computer Rendering	3
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 Preser/Adaptive Reuse Architec	3

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

CHOICE 6: Architectural Related (See Note 2)	3–4 Credits
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MINIMUM TOTAL 70

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. 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	Lim.Ch.
MATH 121	BLDT 281	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

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**AIRBRUSH ILLUSTRATION  
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 0858 (Effective Fall 2000–Summer 2005)**

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 entry-level positions 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 *Class Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page B of this catalog.

**INFORMATION**

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

**REQUIREMENTS**

CODE	TITLE	TOTAL: 24 CREDITS CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing	3
ARTS 137	Perspective Drawing	2
ARTS 195	Employ/Busn Issues for Artists	1
ARTS 221	Airbrush Techniques I	4
ARTS 222	Airbrush Techniques II	4
ARTS 224	Automotive Airbrush Techniques	4

**LIMITED CHOICE REQUIREMENTS****TOTAL: 9–10 CREDITS**

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

**CHOICE 1: Related Art Courses**

ARTS 162	Typography	3
ARTS 200	Painting I	4
ARTS 213	Illustration Fundamentals	3
ARTS 216	Humorous Illustration I	3

**MINIMUM TOTAL****33****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	Lim.Ch.
Lim.Ch.	Lim.Ch.	

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**COMPUTER GRAPHICS ANIMATION  
ASSOCIATE IN APPLIED ARTS DEGREE****Curriculum Code: 0294 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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: 60 CREDITS**

CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing	3
ARTS 137	Perspective Drawing	2
ARTS 151	Computer Graphics/Illustration	3
ARTS 162	Typography	3
ARTS 171	Computer Graphics/Photography	3
ARTS 175	Electronic Design	3
ARTS 195	Employ/Busn Issues for Artists	1
ARTS 216	Humorous Illustration I	3
ARTS 228	Advanced Digital Imaging	3
ARTS 231	Comp Graphics/Advanced Illustr	3
ARTS 232	Comp Graphics/2-D Animation	4
ARTS 233	Comp Graphics/2-D Interactive	4
ARTS 234	Comp Graphics/3-D Animation I	4
ARTS 235	Comp Graphics/3-D Animation II	3
ARTS 236	Computer Graphics/Production	3
ARTS 269	The Portfolio (See Note 1)	2
ARTS 281	Art Internship	3
FILM 118	Film Production I	4

**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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**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.
- 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 FILM 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 195
ARTS 131	ARTS 137	ARTS 216	ARTS 228
FILM 118	ARTS 151	ARTS 231	ARTS 232
Lim.Ch.	ARTS 162	ARTS 234	ARTS 235
Lim.Ch.	ARTS 171	Lim.Ch.	Lim.Ch.

**v**

ARTS 233  
ARTS 236  
ARTS 269  
ARTS 281

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

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

Curriculum Code: 0194 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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: 50 CREDITS**

CODE	TITLE	CREDIT HOURS
ARTS 131	Drawing I	3
ARTS 151	Computer Graphics/Illustration	3
ARTS 162	Typography	3
ARTS 171	Computer Graphics/Photography	3
ARTS 173	Computer Graphics/Web Design	2
ARTS 228	Advanced Digital Imaging	3
ARTS 232	Comp Graphics/2-D Animation	4
ARTS 233	Comp Graphics/2-D Interactive	4
ARTS 234	Comp Graphics/3-D Animation I	4
ARTS 235	Comp Graphics/3-D Animation II	3
ARTS 236	Computer Graphics/Production	3
ARTS 269	The Portfolio (See Note 1)	2
ARTS 281	Art Internship	3
CISB 102	Internet Literacy	3
CISB 200	Info Sys Tech/Problem Solving	3
FILM 118	Film Production I	4

**LIMITED CHOICE REQUIREMENTS****TOTAL: 20–22 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Specialty (Choose one subchoice) 11–13 Credits****Subchoice 2A: Art Specialty**

ARTS 102	2-Dimensional Design	3
ARTS 132	Life Drawing	3
ARTS 216	Humorous Illustration I	3
IMAG 101	Basic Photog for Non-Majors	2

**Subchoice 2B: Photography Specialty**

IMAG 111	Intro to Photographic Tech I	4
IMAG 112	Design for Imaging Tech	3
IMAG 113	Lighting Concepts/Applications	3
IMAG 114	Intro Photographic Color Tech	3

**MINIMUM TOTAL 70****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 2A: Art Specialty**

I	II	III	IV
ARTS 102	ARTS 132	ARTS 173	ARTS 228
ARTS 131	ARTS 151	ARTS 232	ARTS 233
CISB 102	ARTS 162	ARTS 234	ARTS 235
CISB 200	ARTS 171	IMAG 101	Lim.Ch.1
FILM 118	ARTS 216		Lim.Ch.1

**v**

ARTS 236  
ARTS 269  
ARTS 281  
Lim.Ch.1

**Subchoice 2B: Photography Specialty**

I	II	III	IV
ARTS 131	ARTS 151	ARTS 162	ARTS 228
CISB 102	ARTS 171	ARTS 173	ARTS 233
IMAG 111	CISB 200	ARTS 232	ARTS 235
IMAG 112	FILM 118	ARTS 234	Lim.Ch.1
IMAG 113	IMAG 114	Lim.Ch.1	

**v**

ARTS 236  
ARTS 269  
ARTS 281  
Lim.Ch.1

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**COMPUTER GRAPHICS, MULTIMEDIA  
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 0857 (Effective Fall 2000–Summer 2005)**

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 *Class Schedule* for course prerequisite information. Basic skills assessment and advising information may be found of 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: 41 CREDITS
CODE	TITLE	CREDIT HOURS
ARTS 151	Computer Graphics/Illustration ( <i>See Note 2</i> )	3
ARTS 171	Computer Graphics/Photography ( <i>See Note 2</i> )	3
ARTS 173	Computer Graphics/Web Design	2
ARTS 195	Employ/Busn Issues for Artists	1
ARTS 228	Advanced Digital Imaging	3
ARTS 231	Comp Graphics/Advanced Illustr	3
ARTS 232	Comp Graphics/2-D Animation ( <i>See Note 2</i> )	4
ARTS 233	Comp Graphics/2-D Interactive	4
ARTS 234	Comp Graphics/3-D Animation I	4
ARTS 235	Comp Graphics/3-D Animation II	3
ARTS 236	Computer Graphics/Production	3
ARTS 269	The Portfolio	2
ARTS 281	Art Internship	3
CISB 102	Internet Literacy	3
<b>MINIMUM TOTAL</b>		<b>41</b>

**NOTES**

1. 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.
2. 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.
3. For graduation, a student must have earned a minimum grade point of 2.0 in all courses with an ARTS 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 173	ARTS 228	ARTS 236
ARTS 171	ARTS 231	ARTS 233	ARTS 269
ARTS 195	ARTS 232	ARTS 235	ARTS 281
CISB 102	ARTS 234		

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**COMPUTER GRAPHICS, WEB DESIGN  
ASSOCIATE IN APPLIED ARTS DEGREE****Curriculum Code: 0914 (Effective Fall 2000–Summer 2005)**

A Web designer combines type, graphics, animation, sound, and programming to create a complete experience for the Web visitor. The Web designer should have a basic fluency in all aspects of site development and must learn to balance content and quality concerns with those of e-commerce. The Web designer can write code and create graphics, develop and organize content, build the structure of the site, and assist with interface issues. Web design is a cooperative process, and the designer may work with interface designers, marketing professionals, engineers, and computer technicians. **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, students may need to complete specific course work 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: 61 CREDITS**

CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing	3
ARTS 151	Computer Graphics/Illustration	3
ARTS 171	Computer Graphics/Photography	3
ARTS 173	Computer Graphics/Web Design	2
ARTS 216	Humorous Illustration I	3
ARTS 228	Advanced Digital Imaging	3
ARTS 232	Comp Graphics/2-D Animation	4
ARTS 233	Comp Graphics/2-D Interactive	4
ARTS 236	Computer Graphics/Production	3
ARTS 269	The Portfolio (See Note 2)	2
ARTS 281	Art Internship	3
CISB 102	Internet Literacy	3
CISB 119	Intro Window Prog Visual BASIC	4
CISB 136	SQL: Structured Query Language	2
CISB 200	Info Sys Tech/Problem Solving	3
CISB 204	Commercial Internet Site Mgmt	3
CISB 253	WWW Interactive Programming	4
CISB 258	Developing Pages for the Web	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 <i>GENERAL EDUCATION</i> section above)	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 3)	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**MINIMUM TOTAL 70****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 the Macintosh and introduction to Windows NT. Students should make an appointment with a Program Advisor in the Art, Design and Multimedia Program if they are not sure about their computer skill level.
- The Portfolio is considered to be the final course in this curriculum. All courses must be completed or be taken concurrently with ARTS 269.
- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- The LCC Computer Graphics Advisory Committee recommends that students in this curriculum also take MKTG 140 - Introduction to Advertising.

**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 173	ARTS 228
ARTS 131	ARTS 151	ARTS 232	ARTS 233
CISB 102	ARTS 171	CISB 136	CISB 204
CISB 119	ARTS 216	CISB 258	CISB 253
CISB 200		Lim.Ch.	

**V**

ARTS 236  
ARTS 269  
ARTS 281  
Lim.Ch.  
Lim.Ch.



## FIGURE STUDIES CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 0850 (Effective Fall 2000–Summer 2005)

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 *Class 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: 32 CREDITS
CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing ( <i>See Note 1</i> )	3
ARTS 133	Surface Anatomy for Artists	2
ARTS 136	Figure Sculpture	3
ARTS 203	Figure Painting ( <i>See Note 2</i> )	4
ARTS 276	Art Independent Study	3
HUMS 211	History of Art I	4
HUMS 212	History of Art II	4

**LIMITED CHOICE REQUIREMENTS** **TOTAL: 8 CREDITS**  
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	Art	8 Credits
ARTS 140	Printmaking I	4
ARTS 141	Printmaking II	4
ARTS 145	Screen Printing I	4
ARTS 146	Screen Printing II	4
ARTS 151	Computer Graphics/Illustration	3
ARTS 204	Watercolor I	4
ARTS 205	Watercolor II	4
ARTS 206	Advanced Watercolor	4
ARTS 216	Humorous Illustration I	3

**MINIMUM TOTAL** **40**

### NOTES

- ARTS 132 must be taken twice for a total of 6 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 1 requirements for a total of 12 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
ARTS 102	ARTS 132	ARTS 136
ARTS 131	ARTS 132	ARTS 203
HUMS 211	ARTS 133	ARTS 276
Lim.Ch.	HUMS 212	Lim.Ch.
	Lim.Ch.	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**FINE ART FOUNDATION  
ASSOCIATE IN APPLIED ARTS DEGREE****Curriculum Code: 0271 (Effective Fall 2000--Summer 2005)**

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, students may need to complete specific course work 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: 42 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 133	Surface Anatomy for Artists	2
ARTS 136	Figure Sculpture	3
ARTS 140	Printmaking I	4
ARTS 145	Screen Printing I	4
ARTS 190	Matting and Framing Techniques	1
ARTS 200	Painting I	4
ARTS 204	Watercolor I	4
HUMS 211	History of Art I	4
HUMS 212	History of Art II	4

**LIMITED CHOICE REQUIREMENTS****TOTAL: 26 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Art****17 Credits**

ARTS 132	Life Drawing (See Note 1)	3
ARTS 137	Perspective Drawing	2
ARTS 141	Printmaking II	4
ARTS 146	Screen Printing II	4
ARTS 151	Computer Graphics/Illustration	3
ARTS 171	Computer Graphics/Photography	3
ARTS 195	Employ/Busn Issues for Artists	1
ARTS 201	Painting II	4
ARTS 203	Figure Painting	4
ARTS 205	Watercolor II	4
ARTS 206	Advanced Watercolor	4

**MINIMUM TOTAL****68****NOTES**

- ARTS 132 must be taken once toward the requirements for this degree and may also be taken one more time toward Choice 2 requirements 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 136	ARTS 190
ARTS 131	ARTS 132	ARTS 204	Lim.Ch.1
ARTS 140	ARTS 133	HUMS 212	Lim.Ch.2
ARTS 145	ARTS 200	Lim.Ch.1	Lim.Ch.2
Lim.Ch.1	HUMS 211	Lim.Ch.2	

V

Lim.Ch.2

Lim.Ch.2

Lim.Ch.2

Lim.Ch.2

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**GRAPHIC DESIGN  
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 0219 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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: 59 CREDITS
CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing	3
ARTS 137	Perspective Drawing	2
ARTS 162	Typography	3
ARTS 171	Computer Graphics/Photography	3
ARTS 175	Electronic Design	3
ARTS 195	Employ/Busn Issues for Artists	1
ARTS 228	Advanced Digital Imaging	3
ARTS 251	Graphic Design I	4
ARTS 252	Graphic Design II	4
ARTS 253	Graphic Design III	4
ARTS 257	Computer Prepress Prod Tech	4
ARTS 269	The Portfolio	2
ARTS 281	Art Internship	3
ARWS 133	Introduction to Pagemaker	1
CABS 195	Microsoft Windows	2
HUMS 211	History of Art I	4
HUMS 212	History of Art II	4
MKTG 140	Introduction to Advertising	3

**LIMITED CHOICE REQUIREMENTS** TOTAL: 12 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
	Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	
<b>CHOICE 2:</b>	<b>Illustration</b>	<b>3 Credits</b>
ARTS 213	Illustration Fundamentals	3
ARTS 231	Comp Graphics/Advanced Illustr	3
<b>MINIMUM TOTAL</b>		<b>71</b>

**NOTE**

- 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 228
ARTS 131	ARTS 137	ARTS 252	ARTS 253
ARTS 162	ARTS 175	ARWS 133	ARTS 257
HUMS 211	ARTS 251	CABS 195	ARTS 281
Lim.Ch.1	HUMS 212	MKTG 140	Lim.Ch.2

**V**

ARTS 195  
ARTS 269  
Lim.Ch.1  
Lim.Ch.1

**HUMOROUS ILLUSTRATION  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0854 (Effective Fall 2000–Summer 2005)

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 *Class 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	Perspective Drawing	2
ARTS 162	Typography	3
ARTS 195	Employ/Busn Issues for Artists	1
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	2
ARWS 131	Intro to Computer Illustration	1
<b>MINIMUM TOTAL</b>		<b>30</b>

**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	

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**ALTERNATE FUELS  
CERTIFICATE OF COMPLETION**

**Curriculum Code: 0855 (Effective Fall 2000–Summer 2005)**

This certificate program is intended for individuals who are currently employed in the automotive repair industry. Students are trained specifically in the area of alternative fuels and 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 *Class 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 136, 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	Intro to Alternative Fuels	2
AUTO 261	Alternative Fuels - CNG	3
<b>MINIMUM TOTAL</b>		<b>18</b>

**NOTE**

- Prerequisites to courses may be waived based on experience. See a program advisor prior to registration 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
AUTO 100	AUTO 225	AUTO 261
AUTO 215	AUTO 260	

**AUTO AC/ELECTRICAL ACCESSORIES  
CERTIFICATE OF COMPLETION**

**Curriculum Code: 0846 (Effective Fall 2000–Summer 2005)**

This certificate program is intended for individuals who are currently employed in the automotive repair industry. Students are prepared 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 *Class 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 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 11 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 110	Auto Electrical Theory	5
AUTO 160	Auto Heat & Air Conditioning	3
<b>MINIMUM TOTAL</b>		<b>11</b>

**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 160
AUTO 110	

**AUTO BODY REPAIR  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

**Curriculum Code: 0188 (Effective Fall 2000–Summer 2005)**

Auto body repair technicians possess the necessary skills to perform collision repair and refinishing according to the "manufacturer's 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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 54 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 110	Auto Electrical Theory	5
AUTO 141	Non-Structural Repair (See Note 1)	3
AUTO 142	Advanced Non-Structural Repair	5
AUTO 143	Auto Body Welding and Cutting (See Note 1)	5
AUTO 144	Auto Body Structural Repair	5
AUTO 145	Introduction to Refinishing (See Note 1)	5
AUTO 146	Advanced Refinishing	5
AUTO 147	Collision Repair Estimating	3
AUTO 148	Automotive Plastic Repair	3
AUTO 150	Auto Steering & Suspension	3
AUTO 160	Auto Heat & Air Conditioning	3
AUTO 285	Automotive Internship (See Note 1)	6

**LIMITED CHOICE REQUIREMENTS** TOTAL: 16–17 CREDITS  
Complete the indicated number of credits from each CHOICE listed below:

<b>CHOICE 1: General Education Core Areas</b>	<b>12 Credits</b>
<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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	
<b>CHOICE 2: Automotive Related</b>	<b>4–5 Credits</b>
AUTO 188 Auto Body Repair and Painting	4
AUTO 215 Engine Performance/Tune-Up	5
AUTO 225 Automotive Computers	5
<b>MINIMUM TOTAL</b>	<b>70</b>

**NOTE**

- Students must obtain department approval from the Technology Careers Department prior to registering for these 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
AUTO 100	AUTO 110	AUTO 144	AUTO 147
AUTO 141	AUTO 142	AUTO 146	AUTO 148
AUTO 143	Lim.Ch.	AUTO 160	AUTO 150
AUTO 145	Lim.Ch.	Lim.Ch.	AUTO 285
		Lim.Ch.	Lim.Ch.

**AUTO BODY REPAIR  
CERTIFICATE OF ACHIEVEMENT**

**Curriculum Code: 0166 (Effective Fall 2000–Summer 2005)**

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: 35 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 141	Non-Structural Repair (See Note 1)	3
AUTO 142	Advanced Non-Structural Repair	5
AUTO 143	Auto Body Welding and Cutting (See Note 1)	5
AUTO 144	Auto Body Structural Repair	5
AUTO 145	Introduction to Refinishing (See Note 1)	5
AUTO 146	Advanced Refinishing	5
MATH 050	Math-Principles and Practices	4
<b>MINIMUM TOTAL</b>		<b>35</b>

**NOTE**

- Students must obtain department approval from the Technology Careers Department prior to registering for these 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
AUTO 100	AUTO 142
AUTO 141	AUTO 144
AUTO 143	AUTO 146
AUTO 145	MATH 050

**AUTO STEER/SUSPENSION/BRAKES  
CERTIFICATE OF COMPLETION**

**Curriculum Code: 0851 (Effective Fall 2000–Summer 2005)**

This certificate program is intended for individuals who are currently employed in the automotive repair industry. Students are prepared 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 *Class 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 140	Automotive Brakes	3
AUTO 150	Auto Steering & Suspension	3
AUTO 230	Anti-Lock Braking Systems	3
<b>MINIMUM TOTAL</b>		<b>12</b>

**TOTAL: 12 CREDITS**

**NOTE**

1. Prerequisites to courses may be waived based on experience. See a program advisor prior to registration 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
AUTO 100	AUTO 230
AUTO 140	
AUTO 150	

**AUTOMOTIVE DRIVE LINES  
CERTIFICATE OF COMPLETION**

**Curriculum Code: 0856 (Effective Fall 2000–Summer 2005)**

This certificate program is intended for individuals who are currently employed in the automotive repair industry. Students are prepared 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 *Class 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 120	Auto Drive Train	3
AUTO 121	Automatic Transmissions I	5
AUTO 122	Automatic Transmissions II	3
AUTO 130	Automotive Engines	3
<b>MINIMUM TOTAL</b>		<b>17</b>

**TOTAL: 17 CREDITS**

**NOTE**

1. Prerequisites to courses may be waived based on experience. See a program advisor prior to registration 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.

AUTO 100
AUTO 120
AUTO 121
AUTO 122
AUTO 130

**AUTOMOTIVE TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0238 (Effective Fall 2000–Summer 2005)

This program prepares individuals to work in the automotive field as technicians. 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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 47 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 110	Auto Electrical Theory	5
AUTO 120	Auto Drive Train	3
AUTO 121	Automatic Transmissions I	5
AUTO 122	Automatic Transmissions II	3
AUTO 130	Automotive Engines	3
AUTO 140	Automotive Brakes	3
AUTO 150	Auto Steering & Suspension	3
AUTO 160	Auto Heat & Air Conditioning	3
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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Automotive Related** 9 Credits

AUTO 133	Small Engine Repair	3
AUTO 141	Non-Structural Repair	3
AUTO 145	Introduction to Refinishing	5
AUTO 251	Advanced Computer Diagnosis	2
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** 65

**NOTE**

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.	Lim.Ch.	

**AUTOMOTIVE TECHNOLOGY  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0140 (Effective Fall 2000–Summer 2005)

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: 40 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 110	Auto Electrical Theory	5
AUTO 130	Automotive Engines	3
AUTO 140	Automotive Brakes	3
AUTO 150	Auto Steering & Suspension	3
AUTO 160	Auto Heat & Air Conditioning	3
AUTO 215	Engine Performance/Tune-Up	5
AUTO 225	Automotive Computers	5
AUTO 280	Automotive Service Laboratory	6
MATH 050	Math-Principles and Practices	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
AUTO 100	AUTO 140	AUTO 225
AUTO 110	AUTO 150	AUTO 280
AUTO 130	AUTO 160	
MATH 050	AUTO 215	

**ENGINE PERFORMANCE/DIAGNOSIS  
CERTIFICATE OF COMPLETION**

**Curriculum Code: 0848 (Effective Fall 2000–Summer 2005)**

This certificate program is intended for individuals who are currently employed in the automotive repair industry. Students are prepared 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 *Class 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 136, telephone number (517) 483-1336.

<b>REQUIREMENTS</b>		<b>TOTAL: 20 CREDITS</b>
<b>CODE</b>	<b>TITLE</b>	<b>CREDIT HOURS</b>
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
<b>MINIMUM TOTAL</b>		<b>20</b>

**NOTE**

1. Prerequisites to courses may be waived based on experience. See a program advisor prior to registration 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.

<b>I</b>	<b>II</b>
AUTO 100	AUTO 225
AUTO 110	AUTO 251
AUTO 215	



**AIRFRAME MAINTENANCE TECH  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

**Curriculum Code: 0757 (Effective Fall 2000–Summer 2005)**

Airframe maintenance technicians maintain aircraft in accordance with Federal Aviation Regulations. Airframe technicians perform a wide variety of repairs and alterations to sheet metal and composite aircraft structures. In addition, they inspect and repair or replace complex aircraft components associated with hydraulic/pneumatic, communication/navigation, fuel and flight control 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, students may need to complete specific course work 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**

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 Cert Proceed	1
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

**TOTAL: 54 CREDITS**

**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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**MINIMUM TOTAL 66**

**NOTE**

- 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	

**AVIATION FLIGHT TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0259 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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: 41 CREDITS**

CODE	TITLE	CREDIT HOURS
AVAF 134	Aircraft Instruments	2
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 211	Instrument Pilot Ground School	4
AVGS 221	Commercial Pilot Ground School	4
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

Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)

**CHOICE 2: Advanced Flight Training 10 Credits**

AVFT 205	CFI Flight Training	3.5
AVFT 206	Flight Inst Instrument Flight	2.5
AVFT 207	Multi-Engine Flight Training	1.5
AVFT 208	Multi-Engine Instructor Flight	.75
AVFT 224	Tail Wheel Transition	1
AVGS 222	Flight Instruct Ground School	4
AVST 215	Multi-Engine Flight Simulator	1

**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 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	AVAF 134	AVFT 204
AVGS 101	AVGS 211	AVFT 203	AVST 214
AVST 211	AVST 212	AVGS 221	Lim.Ch.
		AVST 213	Lim.Ch.
V	VI		
Lim.Ch.	Lim.Ch.		
Lim.Ch.	Lim.Ch.		
Lim.Ch.	Lim.Ch.		

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**AVIONICS  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0260 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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: 66 CREDITS**

CODE	TITLE	CREDIT HOURS
AVAF 130	Avionics Airframe Applications	3
AVEL 150	Avionics Installat/Generat	2
AVEL 151	Avionics Installat/Generat 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/Regulations	1
AVEL 226	FAA Rules/Regs Avionics Techs	1
AVEL 230	Avionics Systems II	3
AVEL 231	Avionics Systems II Lab	2
AVIR 140	Avionics Instruments I	1
CISB 200	Info Sys Tech/Problem Solving	3
ELCT 101	Analog Problems	5
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 112	Transistors	6
ELCT 120	Programming Preparation	2
ELCT 131	Digital Basics	3
ELCT 211	Linear Circuits I	3
ELCT 212	Linear Circuits II	3
ELCT 231	Advanced Digital Electronics	4
SPCH 110	Oral Communic 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	
<b>MINIMUM TOTAL</b>	<b>69</b>

**NOTE**

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
AVAF 130	AVEL 150	AVEL 190	AVEL 220
AVIR 140	AVEL 151	AVEL 191	AVEL 221
ELCT 101	CISB 200	AVEL 200	ELCT 211
ELCT 109	ELCT 112	AVEL 201	ELCT 231
ELCT 110	ELCT 120		Lim.Ch.
SPCH 110	ELCT 131		

**V**

AVEL 225
AVEL 226
AVEL 230
AVEL 231
ELCT 212
WRIT 124

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**AVIONICS INSTALLATION  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0847 (Effective Fall 2000–Summer 2005)

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 *Class 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: 27 CREDITS**

CODE	TITLE	CREDIT HOURS
AVAF 130	Avionics Airframe Applications	3
AVEL 150	Avionics Installat/Generat	2
AVEL 151	Avionics Installat/Generat Lab	1
AVEL 200	Flight Line Testing	2
AVEL 201	Flight Line Testing Lab	1
AVGM 113	Aviation General III	4
AVIR 140	Avionics Instruments I	1
ELCT 101	Analog Problems	5
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 29**

**NOTE**

- 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	AVGM 113	Lim.Ch.
ELCT 109	ELCT 120	
ELCT 110		

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**POWERPLANT MAINTENANCE TECH  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

**Curriculum Code: 0745 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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 System	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 Cert Proc	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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**MINIMUM TOTAL 71**

**NOTE**

- 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: 0211 (Effective Fall 2000–Summer 2005)**

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 grounds-keeping. 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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 59 CREDITS
CODE	TITLE	CREDIT HOURS
BLDR 101	Basic Woodworking	2
BLDR 132	General Home Maintenance	2
BLDT 121	Residential Framing	4
BLDT 126	Interior Carpentry	4
ELTE 100	Electrical Safety Practices	1
ELTE 112	Basic Wiring Installation	2
HORT 105	Pest/Problem Ornamental Plants	2
HVAC 100	Fundamentals of HVAC	3
HVAC 105	Sheet Metal Fabrication/Instal	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 211	Schematics	3
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
LAND 133	Home 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 <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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	
<b>MINIMUM TOTAL</b>	<b>71</b>

**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	ELTE 112	BLDR 132	BLDT 126
ELTE 100	HVAC 111	BLDT 121	HVAC 221
HVAC 100	HVAC 120	HORT 105	HVAC 230
HVAC 105	HVAC 130	HVAC 220	HVAC 240
HVAC 110	HVAC 211	Lim.Ch.	LAND 133
Lim.Ch.	Lim.Ch.	Lim.Ch.	

V  
HVAC 241

**BUILDING MAINTENANCE  
CERTIFICATE OF ACHIEVEMENT**

**Curriculum Code: 0237 (Effective Fall 2000–Summer 2005)**

This program consists of practical hands-on courses that provide students with the necessary technical knowledge and skills needed for entry-level positions in the maintenance of residential and commercial buildings.

REQUIREMENTS		TOTAL: 37 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 HVAC	3
HVAC 105	Sheet Metal Fabrication/Instal	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 211	Schematics	3
HVAC 220	Heating II	4
HVAC 221	Introduction to Hydronics	3
LAND 133	Home 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	4
BLDT 126	Interior Carpentry	4
HVAC 230	Air Conditioning II	4
HVAC 240	Refrigeration I	4

**MINIMUM TOTAL** **41**

**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	BLDR 101	BLDR 132
HVAC 100	HVAC 111	HVAC 105	HVAC 130
HVAC 110	HVAC 120	HVAC 220	HVAC 221
LAND 133	HVAC 211	Lim.Ch.	

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**BUSINESS ADMINISTRATION  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0243 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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	Info Sys Tech/Problem Solving	3
ECON 201	Principles of Economics-Micro	3
LEGL 215	Busn 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	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Writing	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
Mathematics Competency	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 (See Note 5)** **6 Credits**

ACCG 211	Principles of Accounting II	4
BUSN 251	Stock Market Essentials	3
ECON 202	Principles of Economics-Macro	3
ECON 213	U.S. Economic/Business History	3
LABR 200	Intro to Labor Relations	3
LABR 204	Employment Law for Managers	3
LEGL 216	Busn Law II, Commercial Law	3
LEGL 217	Busn Law III, Busn Organiza	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 279). 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.
5. Students should confer with a Business Careers program advisor to assure that selection of Limited Choice courses will best fit their career plans.

**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.

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**INTERNATIONAL BUSINESS  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0240 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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
ACCG 210	Principles of Accounting I	4
BUSN 118	Introduction to Business	3
BUSN 201	International Business	3
CISB 100	Intro Computer Info Systems	3
CISB 200	Info Sys Tech/Problem Solving	3
ECON 201	Principles of Economics-Micro	3
ECON 202	Principles of Economics-Macro	3
MGMT 234	Diversity in the Workplace	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 26 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	3
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	0

**CHOICE 2: Foreign Language (Choose one subchoice) 8 Credits**

**Subchoice 2A**

FREN 121	Elementary French I	4
FREN 122	Elementary French II	4

**Subchoice 2B**

GRMN 121	Elementary German I	4
GRMN 122	Elementary German II	4

**Subchoice 2C**

JAPN 121	Elementary Japanese I	4
JAPN 122	Elementary Japanese II	4

**Subchoice 2D**

SPAN 121	Elementary Spanish I	4
SPAN 122	Elementary Spanish II	4

CHOICE 3: International/Business Related (See Note 2)	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	Busn Law I, Basic Principles	3
MGMT 225	Principles of Management	3
MGMT 231	Team Development	3
MGMT 237	Managing/Continual Improvement	3
MGMT 280	Management Internship	3
MKTG 210	Marketing on the Internet	2
MKTG 235	Marketing Internship	3
POLS 270	International Relations	3

**MINIMUM TOTAL**

**60**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students should confer with a Business Careers program advisor to assure that selection of Limited Choice courses will best fit their career plans.

**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.3
Lim.Ch.3	MKTG 200	Lim.Ch.2	Lim.Ch.3
	Lim.Ch.3		



**CIVIL TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0178 (Effective Fall 2000–Summer 2005)

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, 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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 60 CREDITS
CODE	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 Tech	5
CIVL 200	Civil Mathematics	5
CIVL 241	Statics/Strength of Materials	5
GRET 203	Beginning MicroStation	3
MATH 114	Technical Math I	4
MATH 115	Technical Math II	4
PHYS 200	Applied Physics	4
SOCL 120	Introduction to Sociology	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	6 Credits
(See the <i>GENERAL EDUCATION</i> 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
Mathematics Competency (See Note 1)	
<b>MINIMUM TOTAL</b>	<b>66</b>

**NOTES**

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students who are interested in practical field experience may apply for the Student Civil Technician Co-op Program. Contact the Technology Careers Co-op Coordinator at 483-1383.

**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	GRET 203	CIVL 132
MATH 114	CIVL 124	MATH 115	CIVL 136
SPCH 120	CIVL 131	PHYS 200	CIVL 241
Lim.Ch.	CIVL 135	SOCL 120	
Lim.Ch.	CIVL 200		

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**CAD/CAM TECHNICIAN  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0892 (Effective Fall 2000–Summer 2005)

This curriculum is intended for students planning to pursue a career in mechanical computer-aided design and manufacturing (CAD/CAM). Graduates often seek employment with companies who expect their CAD operators to also be computer numerically controlled (CNC) machine tool path programmers as well as designers. The increase in the level of sophistication of computer-aided design systems has necessitated that the designer assist in the creation of the tool path or support machinists engaged in this task. Responsibilities include graphically representing engineering math data and generating the necessary instruction for computer controlled lathes, mills, and automated machine tools, both manually and electronically. CAD/CAM technicians are employed by manufacturing companies, machine shops, and die design and construction shops in many areas of the automotive, aerospace, and special machinery manufacturing market. **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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

**TOTAL: 44 CREDITS**

CODE	TITLE	CREDIT HOURS
CNCP 110	Foundations of CNC Programming	4
CNCP 130	Machine Controls and Setup	4
CNCP 210	Mastercam	4
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
MACH 105	Machine Tool Survey	3
MACH 110	Machine Tool Technology I	4
MACH 111	Machine Tool Technology II	4
MATH 141	Calculus with Applications	3

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 28 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Physics 4 Credits**

PHYS 200	Applied Physics	4
PHYS 201	Introductory Physics I	4

**CHOICE 3: Computer Graphics (Choose one subchoice. See Note 1) 12 Credits**

**Subchoice 3A**

DTDS 131	AutoCAD Basic 2-D	4
DTDS 132	AutoCAD Advanced 3-D	4
DTDS 233	AutoCAD Mechanical Desktop	4

**Subchoice 3B**

DTDS 180	Unigraphics I	4
DTDS 181	Unigraphics II	4
DTDS 182	Unigraphics III	4

**MINIMUM TOTAL**

**72**

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**NOTES**

1. The Computer Graphics series (Choice 3, 12 credits) may be replaced by another approved computer graphics software package available through the Drafting and Design Program. See a Drafting and Design program advisor for more information.
2. Some prerequisites to courses may be waived based on experience. See an 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 110	CNCP 130
MACH 100	DTDS 103	DTDS 104	CNCP 210
MACH 105	MACH 110	MACH 111	Lim.Ch.1
MATH 141	Lim.Ch.2	Lim.Ch.1	Lim.Ch.1
Lim.Ch.1	Lim.Ch.3	Lim.Ch.3	Lim.Ch.3

**COMPUTER-AIDED DRAFTING/DESIGN  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0165 (Effective Fall 2000-Summer 2005)

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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS	TOTAL: 41 CREDITS
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 <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
Mathematics Competency (See Note 1)		

**CHOICE 2: Computer Graphics (Choose one subchoice. See Note 2) 12 Credits**

Subchoice 2A		
DTDS 131	AutoCAD Basic 2-D	4
DTDS 132	AutoCAD Advanced 3-D	4
DTDS 233	AutoCAD Mechanical Desktop	4
Subchoice 2B		
DTDS 180	Unigraphics I	4
DTDS 181	Unigraphics II	4
DTDS 182	Unigraphics III	4

**MINIMUM TOTAL 65**

**NOTES**

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- 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 program 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.1	Lim.Ch.1
MATH 114	Lim.Ch.1	Lim.Ch.1	Lim.Ch.2
	Lim.Ch.2	Lim.Ch.2	

**COMPUTER-AIDED DRAFTING/DESIGN  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0145 (Effective Fall 2000-Summer 2005)

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 (Choose one subchoice. See Note 1) 12 Credits**

Subchoice 1A		
DTDS 131	AutoCAD Basic 2-D	4
DTDS 132	AutoCAD Advanced 3-D	4
DTDS 233	AutoCAD Mechanical Desktop	4
Subchoice 1B		
DTDS 180	Unigraphics I	4
DTDS 181	Unigraphics II	4
DTDS 182	Unigraphics III	4

**MINIMUM TOTAL 34**

**NOTE**

- 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 program 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
DTDS 101	DTDS 102	Lim.Ch.
MACH 100	DTDS 103	
MATH 114	DTDS 104	
Lim.Ch.	Lim.Ch.	

**COMPUTER NETWORK/COMMUNICATION  
ASSOCIATE IN BUSINESS DEGREE****Curriculum Code: 0791 (Effective Fall 2000–Summer 2005)**

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 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, students may need to complete specific course work 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: 40 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 195	Microsoft Windows	2
CISB 100	Intro Computer Info Systems	3
CISB 102	Internet Literacy	3
CISB 119	Intro Window Prog Visual BASIC	4
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 200	Info Sys Tech/Problem Solving	3
CISB 204	Commercial Internet Site Mgmt	3
CISB 230	Intro 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 Pages for the Web	3

LIMITED CHOICE REQUIREMENTS		TOTAL: 20 CREDITS
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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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Computer Specialty Area (See Note 2)	11 Credits	
CABS 110	Microsoft Office	3
CABS 210	Advanced Microsoft Office	3
CISB 122	Adv Windows Prog Visual BASIC	3
CISB 136	SQL: Structured Query Language	2
CISB 141	Powerbuilder	3
CISB 143	ORACLE Database for Business	3
CISB 151	Using Lotus Notes	2
CISB 180	C Programming Busn App	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	Intro to JAVA Programming	3

<b>MINIMUM TOTAL</b>	<b>60</b>
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**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.
3. For graduation from this program, a student must have earned a minimum 2.0 grade in each course with a CABS or 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	CISB 130	CISB 200	CISB 231
CISB 100	CISB 133	CISB 204	CISB 233
CISB 102	Lim.Ch.1	CISB 230	CISB 253
CISB 119	Lim.Ch.2	Lim.Ch.1	CISB 258
Lim.Ch.2		Lim.Ch.2	Lim.Ch.1 Lim.Ch.2

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**COMPUTER REPAIR TECHNICIAN  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0168 (Effective Fall 2000–Summer 2005)

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 Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS
ELCT 100	Schematic Drawing	1
ELCT 151	Computer Troubleshooting	3
ELCT 160	Logic Problems Analysis	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

**TOTAL: 25 CREDITS**

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 6–7 CREDITS**

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

CHOICE 1: Software	Credits
CABS 195 Microsoft Windows	2
CISB 107 DOS Management	1
CISB 130 Data Communications	3
CISB 133 Operating Systems	3
CISB 230 Intro to Local Area Networks	3
ELCT 120 Programming Preparation	2

CHOICE 2: Communication	Credits
SPCH 110 Oral Communic 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.	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**COMPUTER SECURITY AND CONTROLS  
ASSOCIATE IN BUSINESS DEGREE**

**Curriculum Code: 0253 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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: 50 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	Intro Computer Info Systems	3
CISB 114	Programming Logic	3
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 136	SQL: Structured Query Language	2
CISB 170	COBOL I	4
CISB 230	Intro to Local Area Networks	3
CISB 250	Database Concepts	3
CISB 260	Systems Analysis and Design	4
CISB 270	COBOL II	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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**MINIMUM TOTAL 62**

**NOTE**

- 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 250
CISB 114	CISB 170	CISB 230	Lim.Ch.
CISB 136	CISB 260	CISB 270	Lim.Ch.
Lim.Ch.		Lim.Ch.	
V			
ACCG 290			

**ELECTRONICS, COMPUTER TECH  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0743 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

**TOTAL: 59 CREDITS**

CODE	TITLE	CREDIT HOURS
CABS 133	Microsoft Access Database	2
CABS 195	Microsoft Windows	2
CISB 107	DOS Management	1
CISB 114	Programming Logic	3
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 200	Info Sys Tech/Problem Solving	3
CISB 230	Intro 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	3
ELCT 160	Logic Problems Analysis	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 Communic in the Workplace	3
WRIT 124	Technical Writing	3

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 7 CREDITS**

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

<b>CHOICE 1: General Education Core Areas</b>	<b>3 Credits</b>
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 1)</i>	0
Speech Communication Core Area <i>(See Note 1)</i>	0
Science/Technology Core Area <i>(See Note 1)</i>	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 23 for information on how to fulfill this requirement. Course work may be needed.)</i>	
<b>CHOICE 2: Word Processing</b>	<b>2 Credits</b>
CABS 119 Word for Windows	2
CABS 121 WordPerfect for Windows	2

<b>CHOICE 3: Spreadsheet</b>	<b>2 Credits</b>
CABS 126 Excel	2
CABS 128 Lotus 1-2-3 for Windows	2

**MINIMUM TOTAL 66**

**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 Microcomp 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 114	CABS 195	CABS 133
ELCT 120	CISB 130	CISB 107	CISB 133
ELCT 160	ELCT 151	CISB 200	CISB 231
ELCT 161	ELCT 171	CISB 230	CISB 236
ELCT 170	ELCT 181	WRIT 124	Lim.Ch.
ELCT 180		Lim.Ch.	
SPCH 110		Lim.Ch.	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**INTERNET FOR BUSINESS  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0794 (Effective Fall 2000–Summer 2005)

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: 25 CREDITS**

CODE	TITLE	CREDIT HOURS
CABS 195	Microsoft Windows	2
CISB 100	Intro Computer Info Systems	3
CISB 102	Internet Literacy	3
CISB 119	Intro Window Prog Visual BASIC	4
CISB 130	Data Communications	3
CISB 204	Commercial Internet Site Mgmt	3
CISB 258	Developing Pages for the Web	3
WRIT 121	Composition I	4

**LIMITED CHOICE REQUIREMENTS****TOTAL: 6–7 CREDITS**

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

<b>CHOICE 1: Programming</b>	<b>3–4 Credits</b>
CISB 253 WWW Interactive Programming	4
CISB 283 Intro to JAVA Programming	3

<b>CHOICE 2: Speech Communication</b>	<b>3 Credits</b>
SPCH 110 Oral Communic in the Workplace	3
SPCH 120 Dynamics of Communication	3

**MINIMUM TOTAL 31****NOTE**

- For graduation from this program, a student must have earned a minimum 2.0 grade in each course 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 258	WRIT 121
CISB 102	Lim.Ch.	Lim.Ch.
CISB 119		

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.



**MICROCOMP DATABASE SPECIALIST ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0922 (Effective Fall 2000–Summer 2005)

As the Information Age matures, decisions at all levels of an organization are based upon relevant information. Organizations seek specialists who can plan for and accomplish the acquisition and retrieval of needed information. These specialists must be able to determine information requirements of users; use technology systems and processes to devise means through which to gather and sort needed information; and implement effective solutions for reporting necessary information using industry-standard database tools. Even in large organizations, these solutions frequently involve the use of microcomputers to create the required input screens or output reports. Data for these systems can come from a networked and/or stand-alone environment. **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, students may need to complete specific course work 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: 40 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 133	Microsoft Access Database	2
CABS 232	Advanced Microsoft Access	2
CISB 100	Intro Computer Info Systems	3
CISB 114	Programming Logic	3
CISB 119	Intro Window Prog Visual BASIC	4
CISB 122	Adv Windows Prog Visual BASIC	3
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 136	SQL: Structured Query Language	2
CISB 143	ORACLE Database for Business	2
CISB 200	Info Sys Tech/Problem Solving	3
CISB 230	Intro to Local Area Networks	3
CISB 250	Database Concepts	3
CISB 260	Systems Analysis and Design	4

**LIMITED CHOICE REQUIREMENTS TOTAL: 20–21 CREDITS**  
Complete the indicated number of credits from each CHOICE listed below.

CHOICE	REQUIREMENTS	CREDITS
<b>CHOICE 1: General Education Core Areas</b> (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
	Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	
<b>CHOICE 2: Computer Speciality Area</b> (See Note 3)	CABS 195 Microsoft Windows	2
	CABS 234 Programming Microsoft Access	2
	CISB 102 Internet Literacy	3
	CISB 204 Commercial Internet Site Mgmt	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 Pages for the Web	3

CHOICE 3: Computer Related	CREDITS
CISB 245 Programming Internship	3
CISB 247 Microcomputer Project	2
<b>MINIMUM TOTAL</b>	<b>60</b>

**NOTES**

- Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
- For graduation, a student must have earned a minimum 2.0 grade in all courses.
- 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 133	CABS 232	CISB 119	CISB 122
CISB 100	CISB 130	CISB 200	CISB 260
CISB 114	CISB 133	CISB 230	Lim.Ch.1
CISB 136	CISB 143	CISB 250	Lim.Ch.2
Lim.Ch.1	Lim.Ch.2	Lim.Ch.1	Lim.Ch.3
Lim.Ch.2			

**MICROCOMP DATABASE SPECIALIST CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0917 (Effective Fall 2000–Summer 2005)

Certificate holders may qualify for entry level/hands-on positions in this or a related area. Additional training will enhance individual employment and advancement opportunities.

REQUIREMENTS		TOTAL: 30 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 133	Microsoft Access Database	2
CABS 195	Microsoft Windows	2
CABS 232	Advanced Microsoft Access	2
CABS 234	Programming Microsoft Access	2
CISB 100	Intro Computer Info Systems	3
CISB 114	Programming Logic	3
CISB 130	Data Communications	3
CISB 136	SQL: Structured Query Language	2
CISB 143	ORACLE Database for Business	2
CISB 200	Info Sys Tech/Problem Solving	3
CISB 230	Intro to Local Area Networks	3
CISB 250	Database Concepts	3
<b>MINIMUM TOTAL</b>		<b>30</b>

**NOTE**

- For graduation, a student must have earned a minimum 2.0 grade in all 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
CABS 133	CABS 232
CABS 195	CABS 234
CISB 100	CISB 143
CISB 114	CISB 200
CISB 130	CISB 230
CISB 136	CISB 250

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MICROCOMP SUPPORT SPECIALIST  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0713 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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: 38 CREDITS**

CODE	TITLE	CREDIT HOURS
CABS 133	Microsoft Access Database	2
CABS 182	Microsoft PowerPoint/Windows	2
CABS 195	Microsoft Windows	2
CABS 232	Advanced Microsoft Access	2
CABS 234	Programming Microsoft Access	2
CISB 100	Intro Computer Info Systems	3
CISB 102	Internet Literacy	3
CISB 119	Intro Window Prog Visual BASIC	4
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 200	Info Sys Tech/Problem Solving	3
CISB 230	Intro to Local Area Networks	3
CISB 235	Microcomputer Hardware Support	3
CISB 236	Microcomputer Software Support	3

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 22–26 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Word Processing 4–5 Credits**

CABS 119	Word for Windows	2
CABS 121	WordPerfect for Windows	2
CABS 180	Desktop Publishing Pagemaker	3
CABS 219	Advanced Microsoft Word	2

**CHOICE 3: Spreadsheets 4 Credits**

CABS 126	Excel	2
CABS 128	Lotus 1-2-3 for Windows	2
CABS 129	Excel-Advanced	2

**CHOICE 4: Computer Related (See Note 2) 2–4 Credits**

CISB 231	Advanced Local Area Networks	3
CISB 247	Microcomputer Project	2
CISB 250	Database Concepts	3
CISB 258	Developing Pages for the Web	3
CISB 260	Systems Analysis and Design	4

<b>CHOICE 5: Accounting</b>		<b>3–4 Credits</b>
ACCG 100	Practical Accounting Non-Major	3
ACCG 210	Principles of Accounting I	4

**MINIMUM TOTAL**

**60**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students may also select from any course with a CABS or CISB prefix not already used to meet degree requirements.
3. For graduation, a student must have earned a minimum 2.0 grade in each course 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 182	CABS 133	CABS 232	CISB 230
CABS 195	CISB 102	CABS 234	CISB 235
CISB 100	CISB 119	CISB 130	CISB 236
Lim.Ch.	Lim.Ch.	CISB 133	Lim.Ch.
Lim.Ch.	Lim.Ch.	CISB 200	Lim.Ch.
	Lim.Ch.	Lim.Ch.	Lim.Ch.

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**PROGRAMMER/ANALYST  
ASSOCIATE IN BUSINESS DEGREE**
**Curriculum Code: 0113 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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: 33 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
CISB 100	Intro Computer Info Systems	3
CISB 114	Programming Logic	3
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 170	COBOL I	4
CISB 200	Info Sys Tech/Problem Solving	3
CISB 250	Database Concepts	3
CISB 260	Systems Analysis and Design	4
CISB 270	COBOL II	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 27 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Additional Language (Choose one subchoice) 7 Credits**

Subchoice 2A		
CISB 119	Intro Window Prog Visual BASIC	4
CISB 122	Adv Windows Prog Visual BASIC	3
Subchoice 2B		
CISB 180	Intro to C/C++ Program for Bus	3
CISB 280	Adv C/C++ Program with OOP	4

**CHOICE 3: Computer Related (See Note 2) 11 Credits**

CABS 110	Microsoft Office	3
CABS 195	Microsoft Windows	2
CISB 102	Internet Literacy	3
CISB 136	SQL: Structured Query Language	2
CISB 141	Powerbuilder	3
CISB 143	ORACLE Database for Business	2
CISB 230	Intro to Local Area Networks	3
CISB 245	Programming Internship	3
CISB 253	WWW Interactive Programming	4
CISB 283	Intro 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 in each course with a CABS or 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 270
CISB 100	CISB 133	CISB 200	Lim.Ch.1
CISB 114	CISB 250	CISB 260	Lim.Ch.3
Lim.Ch.1	Lim.Ch.1	Lim.Ch.2	Lim.Ch.3
	Lim.Ch.2	Lim.Ch.3	Lim.Ch.3

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**ADV PC APPLICATION SPECIALIST  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0765 (Effective Fall 2000–Summer 2005)

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 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 195	Microsoft Windows	2
CABS 219	Advanced Microsoft Word	2
CABS 232	Advanced Microsoft Access	2
CABS 234	Programming Microsoft Access	2
<b>MINIMUM TOTAL</b>		<b>18</b>

**NOTE**

1. A minimum of 2.0 grade is each course with a CABS or CISB prefix is required.

**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 119	CABS 129
CABS 126	CABS 182
CABS 133	CABS 219
CABS 195	CABS 232
	CABS 234

**PC USER SUPPORT SPECIALIST  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0766 (Effective Fall 2000–Summer 2005)

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	Info Sys Tech/Problem Solving	3
CISB 230	Intro to Local Area Networks	3

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

CISB 231	Advanced Local Area Networks	3
CISB 235	Microcomputer Hardware Support	3
CISB 236	Microcomputer Software Support	3

**MINIMUM TOTAL**

17

**NOTE**

1. A minimum 2.0 grade in each course with a CABS or CISB prefix is required.

**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

**WINDOWS PROGRAMMING SPECIALIST  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0763 (Effective Fall 2000–Summer 2005)

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	Intro Window Prog Visual BASIC	4
CISB 122	Adv Windows Prog 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	3-4 Credits
CISB 253	WWW Interactive Programming	4
CISB 258	Developing Pages for the Web	3
CISB 283	Intro to JAVA Programming	3

**MINIMUM TOTAL**

15

**NOTE**

1. A minimum 2.0 grade in each course with a CABS or CISB prefix is required.

**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: 0167 (Effective Fall 2000–Summer 2005)

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 journeyman 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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

**TOTAL: 46 CREDITS**

CODE	TITLE	CREDIT HOURS
ARCH 271	Structural Theory	4
ARCH 278	Energy Efficient Design	4
BLDT 100	Introduction to Construction	3
BLDT 103	Structural Blueprint Reading	4
BLDT 121	Residential Framing	4
BLDT 124	Remodeling, Shingling/Siding	4
BLDT 126	Interior Carpentry	4
BLDT 262	Builder's Business License	4
BLDT 277	Construction Cost Estimating	4
BLDT 281	International Code	3
MATH 114	Technical Math I	4
MATH 115	Technical Math II	4

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 18 CREDITS**

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

<b>CHOICE 1: General Education Core Areas</b>	<b>12 Credits</b>
<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
Mathematics Competency (See Note 1)	
<b>CHOICE 2: Building/Business Related</b>	<b>6 Credits</b>
ACCG 100 Practical Accounting Non-Major	3
ARCH 283 Materials of Construction	4
BLDR 101 Basic Woodworking	2
BLDT 285 Residential Building Intern	2
BUSN 118 Introduction to Business	3
CIVL 120 Surveying	4
<b>MINIMUM TOTAL</b>	<b>64</b>

**NOTE**

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
BLDT 100	ARCH 278	BLDT 126	ARCH 271
BLDT 103	BLDT 124	BLDT 277	BLDT 262
BLDT 121	MATH 115	Lim.Ch.	BLDT 281
MATH 114	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.		

**RESIDENTIAL BUILDING  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0135 (Effective Fall 2000–Summer 2005)

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
BLDT 100	Introduction to Construction	3
BLDT 103	Structural Blueprint Reading	4
BLDT 121	Residential Framing	4
BLDT 124	Remodeling, Shingling/Siding	4
BLDT 126	Interior Carpentry	4
BLDT 277	Construction Cost Estimating	4
BLDT 281	International Code	3
MATH 050	Math-Principles and Practices	4
<b>MINIMUM TOTAL</b>		<b>30</b>

**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
BLDT 100	BLDT 103
BLDT 121	BLDT 124
BLDT 126	BLDT 277
MATH 050	BLDT 281

**COURT REPORTING  
ASSOCIATE IN BUSINESS DEGREE**

**Curriculum Code: 0273 (Effective Fall 2000–Summer 2005)**

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 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, students may need to complete specific course work 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 2000-2001 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Room 2200 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 2200, telephone number (517) 483-1254.

**REQUIREMENTS**

**TOTAL: 45 CREDITS**

CODE	TITLE	CREDIT HOURS
CTRT 100	Machine Shorthand Theory I	6
CTRT 110	Machine Shorthand Theory II	6
CTRT 120	Summer Skill Building I	3
CTRT 200	Court Reporting I	6
CTRT 210	Court Reporting II	6
CTRT 220	Summer Skill Building II	3
CTRT 230	Advanced Skill Building	4
CTRT 235	English for Court Reporters	1
CTRT 240	CAT-Comp-Aided Transcription	2
CTRT 245	Realtime Reporting	1
CTRT 250	Medical Vocab/Court Report I	1
CTRT 255	Medical Vocab/Court Report II	1
CTRT 260	Legal Vocab/Court Reporters	1
CTRT 265	Captioning	1
CTRT 270	Court Reporting Procedures	2
CTRT 275	Internship (See Note 1)	1

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 15 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Professional Related Courses 3 Credits**

CJUS 103	Criminal Law	3
LEGL 215	Busn Law I, Basic Principles	3

**MINIMUM TOTAL 60**

**NOTES**

- CTRT 275 requires 100 verified hours of actual writing fieldwork.
- Students must begin Court and Conference Reporting courses in the fall or spring. A deposit of \$75.00 for a steno machine and \$25.00 for a stand is required for students admitted into the program. Students are responsible for obtaining their own equipment upon completion of the program.
- A final grade of 3.0 or higher in all CTRT courses is required for graduation.
- Students must attain the following minimum speeds with 95-97% accuracy for graduation: three timings at 230 wpm O&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 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.

**Fall Admitted Students**

I (FALL)	II (SPRING)	III (SUMMER)	IV (FALL)
CTRT 100	CTRT 110	CTRT 120	CTRT 200
Lim.Ch.1	CTRT 260	Lim.Ch.1	CTRT 235
Lim.Ch.2	Lim.Ch.1		CTRT 250
			Lim.Ch.1

**V (SPRING)**

V (SPRING)	VI (SUMMER)	VII (FALL)
CTRT 210	CTRT 220	CTRT 230
CTRT 245		CTRT 240
CTRT 255		CTRT 270
CTRT 265		CTRT 275

**Spring Admitted Students**

I (SPRING)	II (SUMMER)	III (FALL)	IV (SPRING)
CTRT 100	CTRT 120	CTRT 110	CTRT 200
Lim.Ch.1	Lim.Ch.1	CTRT 235	CTRT 250
Lim.Ch.2		CTRT 260	Lim.Ch.1
		Lim.Ch.1	

**V (SUMMER)**

V (SUMMER)	VI (FALL)	VII (SPRING)
CTRT 220	CTRT 210	CTRT 230
	CTRT 240	CTRT 245
	CTRT 255	CTRT 265
	CTRT 270	CTRT 275

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**CREDIT UNION MANAGEMENT  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0103 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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: 40 CREDITS
ACCG 210	Principles of Accounting I	4	
BUSN 118	Introduction to Business	3	
CISB 200	Info Sys Tech/Problem Solving	3	
CUAI 102	Credit Union Accounting	3	
CUMA 100	Intro Credit Union Operations	3	
CUMA 200	Credit and Collections	3	
CUMA 215	Business Law for Credit Unions	3	
MGMT 224	Human Resources Management	3	
MGMT 225	Principles of Management	3	
MGMT 234	Diversity in the Workplace	3	
MKTG 200	Principles of Marketing	3	
SPCH 110	Oral Communic in the Workplace	3	
WRIT 127	Business Writing	3	

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 21–22 CREDITS**

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

**CHOICE 1:**

**General Education Core Areas**

**0 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 (See Note 1)	0
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2:**

**Management Related (See Note 2)**

**17 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 Risk and Insurance	3
LABR 200	Intro to Labor Relations	3
LABR 204	Employment Law for Managers	3
MATH 117	Math for Business	4
MGMT 150	Managing Customer Relations	3
MGMT 228	Organizational Behavior	3
MGMT 237	Managing/Continual Improvement	3
MGMT 239	Time and Stress Management	3
MGMT 304	Organizational Development	3
MGMT 337	Human Resource Mgmt Skills	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 221	Consumer Behavior	2
REAL 275	Real Estate Financing	3

**CHOICE 3: Computer Related (See Note 3)**

**4–5 Credits**

**MINIMUM TOTAL**

**61**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students should confer with a Business Careers program advisor to assure that selection of Limited Choice courses will best fit their career plans.
3. Choose CABS-prefix courses of 110 or above and/or CISB-prefix courses of 100 or above 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	CUMA 200	ACCG 210	CUAI 102
CUMA 100	MGMT 234	CISB 200	MGMT 224
SPCH 110	MKTG 200	CUMA 215	MGMT 225
WRIT 127	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**CREDIT UNION MANAGEMENT  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0151 (Effective Fall 2000–Summer 2005)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

**REQUIREMENTS**

**TOTAL: 18 CREDITS**

CODE	TITLE	CREDIT HOURS
CUAI 102	Credit Union Accounting	3
CUMA 100	Intro Credit Union Operations	3
CUMA 200	Credit and Collections	3
CUMA 215	Business Law for Credit Unions	3
MGMT 224	Human Resources Management	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**

MGMT 234	Diversity in the Workplace	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Writing	3

**MINIMUM TOTAL**

**21**

**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
CUAI 102	CUMA 200
CUMA 100	CUMA 215
MGMT 224	MGMT 225
Lim.Ch.	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**CRIMINAL JUSTICE, CORRECTIONS  
ASSOCIATE IN BUSINESS DEGREE**

**Curriculum Code: 0170 (Effective Fall 2000–Summer 2005)**

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 for a 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, students may need to complete specific course work 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: 49 CREDITS**

CODE	TITLE	CREDIT HOURS
CISB 100	Intro Computer Info Systems	3
CJUS 101	Intro to Criminal Justice	3
CJUS 106	Intro to Juvenile Justice	3
CJUS 133	Juvenile Residential Services	3
CJUS 134	Probation and Parole	3
CJUS 245	Report Writing in CJ	2
LEGL 160	Critical Thinking in Law	3
PSYC 200	Introduction to Psychology	4
SOCL 120	Introduction to Sociology	4
SPCH 110	Oral Communic in the Workplace	3
WRIT 124	Technical Writing	3

**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/Criminal Just	3

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 13 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Related Professional Courses (See Note 3)**

**10 Credits**

CJUS 102	Crime Causes and Conditions	3
CJUS 204	Criminal Investigation	4
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 4)**

CJUS 130	Local Detention	3
CJUS 242	Unarmed Defense	3
CJUS 246	Jail Safety and I.D. Issues	4
CJUS 256	Interpersonal Comm in Jails	1
WRIT 117	Writing Preparation II (See Note 5)	4

**Juvenile Care Worker Certificate (See Note 7)**

CJUS 126	Juvenile Offenders/Their Fam	3
CJUS 286	Juvenile Internship I	3
CJUS 287	Juvenile Internship II	3
HUSE 100	Introduction to Human Services	3

**MINIMUM TOTAL**

**62**

**NOTES**

- Students completing these five courses with a minimum 2.0 grade in *each* class will receive the Michigan Corrections Officer Vocational Certificate.
- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students may select any combination of Choice 2 courses to fulfill this requirement, including courses listed within the County and Local Detention Certificate and the Juvenile Care Worker Certificate.
- Students completing these five courses and CJUS 135, CJUS 245, CJUS 251 and CJUS 255 with a minimum 2.0 grade in *each* class will receive the County and Local Detention Vocational Certificate.
- This course will be waived if student scores five or above on the Writing Placement Test. This test is administered free of charge in the Assessment Center, Room 2100, Gannon Vocational-Technical Center.
- All Vocational Certificate courses are certified by the Michigan Corrections Officer Training Council.
- Students completing these four courses and CISB 100, CJUS 106, CJUS 133, PSYC 200, SOCL 120, and WRIT 124 with a minimum 2.0 grade in *each* class will receive the Juvenile Care Worker Certificate, which is endorsed by the Michigan Juvenile Detention Association.

**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 106	CISB 100	CJUS 255
CJUS 131	CJUS 245	CJUS 133	PSYC 200
LEGL 160	CJUS 250	CJUS 134	Lim.Ch.1
SOCL 120	CJUS 251	CJUS 135	Lim.Ch.2
WRIT 124	SPCH 110	Lim.Ch.2	Lim.Ch.2
<b>v</b>			
Lim.Ch.2			

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.



**CRIMINAL JUSTICE, LAW ENFORCE  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0257 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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: 39 CREDITS**

CODE	TITLE	CREDIT HOURS
CISB 100	Intro Computer Info Systems	3
CJUS 101	Intro to Criminal Justice	3
CJUS 102	Crime Causes and Conditions	3
CJUS 103	Criminal Law	3
CJUS 106	Intro to Juvenile Justice	3
CJUS 201	Criminal Justice Org/Admin	3
CJUS 204	Criminal Investigation	4
CJUS 205	Policing into the 21st Century	3
CJUS 245	Report Writing in CJ	2
CJUS 255	Human Relations/Criminal Just	3
MGMT 234	Diversity in the Workplace	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 124	Technical Writing	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 23–28 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Law Enforcement (Choose one subchoice) 20–25 Credits**

**Subchoice 2A: Mid-Michigan Police Academy Requirements**

CJUS 260	Criminal Invest & Procedures	3
CJUS 261	Michigan Crim Law & Procedure	3
CJUS 262	Patrol Procedures and Tactics	3
CJUS 263	Standard First Aid	2
CJUS 264	Rprt Writing in Law Enforce	1
CJUS 265	Highway Traffic Operations	3
CJUS 266	Basic Police Science	3
CJUS 267	Law Enforcement Phys Traing	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
LEGL 160	Critical Thinking in Law	3
PSYC 200	Introduction to Psychology	4
SOCL 120	Introduction to Sociology	4
SOCL 255	Contemporary Social Problems	3

**MINIMUM TOTAL 62**

**NOTE**

- 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 201	CISB 100	Police Academy
CJUS 102	CJUS 204	CJUS 103	
CJUS 106	CJUS 205	CJUS 255	
WRIT 124	CJUS 245	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 255	SOCL 120
WRIT 124	CJUS 245	MGMT 234	
	Lim.Ch.1	SPCH 110	

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CJUS 203
CJUS 204
SOCL 255

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**JUVENILE CARE WORKER  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0916 (Effective Fall 2000-Summer 2005)

This certificate option is designed to provide entry level skills for the person who wishes to enter the job market as a juvenile care worker at a public or private juvenile residential facility. Students may apply these credits toward completion of the Criminal Justice, Corrections Associate in Business degree.

**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 Criminal Justice and Law Center, Old Central Building, Room 224, telephone number (517) 483-1570.

**REQUIREMENTS**

**TOTAL: 32 CREDITS**

CODE	TITLE	CREDIT HOURS
CISB 100	Intro Computer Info Systems	3
CJUS 106	Intro to Juvenile Justice	3
CJUS 126	Juvenile Offenders/Their Fam	3
CJUS 133	Juvenile Residential Services	3
CJUS 286	Juvenile Internship I	3
CJUS 287	Juvenile Internship II	3
HUSE 100	Introduction to Human Services	3
PSYC 200	Introduction to Psychology	4
SOCL 120	Introduction to Sociology	4
WRIT 124	Technical Writing	3
<b>MINIMUM TOTAL</b>		<b>32</b>

**NOTE**

- Students must complete each of these courses with a minimum 2.0 grade to receive this certificate which is endorsed by the Michigan Juvenile Detention Association.

**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 100	CJUS 133
CJUS 106	CJUS 287
CJUS 126	HUSE 100
CJUS 286	SOCL 120
PSYC 200	WRIT 124

**MID-MICHIGAN POLICE ACADEMY  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0737 (Effective Fall 2000 - Summer 2001)

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 2200, 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 2200, telephone number (517) 483-1254.

**MID-MICHIGAN POLICE ACADEMY PROGRAM REQUIREMENTS**

Curriculum Code: 0737

**REQUIREMENTS**

**TOTAL: 25 CREDITS**

CODE	TITLE	CREDIT HOURS
CJUS 260	Criminal Invest & Procedures	3
CJUS 261	Michigan Crim Law & Procedure	3
CJUS 262	Patrol Procedures and Tactics	3
CJUS 263	Standard First Aid	2
CJUS 264	Rprt Writing in Law Enforce	1
CJUS 265	Highway Traffic Operations	3
CJUS 266	Basic Police Science	3
CJUS 267	Law Enforcement Phys Traing	2
CJUS 268	Precision Driving	3
PFFT 114	Advanced Circuit Training	2
<b>MINIMUM TOTAL</b>		<b>25</b>

**ELECTRICAL TECH, CONSTRUCTION  
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 0759 (Effective Fall 2000–Summer 2005)**

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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS	TOTAL: 42 CREDITS
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	Intro to Machine Control	4	
ELTE 141	National Electrical Code I	4	
ELTE 145	Electrical Prints for Building	4	
ELTE 240	Electrical Estimating	3	
ELTE 260	Intro/Programmable Controllers	4	
INAU 100	Intro Industrial Automation	4	
<b>MINIMUM TOTAL</b>		<b>42</b>	

**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
BLDT 103	ELTE 112	ELTE 123
ELTE 100	ELTE 121	ELTE 141
ELTE 110	ELTE 131	ELTE 240
INAU 100	ELTE 145	ELTE 260

**ELECTRICAL TECH, CONTROL/MAINT  
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 0760 (Effective Fall 2000–Summer 2005)**

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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS	TOTAL: 40 CREDITS
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	Intro to Machine Control	4	
ELTE 150	Electric Motor Maintenance	2	
ELTE 260	Intro/Programmable Controllers	4	
ELTE 261	Allen-Bradley PLC-5 Advanced	6	
INAU 100	Intro Industrial Automation	4	
<b>MINIMUM TOTAL</b>		<b>40</b>	

**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		

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**ELECTRICAL TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0134 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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 136, 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	Intro to Machine Control	4
ELTE 145	Electrical Prints for Building	4
ELTE 150	Electric Motor Maintenance	2
ELTE 260	Intro/Programmable Controllers	4
INAU 100	Intro 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Electrical Specialization (Choose one 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 HVAC	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 145
INAU 100	ELTE 131	ELTE 142	HVAC 100
Lim.Ch.	ELTE 141	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 232
ELTE 110	ELTE 122	ELTE 131	ELTE 261
ELTE 121	ELTE 145	ELTE 260	INAU 200
INAU 100	ELTE 150	MFGM 101	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	

**ELECTRONICS TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**
**Curriculum Code: 0894 (Effective Fall 2000–Summer 2005)**

Electronics technicians install, operate, maintain, and service electronics equipment. They also diagnose and repair problems caused by mechanical or electrical malfunctions in individual electronic units and in complex systems such as local area networks (LANS) and industrial controllers. They deal with the analysis and component level troubleshooting of analog and digital circuits. Electronics technicians are employed with automotive manufacturers, industrial automation companies, business machine service companies, telephone companies, hospitals, aircraft service companies, radio and TV service companies, instrumentation sales, robotics repair companies, and maintenance 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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS
CISB 200	Info Sys Tech/Problem Solving	3
ELCT 100	Schematic Drawing	1
ELCT 101	Analog Problems	5
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 112	Transistors	6
ELCT 120	Programming Preparation	2
ELCT 131	Digital Basics	3
ELCT 161	Soldering/Desoldering	1
ELCT 211	Linear Circuits I	3
ELCT 212	Linear Circuits II	3
ELCT 231	Advanced Digital Electronics	4
ELCT 232	Digital Commun and Networking	4
ELCT 251	Electronic Troubleshooting	2
ELCT 271	Communications I	4
ELCT 272	Communications II	4
SPCH 110	Oral Communic in the Workplace	3
WRIT 124	Technical Writing	3

**TOTAL: 57 CREDITS**
**LIMITED CHOICE REQUIREMENTS**
**TOTAL: 8 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Electronics Specialty (Choose one subchoice) 5 Credits**
**Subchoice 2A: Biomedical**

ELCT 261	Consumer Product Systems	3
ELCT 290	Biomedical Internship	2

**Subchoice 2B: Communications**

ELCT 261	Consumer Product Systems	3
ELCT 291	Communications Internship	2

**Subchoice 2C: Digital**

ELCT 242	Comp Intrncg and Peripherals	3
ELCT 292	Digital Electronics Internship	2

**MINIMUM TOTAL**
**65**
**NOTE**

- 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 231	ELCT 232
ELCT 109	ELCT 120	ELCT 251	ELCT 272
ELCT 110	ELCT 131	ELCT 271	Lim.Ch.2
ELCT 161	WRIT 124	Lim.Ch.1	Lim.Ch.2
SPCH 110			

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**ELECTRONICS TROUBLESHOOTER  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0895 (Effective Fall 2000–Summer 2005)

Electronics troubleshooters are trained in basic electronics circuitry and have basic troubleshooting skills. They typically work in an entry-level position under the guidance of a more experienced technician.

**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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS
ELCT 100	Schematic Drawing	1
ELCT 101	Analog Problems	5
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 112	Transistors	6
ELCT 120	Programming Preparation	2
ELCT 131	Digital Basics	3
ELCT 161	Soldering/Desoldering	1
ELCT 181	Computer Test Equipment II	2
ELCT 251	Electronic Troubleshooting	2
ELCT 261	Consumer Product Systems	3

**TOTAL: 31 CREDITS****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.

	#
ELCT 100	ELCT 112
ELCT 101	ELCT 120
ELCT 109	ELCT 181
ELCT 110	ELCT 251
ELCT 131	ELCT 261
ELCT 161	

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**FIRE SCIENCE ACADEMY  
CERTIFICATE OF COMPLETION**

**Curriculum Code: 0709 (Effective Fall 2000 - Summer 2001)**

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 2000/2001 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 2200, 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 2200, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 14 CREDITS
CODE	TITLE	CREDIT HOURS
FIRE 101	MI F.F.T.C. Basic Fire Lev I	9
FIRE 102	MI F.F.T.C. Basic Fire Lev II	4
PFW 109	Emergency Services Fitness I	1
<b>MINIMUM TOTAL</b>		<b>14</b>

**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
- PFW 109

**FIRE SCIENCE TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

**Curriculum Code: 0123 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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**

REQUIREMENTS		TOTAL: 58 CREDITS
CODE	TITLE	CREDIT HOURS
FIRE 100	Introduction to Fire Fighting	3
FIRE 101	MI F.F.T.C. Basic Fire Lev I	9
FIRE 102	MI F.F.T.C. Basic Fire Lev II	4
FIRE 110	Fire Prevention and Law	3
FIRE 115	Building Construction/Fire Ser	4
FIRE 120	Chemistry/Hazardous Materials	3
FIRE 125	Fire Protection Sys/Equipment	4
FIRE 130	Fire Hydraulics/Pump Operation	4
FIRE 150	Fire Command and Operations	4
FIRE 210	Fire Investigation	4
FIRE 220	Hazardous Materials/Fire Ser	4
FIRE 250	Fire Administration	4
PFW 110	Emergency Services Fitness II	1
PFW 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**

(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	3
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**MINIMUM TOTAL 64**

**NOTES**

1. 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 a Fire Science program advisor regarding this segment of the program.
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
FIRE 100	FIRE 110	FIRE 115	FIRE 130
FIRE 101	SPCH 120	FIRE 120	FIRE 210
FIRE 102	WRIT 124	FIRE 125	FIRE 220
PFW 110	Lim.Ch.	FIRE 150	FIRE 250
	Lim.Ch.		PFW 111

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**GIS/GEOSPATIAL TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0224 (Effective Fall 2000–Summer 2005)

Geographic Information Systems and Geospatial Technology 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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

**TOTAL: 36 CREDITS**

CODE	TITLE	CREDIT HOURS
GRET 205	Principles Geographic Info Sys	3
GRET 209	Applications in GIS	3
GRET 210	Global Positioning Systems	3
GRET 220	Hydrological Systems	3
GRET 221	Landforms/Soil Systems in GIS	3
GRET 223	Environmental Resource Mgmt	3
GRET 240	Cartography in GIS	3
GRET 241	Remote Sens/AirPhoto Interpret	3
GRET 243	ORACLE/Geographic Info Sys	3
LAND 150	Principles of Landscape Arch	3
LAND 180	Landscape Ecology	3
WRIT 124	Technical Writing	3

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 30-31 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 (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: GIS Specializations (Choose one subchoice) 9-10 Credits**

**Subchoice 2A:**

GRET 203	Beginning MicroStation	3
GRET 204	MicroStation Graphic Environ	3
GRET 208	Advanced Techniques in GIS	3

**Subchoice 2B:**

GRET 253	Basics of ARC/View	1
GRET 255	Beginning ARC/Info	3
GRET 256	Advanced ARC/Info	3
LAND 282	Computer Draft/Dsgn Land Arch	3

CHOICE 3:	Additional Related Courses	12 Credits
GRET 211	Geomedia-Internet GIS	3
GRET 213	Advanced MicroStation	3
GRET 248	GIS/GPS Field Systems	3
LAND 181	Landscape Restoration/Manage	3
LAND 242	Ecological Land Planning	3
LAND 283	Beginning LANDCADD	3

**MINIMUM TOTAL**

**66**

**NOTE**

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
GRET 205	GRET 210	GRET 221	GRET 209
GRET 220	GRET 241	GRET 243	GRET 223
GRET 240	WRIT 124	LAND 150	Lim.Ch.
LAND 180	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	

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**BASIC EMERGENCY MED SERVICES  
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 0269 (Effective Fall 2000–Summer 2005)**

This certificate program prepares an individual to be a basic emergency medical technician (EMT). Basic EMTs perform immediate basic emergency care in medical and traumatic emergencies. Basic EMTs staff ambulances and are employed in hospitals. State licensing is required. An EMT Academy option is available to students.

**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 Anat & Physiology	4
CISB 200	Info Sys Tech/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 Med	2
EMTA 112	Basic EMT Clinical	2
EMTA 114	Rescue/Extrication/Danger Situ	3
WRIT 124	Technical Writing	3
<b>MINIMUM TOTAL</b>		<b>32</b>

**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

**EMT Academy Option**

I	II	III
EMTA 101	ANAT 145	AHCC 110
EMTA 102	EMTA 105	CISB 200
EMTA 103	EMTA 114	EMTA 108
EMTA 104	WRIT 124	
EMTA 112		

**DENTAL ASSISTANT  
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 0193 (Effective Fall 2000 - Summer 2001)**

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 2000/2001 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 2200, 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 2200, 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	Preclinical Dental Assisting	3
DAST 112	Dental Anatomy	4
DAST 114	Preventive Dentistry & Prc	3
DAST 116	Dental Materials	3
DAST 118	Dental Assisting Principles	1
DAST 120	Clinical Dental Assisting I	6
DAST 126	RDA Procedures - DA	3
DAST 130	Clinical Dental Assisting II	2
DAST 140	Clinical Dental Assisting III	4
EMSB 102	CPR for Health Care Prof	.5
<b>MINIMUM TOTAL</b>		<b>34.5</b>

**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		

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**DENTAL HYGIENIST  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0279 (Effective Fall 2000-Summer 2002)

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, students may need to complete specific course work 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 2000/2001 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 2200, 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 2200, telephone number (517) 483-1254.

**REQUIREMENTS**

**TOTAL: 73 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	2
DHYN 126	Dental Materials and Methods	3
DHYN 210	Clinical Dental Hygiene II	6
DHYN 212	Advanced Dental Hygiene Proced	4
DHYN 214	Clinical Oral Pathology	1
DHYN 216	Dental Public Health & Educ	2
DHYN 220	Clinical Dental Hygiene III	7
DHYN 222	Community Oral Health	4
MICR 203	Microbiology	3
PHGY 202	Human Physiology	4
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	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
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	3
Speech Communication Core Area <i>(See Note 1)</i>	0
Science/Technology Core Area <i>(See Note 1)</i>	0
Global Perspectives and Diversity Core Area <i>(See Note 1)</i>	0
Mathematics Competency <i>(See page 23 for information on how to fulfill this requirement. Course work may be needed.)</i>	

**MINIMUM TOTAL 76**

**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 take the Michigan Registered Dental Assistant licensure exam must also successfully complete DHYN 230, RDA Prc-DH, 2 credits, offered spring semester.
4. 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 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	
ANAT 201	PHGY 202	MICR 203	
SOCL 120	SPCH 120	Lim.Ch.	
IV	V	VI	VII
DHYN 110	DADH 128	DHYN 210	DHYN 220
DHYN 112	DHYN 120	DHYN 212	DHYN 222
DHYN 114	DHYN 122	DHYN 214	
DHYN 116	DHYN 124	DHYN 216	
	DHYN 126		

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**DIAGNOSTIC MEDICAL SONOGRAPHY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**
**Curriculum Code: 0790 (Effective Fall 2000–Summer 2002)**

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, students may need to complete specific course work 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 2000/2001 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 2200, 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 2200, telephone number (517) 483-1254.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS
IDMS 200	Sonographic Introduction	2
IDMS 201	General Sonography I: Abdomen	4
IDMS 202	OB/GYN Sonography I	4
IDMS 234	Sonographic Physics	2
IDMS 245	Sonographic Instrumentation	2
IDMS 265	General Sonography II	4
IDMS 266	OB/GYN Sonography II	3
IDMS 280	Clinical Experience I	5
IDMS 281	Clinical Experience II	7
IDMS 282	Clinical Experience III	12
IDMS 283	Clinical Experience IV	7

**TOTAL: 52 CREDITS**
**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
	Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**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 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
IDMS 200	IDMS 234	IDMS 262	IDMS 245
IDMS 201	IDMS 265		IDMS 283
IDMS 202	IDMS 266		Lim.Ch.
IDMS 280	IDMS 281		Lim.Ch.
Lim.Ch.	Lim.Ch.		

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**EMERGENCY MEDICAL SERVICES  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0276 (Effective Fall 2000--Summer 2005)

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, students may need to complete specific course work 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: 59 CREDITS**

CODE	TITLE	CREDIT HOURS
ANAT 145	Introductory Anat & Physiology	4
CISB 200	Info Sys Tech/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
PARA 221	Paramedic Medical Trauma I	4
PARA 222	Paramedic Medical Trauma II	4
PARA 231	Paramedic Cardiology I	2
PARA 232	Paramedic Cardiology II	2
PARA 241	Paramedic Pharmacology I	2
PARA 242	Paramedic Pharmacology II	2
PARA 251	Paramedic Skills I	2
PARA 252	Paramedic Skills II	2
PARA 261	Paramedic Clinical I	3
PARA 262	Paramedic Clinical II	4
PARA 263	Paramedic Internship	3
PFW 111	Emergency Services Fitness III	1
PFW 112	Emergency Services Fitness IV	1
SPCH 110	Oral Communic in the Workplace	3
WRIT 124	Technical Writing	3

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 9-11 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2:	EMS Requirements (See Note 2)	6-8 Credits
AHCC 110	Pharmacology-Allied Health	2
EMTA 105	Ambulance Driving	1
EMTA 108	Legal Issues in Emergency Med	2
EMTA 114	Rescue/Extrication/Danger Situ	3
EMTA 222	EMS Instructor Coordinator	6

**MINIMUM TOTAL**

**68**

**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 to satisfy Choice 2.
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	SPCH 110	PARA 241	PARA 252
Lim.Ch.	Lim.Ch.	PARA 251	PARA 262
Lim.Ch.	Lim.Ch.	PARA 261	PARA 263
	Lim.Ch.	PFW 111	PFW 112

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MASSAGE THERAPY  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0180 (Effective Fall 2000–Summer 2005)

This 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 Anat & Physiology	4
MASG 270	Massage Therapy-Beginning	2
MASG 271	Massage Therapy-Intermediate	2
MASG 273	Human Structural Dynamics	2
MASG 274	Massage Laboratory (See Note 1)	2
MASG 275	Touch for Health	1
MASG 277	Polarity Therapy I	2
MASG 279	Business Applications/Masg	2
MASG 280	Clin Approach Therap Massage	3
MASG 281	Sports Massage Techniques	2
PFHW 163	Healthy Lifestyles	2
PFHW 181	Stress Management	1

**LIMITED CHOICE REQUIREMENTS****TOTAL: 2-3 CREDITS**

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

CHOICE 1:	2-3 Credits	
MASG 278	Polarity Therapy II	2
PFHW 105	Med Alternatives/Hlth & Wins	2
PFHW 161	Self-Awareness: Key to Witness	2
PFIS 139	Therapeutic Touch and Yoga	3
<b>MINIMUM TOTAL</b>	<b>27</b>	

**NOTES**

- The Massage Laboratory consists of 96 hours of supervised massage work. Students must complete the lab 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 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.1
	PFHW 163	PFHW 181	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MEDICAL ASSISTANT  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0248 (Effective Fall 2000 - Summer 2001)

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 2000/2001 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 2200, 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 2200, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 37 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 Anat & Physiology	4
CHSE 121	Medical Term Allied Health I (See Note 1)	2.5
CHSE 122	Medical Term Allied Health II (See Note 1)	2.5
CHSE 123	Medical Insurance Billing I (See Note 1)	3
CHSE 125	Computers in Medical Office (See Note 1)	1
MEDA 100	MA Administrative/Communicat	3
MEDA 131	Clinical Skills I	3
MEDA 132	Clinical Skills II	3
MEDA 141	Basic Medical Laboratory Proc	2
MEDA 142	Adv Medical Laboratory Proc	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 119	Word for Windows	2
<b>MINIMUM TOTAL</b>		<b>39</b>

**NOTES**

1. This course may be taken prior to admission to the program.
2. Complete the courses required for program with a minimum 2.5 grade or better.

**SUGGESTED COURSE SEQUENCE**

Courses listed in Semester I below must be completed prior to admission to the Medical Assistant program as part of the Phase I requirements for admission. 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 122	CHSE 125	MEDA 182
Lim.Ch.1	CHSE 123	MEDA 132	
	MEDA 100	MEDA 142	
	MEDA 131	OADM 207	
	MEDA 141		

**MULTI-SKILL PATIENT CARE TECH  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0788 (Effective Fall 2000-Summer 2005)

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 175, telephone (517) 483-1410.

REQUIREMENTS		TOTAL: 13.5 Credits
CODE	TITLE	CREDIT HOURS
AHCC 111	EKG for Health Care Providers	1
AHCC 112	Health Law and Ethics	2
CHSE 101	Acute Care Nurse Assis/Orderly	6
CHSE 121	Medical Term Allied Health I	2.5
CHSE 143	Phlebotomy Technician	2
<b>MINIMUM TOTAL</b>		<b>13.5</b>

**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: 0235 (Effective Fall 2000–Summer 2001)

The Practical Nursing Program at Lansing Community College 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 2000/2001 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Room 2200, 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 2200, Gannon Vocational-Technical Center, telephone (517) 483-1254.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS
ANAT 201	Human Anatomy	4
NURS 150	Fundamentals in Nursing Care (See Note 1)	9
NURS 160	Acute Nursing Care	6
NURS 165	Maternity Nursing Care	5
NURS 200	Pharmacology (See Note 1)	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
<b>MINIMUM TOTAL</b>		<b>44</b>

**NOTES**

- NURS 200 may be taken up to two years prior to admission to the Nursing Program or concurrently with NURS 150.
- 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	PSYC 205
WRIT 121		

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

### NURSING, RN OPTION ASSOCIATE IN APPLIED SCIENCE DEGREE

Curriculum Code: 0222 (Effective Fall 2000–Summer 2002)

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 (NCLEX-RN).

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, students may need to complete specific course work 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 2000/2001 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 2200, 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 2200, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 68 CREDITS
CODE	TITLE	CREDIT HOURS
ANAT 201	Human Anatomy	4
MICR 203	Microbiology	3
NURS 150	Fundamentals in Nursing Care (See Note 1)	9
NURS 160	Acute Nursing Care	6
NURS 165	Maternity Nursing Care	5
NURS 200	Pharmacology (See Note 1)	3
NURS 260	Mental Health Nursing Care	5
NURS 265	Pediatric Nursing Care	5
NURS 280	Advanced Chronic Nursing Care	4
NURS 285	Advanced Acute Nursing Care	4
NURS 290	Leadership in Nursing 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	
<b>MINIMUM TOTAL</b>	<b>74</b>

#### NOTES

1. NURS 200 may be taken up to two years prior to admission into the program or concurrently with NURS 150.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
3. 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.
4. Current Basic Cardiac Life Support Certification (BCLS) is required throughout the program (EMSB 102 or American Red Cross "Provider C".)
5. Licensed Practical Nurses (LPNs) 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	PSYC 205	NURS 265
WRIT 121			
v			
	NURS 280		
	NURS 285		
	NURS 290		
	Lim.Ch.		
	Lim.Ch.		

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.



**PARAMEDIC  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0272 (Effective Fall 2000 - Summer 2001)

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 2000/2001 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 2200, 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 2200, telephone number (517) 483-1254.

**REQUIREMENTS**

**TOTAL: 32 CREDITS**

CODE	TITLE	CREDIT HOURS
PARA 221	Paramedic Medical Trauma I	4
PARA 222	Paramedic Medical Trauma II	4
PARA 231	Paramedic Cardiology I	2
PARA 232	Paramedic Cardiology II	2
PARA 241	Paramedic Pharmacology I	2
PARA 242	Paramedic Pharmacology II	2
PARA 251	Paramedic Skills I	2
PARA 252	Paramedic Skills II	2
PARA 261	Paramedic Clinical I	3
PARA 262	Paramedic Clinical II	4
PARA 263	Paramedic Internship	3
PFWH 111	Emergency Services Fitness III	1
PFWH 112	Emergency Services Fitness IV	1
<b>MINIMUM TOTAL</b>		<b>32</b>

**NOTE**

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
PFWH 111	PARA 263
	PFWH 112

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

## RADIOLOGIC TECHNOLOGY ASSOCIATE IN APPLIED SCIENCE DEGREE

Curriculum Code: 0196 (Effective Fall 2000 - Summer 2003)

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, students may need to complete specific course work 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 2000/2001 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 2200, 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 2200, telephone number (517) 483-1254.

### REQUIREMENTS

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	Additional RAD 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	Intro/Radiologic Pathology	2
IRXT 202	Clinical Practice I	5
IRXT 204	Clinical Practice II-S	3
IRXT 210	Radiology Career Management	1
IRXT 214	Comprehensive Experience I	6
IRXT 215	Comprehensive Experience II	6
IRXT 219	Imaging Update	1
IRXT 236	Comprehensive Experience III-S	4
PHGY 202	Human Physiology	4

**TOTAL: 67 CREDITS**

### LIMITED CHOICE REQUIREMENTS

**TOTAL: 9 CREDITS**

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

CHOICE 1: General Education Core Areas (See the "GENERAL EDUCATION" section above)	9 Credits
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	
<b>MINIMUM TOTAL</b>	<b>76</b>

### NOTE

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

### SUGGESTED COURSE SEQUENCE

Courses listed in Semester I below must be completed prior to admission to the Radiologic Technology 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 the MATH 112 proficiency exam. The program admits students in the fall semester only. 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	AHCC 104 IRXT 100 IRXT 111 PHGY 202	CABS 102 IRXT 112 IRXT 121 IRXT 202	IRXT 113 IRXT 122 IRXT 204
V	VI	VII	
IRXT 131 IRXT 200 IRXT 210 IRXT 214 Lim.Ch.	IRXT 114 IRXT 132 IRXT 215 Lim.Ch.	IRXT 219 IRXT 236 Lim.Ch.	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**SURGICAL TECHNOLOGY  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0216 (Effective Fall 2000 - Summer 2001)

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 or 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 2000/2001 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 2200, 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 2200, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 36.5 CREDITS
CODE	TITLE	CREDIT HOURS
AHCC 106	Introduction to Pathology (See Note 1)	2
AHCC 110	Pharmacology-Allied Health (See Note 1)	2
AHCC 112	Health Law and Ethics (See Note 1)	2
ANAT 145	Introductory Anat & Physiology	4
CHSE 121	Medical Term Allied Health I	2.5
SURG 100	Fundamental Surgical Tech	3
SURG 101	The Surgical Patient	2
SURG 103	Surgical Asepsis (See Note 1)	2
SURG 104	Operative Procedures	6
SURG 121	Applied Surg Techniques I	1
SURG 122	Applied Surg Techniques II	3
SURG 123	Applied Surg Techniques III	5
SURG 124	Applied Surg Techniques IV	2
<b>MINIMUM TOTAL</b>		<b>36.5</b>

**NOTES**

1. This course may be taken prior to admission to the program.
2. Complete the courses required for program with a minimum 2.5 grade or better.

**SUGGESTED COURSE SEQUENCE**

Courses listed in Semester I below must be completed prior to admission to the Surgical Technology program as part of the Phase I requirements for admission. 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	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

## HEATING, AC & REFRIGERATION ASSOCIATE IN APPLIED SCIENCE DEGREE

**Curriculum Code: 0161 (Effective Fall 2000–Summer 2005)**

Heating, Ventilation, Air Conditioning/Refrigeration technicians (HVAC/R) 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. HVAC/R 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. HVAC/R technicians are employed by HVAC/R 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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

### REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 50 CREDITS
HVAC 100	Fundamentals of HVAC	3	
HVAC 105	Sheet Metal Fabrication/Instal	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: 19 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Technical Related 7-8 Credits**

BLDT 103	Structural Blueprint Reading	4
BLDT 121	Residential Framing	4
BLDT 281	International Code	3
CNCP 101	PC Applications for Technology	3
COOP 210	Cooperative Education (Tech)	3
WELD 100	Combination Welding	4

**MINIMUM TOTAL 69**

### 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 220	HVAC 201
HVAC 105	HVAC 120	HVAC 230	HVAC 221
HVAC 110	HVAC 130	HVAC 240	HVAC 231
Lim.Ch.	HVAC 211	Lim.Ch.	HVAC 241
Lim.Ch.	Lim.Ch.	Lim.Ch.	HVAC 250
			Lim.Ch.

## HEATING AND AIR CONDITIONING CERTIFICATE OF ACHIEVEMENT

**Curriculum Code: 0143 (Effective Fall 2000–Summer 2005)**

Students receive instruction on how to install, service and maintain heating, air conditioning and refrigeration systems, including sheet metal and electrical, to prepare them 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 136, telephone number (517) 483-1336.

### REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 42 CREDITS
HVAC 100	Fundamentals of HVAC	3	
HVAC 105	Sheet Metal Fabrication/Instal	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 240	Refrigeration I	4	
HVAC 250	Pneumatic Control	3	

**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	IV
HVAC 100	HVAC 111	HVAC 201	HVAC 221
HVAC 105	HVAC 120	HVAC 220	HVAC 240
HVAC 110	HVAC 130	HVAC 230	HVAC 250
	HVAC 211		

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**HOTEL-MOTEL/FOOD MANAGEMENT ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0711 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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
ACCG 101	Accounting Info for Management	3
CABS 110	Microsoft Office	3
CISB 200	Info Sys Tech/Problem Solving	3
HMFS 101	Intro Hospitality/Tourism	3
HMFS 110	Sanitation and Safety	3
HMFS 131	Food and Beverage Management	4
HMFS 190	Internship and Seminar	3
HMFS 204	Hospitality HR Management	3
HMFS 205	Hospitality Management	3
HMFS 215	Hospitality Sales/Marketing	3
HMFS 232	Food and Labor Cost Control	3
MGMT 150	Managing Customer Relations	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Writing	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 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Specialization (Choose one subchoice) 18–20 Credits**

**Subchoice 2A: Hotel-Motel Management Specialist**

HMFS 203	Hospitality Law	3
HMFS 206	Rooms Division Management	3
HMFS 229	Convention/Meeting Management	3
HMFS 240	Current Topics in Hospitality	3
MGMT 228	Organizational Behavior	3
MGMT 239	Time and Stress Management	3

**Subchoice 2B: Food Management Specialist**

HMFS 132	Food Production	4
HMFS 135	Hospitality Purchasing	3
HMFS 170	Menu Management and Design	3
HMFS 203	Hospitality Law	3
HMFS 254	Mixology	4
MGMT 228	Organizational Behavior	3

**Subchoice 2C: Culinary Arts Specialist**

HMFS 132	Food Production	4
HMFS 135	Hospitality Purchasing	3
HMFS 137	Catering Management	4
HMFS 170	Menu Management and Design	3
HMFS 275	Bakery Products	2
HMFS 280	Food Decorating Garnishes	3

**MINIMUM TOTAL**

**64**

**NOTE**

- 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 110	ACCG 101	CISB 200	HMFS 232
HMFS 101	HMFS 131	HMFS 190	Lim.Ch.
HMFS 110	HMFS 204	HMFS 205	Lim.Ch.
SPCH 110	MGMT 150	HMFS 215	Lim.Ch.
Lim.Ch.	WRIT 127	Lim.Ch.	Lim.Ch.
	Lim.Ch.		

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**CHILD DEVELOPMENT  
ASSOCIATE IN APPLIED SCIENCE**

Curriculum Code: 0108 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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/Devel: 0-5 Years	4
CHDV 111	Child Guidance/Communication	4
CHDV 112	Family Relationship/Child Care	2
CHDV 113	Health/Safety Issue:Child Care	2
CHDV 220	Preschool Curric/Learning Env	4
CHDV 221	Infant-Toddler Program Dev	3
CHDV 222	School-Age Child Care Prog Dev	2
CHDV 230	Child Care Center Admin	2
CHDV 284	Child Development Practicum (See Note 1)	5
ISCI 121	Integrated Sci 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.

<b>CHOICE 1: General Education Core Areas</b> (See the GENERAL EDUCATION section above)	<b>3 Credits</b>
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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	
<b>CHOICE 2: Social Science</b> (See Note 3)	<b>4 Credits</b>
<b>CHOICE 3: Science/Mathematics</b> (See Note 3)	<b>4 Credits</b>
<b>CHOICE 4: Humanities</b> (See Note 3)	<b>8 Credits</b>
<b>CHOICE 5: Professional Related Courses</b> (See Note 4)	<b>3 Credits</b>
EMSB 102 CPR for Health Care Prof	5
EMSB 106 Infant/Child CPR	25
HUSE 100 Introduction to Human Services	3
HUSE 101 Personal Dimensions/Human Serv	2
HUSE 110 Intro/Child Abuse and Neglect	3
HUSE 112 Introduction/Substance Abuse	3
HUSE 120 Introduction/Family Violence	2
<b>MINIMUM TOTAL</b>	<b>66</b>

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**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 completing REQUIREMENTS have fulfilled the requirements for this Core area.
- 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.
- Students may also choose from CHDV-prefix courses not already used to meet degree requirements.
- CHDV 111 and CHDV 220 must be completed with a minimum 2.5 grade or better. All other 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 113	CHDV 112	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

**CDA CREDENTIAL TRAINING  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0921 (Effective Fall 2000–Summer 2005)

The CDA (Child Development Associate) Credential is a national credential earned by individuals working with children age five and younger in a group child care setting. This certificate provides the training required for CDA credential assessment.

REQUIREMENTS		TOTAL: 11 CREDITS
CODE	TITLE	CREDIT HOURS
CHDV 101	Child Growth/Devel: 0-5 Years	4
CHDV 111	Child Guidance/Communication	4
CHDV 251	CDA Credentialing Preparation	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 3-4 CREDITS**  
Complete the indicated number of credits from each CHOICE listed below.

<b>CHOICE 1:</b>	<b>3-4 Credits</b>
CHDV 220 Preschool Curric/Learning Env	4
CHDV 221 Infant-Toddler Program Dev	3
<b>MINIMUM TOTAL</b>	<b>14</b>

**NOTE**

- Each course must be completed with a 2.0 minimum grade to be counted toward certificate completion.

**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	Lim.Ch.	CHDV 251
CHDV 111		

**CHILD DEVELOPMENT  
CERTIFICATE OF ACHIEVEMENT**

**Curriculum Code: 0133 (Effective Fall 2000–Summer 2005)**

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/Devel: 0–5 Years	4
CHDV 111	Child Guidance/Communication	4
CHDV 112	Family Relationship/Child Care	2
CHDV 113	Health/Safety Issue:Child Care	2
CHDV 220	Preschool Curric/Learning Env	4
CHDV 221	Infant-Toddler Program Dev	3
CHDV 222	School-Age Child Care Prog Dev	2
CHDV 230	Child Care Center Admin	2
CHDV 284	Child Development Practicum (See Note 1)	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 Prof	.5
EMSB 106 Infant/Child CPR	.25
HUSE 100 Introduction to Human Services	3
HUSE 101 Personal Dimensions/Human Serv	2
HUSE 110 Intro/Child Abuse and Neglect	3
HUSE 112 Introduction/Substance Abuse	3
HUSE 120 Introduction/Family Violence	2
<b>MINIMUM TOTAL</b>	<b>35</b>

**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.
- CHDV 111 and CHDV 220 must be completed with a minimum 2.5 grade or better. Other 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 230
CHDV 111	CHDV 113	CHDV 284
CHDV 221	CHDV 220	Lim.Ch.
WRIT 121	CHDV 222	Lim.Ch.

**GERONTOLOGY  
CERTIFICATE OF ACHIEVEMENT**

**Curriculum Code: 0152 (Effective Fall 2000–Summer 2005)**

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: 29 CREDITS
CODE	TITLE	CREDIT HOURS
GERO 100	Introduction to Human Aging	3
GERO 101	Programs/Services for Aging	3
GERO 203	Physical/Mental Health Aging	3
GERO 282	Gerontology Practicum I (See Note 1)	4
GERO 284	Gerontology Practicum II	4
HUSE 100	Introduction to Human Services	3
HUSE 101	Personal Dimensions/Human Serv	2
SOWK 203	Social Work Interviewing	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
<b>MINIMUM TOTAL</b>	<b>32</b>

**NOTES**

- There is an application process and guidelines for admission into field placement/practicum. Students should meet with a program advisor to assist in developing a plan to meet all field placement prerequisites. 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.
- Students may choose from any GERO-prefix courses numbered GERO 128–199.
- All required GERO, HUSE, and SOWK courses must be completed with a minimum 2.5 grade or better for this certificate.

**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 203	HUSE 101	WRIT 121	Lim.Ch.
HUSE 100	SOWK 203	Lim.Ch.	

**HUMAN SERVICES  
ASSOCIATE IN APPLIED SCIENCE**

Curriculum Code: 0915 (Effective Fall 2000–Summer 2005)

Human Services is a field in which individuals work in social service agencies assisting professional staff to meet human needs. Responsibilities include helping individuals and families identify needs, cope with problems, and obtain services; leading group activities; and assisting individuals in meeting everyday living skills. Students choose from three areas of specialization. Gerontology studies the process of aging and prepares individuals to work with older adults and their families. The Substance Abuse area prepares individuals to work in agencies with substance abuse prevention or treatment components. The Family Emphasis area focuses on various family situations and prepares individuals to work in a wide range of family and youth agencies. Two consecutive semesters of field work during the last year provide work-site experience. Some transfer opportunities exist, however **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, students may need to complete specific course work 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: 29 CREDITS
ANAT 145	Introductory Anat & Physiology	4	
GERO 100	Introduction to Human Aging	3	
HUSE 100	Introduction to Human Services	3	
HUSE 101	Personal Dimensions/Human Services	2	
HUSE 112	Introduction/Substance Abuse	3	
SOCL 120	Introduction to Sociology	4	
SOWK 203	Social Work Interviewing	3	
SPCH 120	Dynamics of Communication	3	
WRIT 121	Composition I	4	

**LIMITED CHOICE REQUIREMENTS**

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

CHOICE	REQUIREMENTS	CREDITS	TOTAL: 40 CREDITS
<b>CHOICE 1:</b>	<b>General Education Core Areas</b>	<b>4 Credits</b>	
	(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 2)	4	
	Global Perspectives and Diversity Core Area (See Note 1)	0	
	Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)		
<b>CHOICE 2:</b>	<b>Social Science</b>	<b>4 Credits</b>	
	POLS 120 American Political System	4	
	POLS 121 State and Local Government	4	
	PSYC 200 Introduction to Psychology	4	
<b>CHOICE 3:</b>	<b>Humanities (See Note 3)</b>	<b>8 Credits</b>	
<b>CHOICE 4:</b>	<b>English Composition</b>	<b>4 Credits</b>	
	ENGL 122 Writing: Literature and Ideas	4	
	WRIT 122 Composition II	4	

**CHOICE 5: Specialization (Choose one subchoice) 20 Credits**

**Subchoice 5A: Gerontology (See Note 4)**

GERO 101	Programs/Services for Aging	3
GERO 203	Physical/Mental Health Aging	3
GERO 282	Gerontology Practicum I (See Note 5)	4
GERO 284	Gerontology Practicum II	4

**Subchoice 5B: Substance Abuse**

HUSE 240	Substance Abuse: Spec Pop/Adol	3
HUSE 241	Substance Abuse Prevention	3
HUSE 242	Chemically Dependent Family	3
HUSE 244	Sub Abuse: Treatment, Intrv	3
HUSE 286	Substance Abuse Practicum I (See Note 5)	4
HUSE 288	Substance Abuse Practicum II	4

**Subchoice 5C: Family Emphasis (See Note 6)**

HUSE 282	Human Services Practicum I (See Note 5)	4
HUSE 284	Human Services Practicum II	4
SOCL 254	Marriage and Family	3
SOCL 260	Minority Groups	3

**MINIMUM TOTAL**

**69**

**NOTES**

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students must select a four-credit General Education Science/Technology Core course that will also satisfy the Science/Mathematics transfer requirement for MACRAO. See the MACRAO Transfer Agreement in the *Transfer Information* section of this catalog.
- See the MACRAO Transfer Agreement in the *Transfer Information* section of this catalog for appropriate humanities courses.
- In addition to the courses listed in Subchoice 5A, students must also complete three credits of departmentally approved GERO electives and three credits of HUSE electives that are not already used to meet degree requirements. Students must consult with a Human Services Program Advisor regarding course selection.
- There is an application process and guidelines for admission into the field placement component. Students should meet with a program advisor to develop a plan to meet all field work prerequisites. 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 Human Services Program Advisor for further information.
- In addition to the courses listed in Subchoice 5C, students must also complete six credits of departmentally approved Human Services area courses that are not already used to meet degree requirements. Students must consult with a Human Services Program Advisor regarding course selection.
- All HUSE, GERO, and SOWK courses used toward this degree must be completed with a minimum 2.5 grade.

**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	SOWK 203	ANAT 145	Lim.Ch.1
HUSE 100	WRIT 121	SPCH 120	Lim.Ch.2
HUSE 101	Lim.Ch.3	Lim.Ch.4	Lim.Ch.3
HUSE 112	Lim.Ch.5	Lim.Ch.5	Lim.Ch.5
SOCL 120	Lim.Ch.5	Lim.Ch.5	
Lim.Ch.5			



**SUBSTANCE ABUSE  
CERTIFICATE OF ACHIEVEMENT**

**Curriculum Code: 0239 (Effective Fall 2000–Summer 2005)**

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	3
HUSE 101	Personal Dimensions/Human Serv	2
HUSE 112	Introduction/Substance Abuse	3
HUSE 240	Substance Abuse: Spec Pop/Adol	3
HUSE 241	Substance Abuse Prevention	3
HUSE 242	Chemically Dependent Family	3
HUSE 244	Sub Abuse:Treatment, Intrv	3
HUSE 286	Substance Abuse Practicum I (See Note 1)	4
HUSE 288	Substance Abuse Practicum II	4
SOWK 203	Social Work Interviewing	3
WRIT 121	Composition I	4
<b>MINIMUM TOTAL</b>		<b>35</b>

**NOTES**

1. There is an application process and guidelines for admission into the field placement/practicum component. Students should meet with a program advisor to develop a plan to meet all field work prerequisites. 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. All required HUSE and SOWK courses must be completed with a minimum 2.5 grade or better.
3. 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 112	HUSE 100	HUSE 240	HUSE 286
WRIT 121	HUSE 101	HUSE 241	
	HUSE 242	SOWK 203	
	HUSE 244		
<hr/>			
V			
HUSE 288			

### CNC PROGRAMMING ASSOCIATE IN APPLIED SCIENCE DEGREE

Curriculum Code: 0266 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 50 CREDITS
CODE	TITLE	CREDIT HOURS
CNCP 110	Foundations of CNC Programming	4
CNCP 130	Machine Controls and Setup	4
CNCP 200	Unigraphics NC	4
CNCP 210	Mastercam	4
CNCP 215	Generative Machining	4
DTDS 180	Unigraphics I	4
MACH 105	Machine Tool Survey	3
MACH 110	Machine Tool Technology I	4
MACH 111	Machine Tool Technology II	4
MACH 120	Effect Use Machinery Handbook	4
MACH 135	Metallurgy and Heat Treat	4
MACH 140	Tooling Theory and Practices	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 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Drafting	3-4 Credits	
CNCP 101	PC Applications for Technology	3
COOP 210	Cooperative Education (Tech)	3
DTDS 101	Drafting I	4
DTDS 104	Descriptive Geometry	4
DTDS 110	Industrial Blueprint Reading	3
DTDS 131	AutoCAD Basic 2-D	4
DTDS 155	IDEAS	4
DTDS 180	Unigraphics I	4

MINIMUM TOTAL 62

#### NOTE

- 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	CNCP 110	CNCP 130	CNCP 200
WRIT 124	MACH 110	CNCP 210	CNCP 215
Lim.Ch.	MACH 111	DTDS 180	Lim.Ch.
Lim.Ch.	MACH 120	MACH 135	Lim.Ch.
	MACH 140		

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**INDUSTRIAL TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0110 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 51 CREDITS
CODE	TITLE	CREDIT HOURS
CNCP 110	Foundations of CNC Programming	4
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	4
HVAC 110	Applied Electricity I	2
MACH 100	Manufacturing Processes	4
MACH 105	Machine Tool Survey	3
MACH 120	Effect Use Machinery 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: 12–13 CREDITS**  
Complete the indicated number of credits from *each CHOICE* listed below.

<b>CHOICE 1: General Education Core Areas</b>	<b>9 Credits</b>
<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
Mathematics Competency <i>(See Note 1)</i>	
<b>CHOICE 2: Technical Related</b>	<b>3–4 Credits</b>
CNCP 101 PC Applications for Technology	3
MACH 140 Tooling Theory and Practices	4
MACH 210 Prin Electric Discharge Mach	4
QUAL 121 Intro Statistical Process Cont	3
<b>MINIMUM TOTAL</b>	<b>63</b>

**NOTE**

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
HVAC 110	DTDS 110	MACH 135	CNCP 110
MACH 100	MACH 105	MFGM 101	EMTA 100
MATH 114	MACH 120	PHYS 200	Lim.Ch.
WELD 100	MATH 115	Lim.Ch.	Lim.Ch.
	WRIT 124	Lim.Ch.	

**INDUSTRIAL TECHNOLOGY  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0150 (Effective Fall 2000–Summer 2005)

This certificate provides students with a basic understanding of a variety of technologies to enhance the theory skills they already possess.

REQUIREMENTS		TOTAL: 23 CREDITS
CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	4
MACH 100	Manufacturing Processes	4
MACH 120	Effect Use Machinery Handbook	4
MACH 135	Metallurgy and Heat Treat	4
MATH 114	Technical Math I	4

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

<b>CHOICE 1: Related Technology</b>	<b>12 Credits</b>
CNCP 101 PC Applications for Technology	3
MACH 105 Machine Tool Survey	3
MFGM 101 Industrial Hydraulics	4
MFGM 110 Machine Maintenance I	4
PHYS 200 Applied Physics	4
QUAL 107 Problem-Solving Techniques	3
WRIT 124 Technical Writing	3

**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
DTDS 110	EMTA 100
MACH 100	MACH 120
MATH 114	MACH 135
Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.

**MACHINE MAINTENANCE  
ASSOCIATE IN APPLIED SCIENCE DEGREE**
**Curriculum Code: 0173 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**
**TOTAL: 47 CREDITS**

CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	4
MACH 105	Machine Tool Survey	3
MACH 110	Machine Tool Technology I	4
MACH 111	Machine Tool Technology II	4
MACH 120	Effect Use Machinery 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**

(See the <i>GENERAL EDUCATION</i> 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**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**
**NOTE**

- 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 110	DTDS 110	MFGM 111
MFGM 101	MACH 120	EMTA 100	MFGM 120
WRIT 124	MFGM 110	MACH 111	MFGM 125
Lim.Ch.	Lim.Ch.	MACH 135	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY **ONE SEMESTER PRIOR** TO THE SEMESTER THEY INTEND TO GRADUATE

**MACHINE REPAIR  
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 0147 (Effective Fall 2000–Summer 2005)**

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.

**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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS	TOTAL: 32 CREDITS
DTDS 110	Industrial Blueprint Reading	3	
EMTA 100	Medical First Responder	4	
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** 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
DTDS 110	EMTA 100
MACH 105	MFGM 101
MATH 114	MFGM 111
MFGM 110	WELD 100
MFGM 125	

**MILLWRIGHT  
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 0154 (Effective Fall 2000–Summer 2005)**

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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS	TOTAL: 33 CREDITS
BLDT 103	Structural Blueprint Reading	4	
EMTA 100	Medical First Responder	4	
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	4
CIVL 120	Surveying	4

**MINIMUM TOTAL** 36

**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	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MACHINIST TOOLMAKER  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0199 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS	TOTAL: 52 CREDITS
CNCP 101	PC Applications for Technology	3	
CNCP 110	Foundations of CNC Programming	4	
DTDS 110	Industrial Blueprint Reading	3	
EMTA 100	Medical First Responder	4	
MACH 105	Machine Tool Survey	3	
MACH 110	Machine Tool Technology I	4	
MACH 111	Machine Tool Technology II	4	
MACH 112	Machine Tool Technology III	4	
MACH 120	Effect Use Machinery Handbook	4	
MACH 130	Die Construction	4	
MACH 135	Metallurgy and Heat Treat	4	
MACH 140	Tooling Theory and Practices	4	
MACH 210	Prin Electric Discharge Mach	4	
WRIT 124	Technical Writing	3	

**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 (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Mathematics 8 Credits**

MATH 114	Technical Math I	4
MATH 115	Technical Math II	4
MACH 212	Compound Angles	4

**MINIMUM TOTAL 69**

**NOTE**

- 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
EMTA 100	DTDS 110	CNCP 101	CNCP 110
MACH 105	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.	

**TOOL AND DIE MAKER  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0141 (Effective Fall 2000–Summer 2005)

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.

**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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS	TOTAL: 38 CREDITS
DTDS 110	Industrial Blueprint Reading	3	
EMTA 100	Medical First Responder	4	
MACH 105	Machine Tool Survey	3	
MACH 110	Machine Tool Technology I	4	
MACH 111	Machine Tool Technology II	4	
MACH 112	Machine Tool Technology III	4	
MACH 120	Effect Use Machinery Handbook	4	
MACH 135	Metallurgy and Heat Treat	4	
MACH 140	Tooling Theory and Practices	4	
MATH 114	Technical Math I	4	

**MINIMUM TOTAL**

**38**

**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
DTDS 110	EMTA 100	MACH 112
MACH 105	MACH 110	MACH 140
MACH 120	MACH 111	
MATH 114	MACH 135	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**WELDING TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

**Curriculum Code: 0186 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS	TOTAL: 46 CREDITS
EMTA 100	Medical First Responder	4	
MACH 105	Machine Tool Survey	3	
MACH 135	Metallurgy and Heat Treat	4	
MFGM 125	Rigging	4	
WELD 100	Combination Welding	2	
WELD 101	Advanced ARC Welding	4	
WELD 110	Gas Metal ARC Welding	4	
WELD 111	Gas Tungsten ARC Welding	4	
WELD 120	Struct Fabrication/Inspec	4	
WELD 125	Struct Blueprint Reading Weld	4	
WELD 201	Tool and Die Welding	2	
WELD 205	Pipe Welding	4	
WRIT 124	Technical Writing	4	
		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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Technical Related 6–7 Credits**

COOP 210	Cooperative Education (Tech)	3
ELTE 110	Practical Electricity	3
MACH 100	Manufacturing Processes	4
MFGM 102	Industrial Pneumatics	3

**MINIMUM TOTAL 61**

**NOTE**

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
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: 0156 (Effective Fall 2000–Summer 2005)**

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: 32 CREDITS**

CODE	TITLE	CREDIT HOURS
EMTA 100	Medical First Responder	4
MACH 135	Metallurgy and Heat Treat	4
MFGM 125	Rigging	4
WELD 100	Combination Welding	2
WELD 101	Advanced ARC Welding	4
WELD 110	Gas Metal ARC Welding	4
WELD 111	Gas Tungsten ARC Welding	4
WELD 120	Struct Fabrication/Inspec	4
WELD 125	Struct Blueprint Reading Weld	2

**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	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 2000–Summer 2005)

Graduates of the Interior Design Technology program 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 graduates 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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

**TOTAL: 54 CREDITS**

CODE	TITLE	CREDIT HOURS
ARCH 101	Architectural Drafting	4
ARCH 121	Visual Communication I	3
INTR 100	Interior Design Fundamentals	3
INTR 110	Applied Color Design/Theory	3
INTR 151	Computer-Aided Kitchen Design	4
INTR 170	Intro to Interior Design	4
INTR 175	Interior Space Planning	3
INTR 190	Interior/Materials/Equipment	4
INTR 222	CADD for Interiors	3
INTR 225	CADD for Space Planning	3
INTR 240	Fundamentals of Lighting	3
INTR 244	3-D Visual Display Studio	3
INTR 246	Residential Interiors Studio	3
INTR 248	Non-Residential Interiors Studio	3
INTR 252	Codes and Specifications	2
INTR 256	Interior Professional Practice	3
INTR 263	Interior Design Internship	1
INTR 270	Interior Design Portfolio	2

**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**  
(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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Discipline Related History 4 Credits**

HUMS 211 History of Art	4
HUMS 212 History of Art II	4

**MINIMUM TOTAL 67**

**NOTE**

- Students must complete one course from Choice 2 to fulfill 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
ARCH 121	ARCH 101	INTR 222	INTR 225
INTR 100	INTR 151	INTR 246	INTR 252
INTR 110	INTR 190	INTR 248	INTR 263
INTR 170	INTR 240	INTR 256	INTR 270
INTR 175	INTR 244	Lim.Ch.1	Lim.Ch.1
		Lim.Ch.1	Lim.Ch.2



**HORTICULTURE  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0189 (Effective Fall 2000-Summer 2005)

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, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 23.

**INFORMATION**

Contact the Technology Careers Department, Gennon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 34 CREDITS
CODE	TITLE	CREDIT HOURS
HORT 102	Intro Ornamental Horticulture	2
HORT 105	Pest/Problem Ornamental Plants	2
HORT 230	Plant Propagation/Nursery Op	4
HORT 235	Greenhouse Structures/Environ	3
LAND 100	Intro to Landscape Drafting	2
LAND 130	Interior Landscaping	3
LAND 140	Evergreen and Deciduous Trees	3
LAND 141	Flowering Trees, Shrubs, Vines	3
LAND 142	Perennial/Annual Flower Plants	3
LAND 163	Designing Ornamental Gardens	3
LAND 282	Computer Draft/Dsgn Land Arch	3
WRIT 124	Technical Writing	3

**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 (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Specialization (Choose one subchoice)** 21 Credits

**Subchoice 2A: Floriculture**

HORT 103	Foliage and Flowering Plants	2
HORT 107	Beginning Floral Design	2
HORT 109	Contemporary Floral Design	2
HORT 110	Wedding Floral Design	2
HORT 143	Cut Flower, Foliage, Pot Plant	4
HORT 236	Greenhouse Ornamentals	3
HORT 237	Bedding Plant Production	3
HORT 238	Gerden Center/Nursery Sales	3

**Subchoice 2B: Landscape Horticulture**

LAND 150	Principles of Landscape Arch	3
LAND 152	Landscape Graphics Comm-Begin	3
LAND 160	Planting Design I	3
LAND 180	Landscape Ecology	3
LAND 225	Landscape Cost Estimation	3
LAND 232	Professional Res. Land Design	3
LAND 233	Grounds Management	3
<b>MINIMUM TOTAL</b>		<b>64</b>

**NOTE**

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.

**Floriculture Option**

I	II	III	IV
HORT 102	HORT 103	HORT 110	HORT 230
HORT 107	HORT 105	HORT 237	HORT 238
HORT 143	HORT 109	LAND 130	LAND 163
HORT 235	HORT 236	LAND 142	LAND 282
LAND 100	LAND 141	Lim.Ch.	Lim.Ch.
LAND 140	WRIT 124	Lim.Ch.	

**Landscape Horticulture Option**

I	II	III	IV
HORT 102	HORT 230	HORT 105	LAND 130
HORT 235	LAND 141	LAND 142	LAND 163
LAND 100	LAND 150	LAND 152	LAND 180
LAND 140	LAND 282	LAND 160	LAND 225
WRIT 124	Lim.Ch.	LAND 232	LAND 233
		Lim.Ch.	Lim.Ch.

**LANDSCAPE ARCHITECTURE  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0203 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

**TOTAL: 61 CREDITS**

CODE	TITLE	CREDIT HOURS
LAND 100	Intro to Landscape Drafting (See Note 1)	2
LAND 140	Evergreen and Deciduous Trees	3
LAND 141	Flowering Trees, Shrubs, Vines	3
LAND 150	Principles of Landscape Arch	3
LAND 152	Landscape Graphics Comm-Begin	3
LAND 153	Landscape Graphics Comm-Adv	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 Res. Land Design	3
LAND 233	Grounds Management	3
LAND 250	Landscape Construction Methods	3
LAND 252	Landscape Construction Details	3
LAND 276	Landscape Documents and Spec	2
LAND 282	Computer Draft/Dsgn Land Arch	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**

(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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**MINIMUM TOTAL 70**

**NOTES**

- 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.
- 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

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**LEGAL ASSISTANT  
ASSOCIATE IN BUSINESS DEGREE**

**Curriculum Code: 0101 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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
CABS 113	Microsoft Word Office/ Int Key	4
LEGL 115	Legal Assistant Career/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	Busn Law I, Basic Principles	3
LEGL 225	Legal Research and Writing II	3
LEGL 228	Computer Tech for Legal Assist	3
WRIT 121	Composition I	4
WRIT 122	Composition II	4

**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 (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Business Law 3 Credits**

LEGL 216	Busn Law II, Commercial Law	3
LEGL 217	Busn Law III, Busn Organiza	3
LEGL 220	Internat Legal Issues/Organiza	3

**CHOICE 3: General Law 9 Credits**

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 Interview/Investigation	3
LEGL 227	Bankruptcy and Collections	3
LEGL 280	Legal Assistant Internship	3

**MINIMUM TOTAL 60**

**NOTE**

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 113	LEGL 120	LEGL 121	LEGL 225
LEGL 115	LEGL 211	LEGL 210	LEGL 228
LEGL 160	WRIT 122	Lim.Ch.1	Lim.Ch.3
LEGL 215	Lim.Ch.1	Lim.Ch.2	Lim.Ch.3
WRIT 121	Lim.Ch.1	Lim.Ch.3	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN ALIUD CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**LEGAL ASSISTANT POST-BACHELOR  
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 0744 (Effective Fall 2000–Summer 2005)**

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/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	Busn 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 <i>each CHOICE</i> listed below.		
<b>CHOICE 1:</b>	<b>Business Law</b>	<b>3 Credits</b>
LEGL 216	Busn Law II, Commercial Law	3
LEGL 217	Busn Law III, Busn Organiza	3
LEGL 220	Internat Legal Issues/Organiza	3
<b>CHOICE 2:</b>	<b>General Law</b>	<b>9 Credits</b>
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 Interview/Investigation	3
LEGL 227	Bankruptcy and Collections	3
LEGL 228	Computer Tech for Legal Assist	3
LEGL 280	Legal Assistant Internship	3
<b>MINIMUM TOTAL</b>		<b>33</b>

**NOTES**

- Students in this curriculum will be granted a prerequisite override to take these courses concurrently with LEGL 115. Contact the Business Careers Department, telephone number (517) 483-1522 prior to registration.
- 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 #0101.

**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.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**ADVANCED MANAGEMENT  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0280 (Effective Fall 2000–Summer 2005)

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	Adv Mgmt Communication Skills	3
MGMT 332	Managerial Ethics	3
MGMT 335	Managerial Statistics	3
MGMT 337	Human Resource Mgmt Skills	3
MGMT 338	Current Topics in Management	3
MGMT 348	Strategic Management/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 223 Supervision	3
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 Intro Computer Info Systems	3
ECON 201 Principles of Economics-Micro	3
ECON 202 Principles of Economics-Macro	3
LEGL 215 Busn Law I, Basic Principles	3
MKTG 200 Principles of Marketing	3
MKTG 235 Marketing Internship	3
WRIT 127 Business Writing	3

**MINIMUM TOTAL 30**

**NOTES**

1. It is recommended that MGMT 348 be taken near the end of this Certificate program.
2. Students may also choose a maximum of 2 credits total from the T.I.M.E. Series (course codes MGMT 240–MGMT 279) and/or a maximum of 2 credits from CABS-prefix courses of 110 or above.
3. Students should confer with a Business Careers program advisor to assure that selection of Limited Choice courses will best fit their career plans.

**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
MGMT 304	MGMT 332
MGMT 329	MGMT 337
MGMT 335	MGMT 348
MGMT 338	Lim.Ch.
Lim.Ch.	Lim.Ch.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**HUMAN RESOURCE MANAGEMENT  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0712 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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
BUSN 118	Introduction to Business	3
CISB 200	Info Sys Tech/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/Development for Busn	3
MGMT 228	Organizational Behavior	3
MGMT 229	Compensation Management	3
MGMT 231	Team Development	3
MGMT 234	Diversity in the Workplace	3
MGMT 237	Managing/Continual Improvement	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Writing	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 15-19 CREDITS**  
Complete the indicated number of credits from *each CHOICE* listed below.

**CHOICE 1: General Education Core Areas 0 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 (See Note 1)	0
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Specialty Related (See Note 2) 9-11 Credits**

BUSN 229	Public Relations	2
LABR 200	Intro to Labor Relations	3
LABR 201	Labor Negotiation/Contract Adm	3
LABR 203	Labor Law	3
LEGL 215	Busn Law I, Basic Principles	3
MGMT 150	Managing Customer Relations	3
MGMT 239	Time and Stress Management	3
MGMT 280	Management Internship	3
MGMT 235	Independent Study/Management	1-3
MGMT 300	Managerial Leadership	3
MGMT 304	Organizational Development	3
MGMT 329	Adv Mgmt Communication Skills	3
MGMT 337	Human Resource Mgmt Skills	3

MKTG 100	Current Issues in Business	3
MKTG 119	Mktg/Manage Your Profess Image	3

**CHOICE 3: Computer Related (See Note 3) 3-4 Credits**

<b>CHOICE 4: Quantitative Related 3-4 Credits</b>		
ACCG 101	Accounting Info 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**

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students may also choose a maximum of 2 credits total from the T.I.M.E. Series (course codes MGMT 240 through MGMT 279).
- Choose CABS-prefix courses of 110 or above and/or CISB-prefix courses above 100.
- Students should confer with a Business Careers program advisor to assure that selection of Limited Choice courses will best fit their career plans.

**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  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0256 (Effective Fall 2000–Summer 2005)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances the 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 Business Careers Department, Old Central Building, room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 12 CREDITS
CODE	TITLE	CREDIT HOURS
LABR 200	Intro to Labor Relations	3
LABR 201	Labor Negotiation/Contract Adm	3
LABR 203	Labor Law	3
LABR 204	Employment Law for Managers	3

**MINIMUM TOTAL 12**

**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
LABR 200	LABR 201
LABR 204	LABR 203

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MANAGEMENT  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0245 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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	Info Sys Tech/Problem Solving	3
LABR 200	Intro 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	3
MGMT 237	Managing/Continual Improvement	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Writing	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 0 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 (See Note 1)	0
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Accounting 3–4 Credits**

ACCG 101	Accounting Info for Management	3
ACCG 210	Principles of Accounting I	4
MATH 117	Math for Business	4
MGMT 346	Managerial Finance	3

CHOICE 3: Management Related (See Note 2)	9–11 Credits	
ACCG 211	Principles of Accounting II	4
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	Busn Law I, Basic Principles	3
MGMT 150	Managing Customer Relations	3
MGMT 227	Training/Development for Busn	3
MGMT 235	Independent Study/Management	1-3
MGMT 239	Time and Stress Management	3
MGMT 280	Management Internship	3
MGMT 300	Managerial Leadership	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 202	Managerial Marketing	3

**MINIMUM TOTAL 60**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students may also choose a maximum of 2 credits total from the T.I.M.E. Series (course codes MGMT 240 through MGMT 279) and/or a maximum of 2 credits of CABS-prefix courses of 110 or above.
3. Students should confer with a Business Careers program advisor to assure that selection of Limited Choice courses will best fit their career plans.

**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.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MANAGEMENT  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0249 (Effective Fall 2000–Summer 2005)

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	Info Sys Tech/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	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 Info for Management	3
ACCG 210 Principles of Accounting I	4
MATH 117 Math for Business	4

CHOICE 2: Communication Skills	3 Credits
SPCH 110 Oral Communic in the Workplace	3
WRIT 127 Business Writing	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.

**SMALL BUSINESS MANAGEMENT  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0903 (Effective Fall 2000–Summer 2005)

This program consists of practical hands-on courses that provide students with the basic business knowledge and skills necessary to start a small 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.

**INFORMATION**

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

**REQUIREMENTS** **TOTAL: 7 CREDITS**

CODE	TITLE	CREDIT HOURS
BUSN 191	Independent Study/Business	1
BUSN 295	Small Business Management	3
MKTG 200	Principles of Marketing	3

**LIMITED CHOICE REQUIREMENTS** **TOTAL: 8-10 CREDITS**

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

CHOICE 1: Accounting	3 Credits
ACCG 100 Practical Accounting Non-Major	3
ACCG 101 Accounting Info for Management	3

CHOICE 2: Management Related (See Note 2)	3-4 Credits
MGMT 223 Supervision	3
MGMT 244 Supervisory Management	2
MGMT 254 How to Write a Business Plan	2

CHOICE 3: Computer Related	2-3 Credits
CABS 110 Microsoft Office	3
CABS 126 Excel	2
CISB 102 Internet Literacy	3
MKTG 210 Marketing on the Internet	2

**MINIMUM TOTAL** **15**

**NOTES**

- It is recommended that BUSN 191 be taken during the last semester of this certificate program. This capstone experience will result in a completed business plan.
- Students may also choose up to 4 credits from the T.I.M.E. Series (MGMT 240 through MGMT 279) to fulfill this requirement.

**SUGGESTED COURSE SEQUENCE**

Students should contact the Small Business Management Program Advisor as soon as possible to plan this program. 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 the advisor for help with adjustments.

I	II
BUSN 295	BUSN 191
Lim.Ch.1	MKTG 200
Lim.Ch.2	Lim.Ch.2
	Lim.Ch.3



**COMPUTER SALES SPECIALIST  
ASSOCIATE IN BUSINESS DEGREE**

**Curriculum Code: 0179 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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) 463-1522.

**REQUIREMENTS TOTAL: 48 CREDITS**

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CABS 110	Microsoft Office	3
CABS 195	Microsoft Windows	2
CISB 104	Introduction to DOS	1
CISB 107	DOS Management	1
CISB 119	Intro Window Prog Visual BASIC	4
CISB 130	Data Communications	3
CISB 200	Info Sys Tech/Problem Solving	3
CISB 235	Microcomputer Hardware Support	3
MGMT 234	Diversity in the Workplace	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 120	Sales	3
MKTG 123	Comput Field Sales Internship	3
MKTG 200	Principles of Marketing	3
MKTG 210	Marketing on the Internet	2
MKTG 221	Consumer Behavior	2
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Writing	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 12-14 CREDITS**

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

**CHOICE 1: General Education Core Areas 0 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 (See Note 1)	0
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Computer Related (See Note 2) 4-5 Credits**

**CHOICE 3: Business Related (See Note 3) 8-9 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 this Core area.
2. Choose from CABS-prefix courses of 113 or above and/or CISB-prefix courses not already used to meet degree requirements.
3. Students should confer with a Business Careers program advisor to assure that selection of Limited Choice courses will best fit their career plans.

**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 104	MKTG 119	MKTG 120	MKTG 123
CISB 200	MKTG 200	MKTG 221	MKTG 210
WRIT 127	SPCH 110	Lim.Ch.	Lim.Ch.
Lim.Ch.		Lim.Ch.	

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**FIELD SALES AND MARKETING  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0190 (Effective Fall 2000-Summer 2005)

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, students may need to complete specific course work 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	Info Sys Tech/Problem Solving	3
LEGL 215	Busn Law I, Basic Principles	3
MGMT 200	Creative Thinking for Business	3
MGMT 234	Diversity in the Workplace	3
MKTG 100	Current Issues in Business	3
MKTG 119	Mktg/Manage Your Profess 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 Communic in the Workplace	3
WRIT 127	Business Writing	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 19 CREDITS**  
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	0 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 1)</i>	0
Speech Communication Core Area <i>(See Note 1)</i>	0
Science/Technology Core Area <i>(See Note 1)</i>	0
Global Perspectives and Diversity Core Area <i>(See Note 1)</i>	0
Mathematics Competency <i>(See page 23 for information on how to fulfill this requirement. Course work may be needed.)</i>	0
<b>CHOICE 2: Sales/Marketing Related <i>(See Note 2)</i></b>	<b>19 Credits</b>
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 150 Managing Customer Relations	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 210	Marketing on the Internet	2
MKTG 235	Marketing Internship	3

**MINIMUM TOTAL 60**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students may also choose up to 4 credits of T.I.M.E. Series courses (MGMT 240 through MGMT 279). Students should confer with a Business Careers program advisor to assure that selection of Limited Choice courses will best fit their career plans.

**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: 0242 (Effective Fall 2000-Summer 2005)

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	Mktg/Manage Your Profess Image	3
MKTG 120	Sales	3
MKTG 122	Field Sales Internship	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Writing	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 6 CREDITS**  
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Marketing Related <i>(See Note 1)</i>	6 Credits
<b>MINIMUM TOTAL</b>	<b>30</b>

**NOTE**

1. Choose any course with a MKTG prefix not already used to meet certificate 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
BUSN 118	CABS 110
MKTG 119	MKTG 122
MKTG 120	MKTG 200
WRIT 127	SPCH 110
Lim.Ch.	Lim.Ch.

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**MARKETING  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0204 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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: 46 CREDITS
CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
BUSN 229	Public Relations	2
CABS 110	Microsoft Office	3
CISB 200	Info Sys Tech/Problem Solving	3
MGMT 234	Diversity in the Workplace	3
MKTG 100	Current Issues in Business	3
MKTG 119	Mktg/Manage Your Profess 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 Communic in the Workplace	3
WRIT 127	Business Writing	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 14 CREDITS**  
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	0 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 (See Note 1)	0
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	0
<b>CHOICE 2: Field Experience</b>	<b>3 Credits</b>
MKTG 122 Field Sales Internship	3
MKTG 235 Marketing Internship	3
<b>CHOICE 3: Marketing Related (See Note 2)</b>	<b>11 Credits</b>
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 Busn Law I, Basic Principles	3
MGMT 150 Managing Customer Relations	3
MGMT 200 Creative Thinking for Business	3

MGMT 223	Supervision	3
MGMT 231	Team Development	3
MKTG 131	Merchandising	2
MKTG 210	Marketing on the Internet	2
MKTG 231	Independent Study in Marketing	1-3
<b>MINIMUM TOTAL</b>		<b>60</b>

**NOTES**

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students may also choose up to 4 credits of T.I.M.E. Series courses (MGMT 240 through MGMT 279). Students should confer with a Business Careers program advisor to assure that selection of Limited Choice courses will best fit their career plans.

**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: 0225 (Effective Fall 2000–Summer 2005)

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	Mktg/Manage Your Profess Image	3
MKTG 120	Sales	3
MKTG 130	Retailing	3
MKTG 200	Principles of Marketing	3
MKTG 202	Managerial Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Writing	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
<b>MINIMUM TOTAL</b>	<b>30</b>

**NOTE**

- Choose any course with a MKTG prefix not already used to meet certificate 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
BUSN 118	MKTG 120
MKTG 119	MKTG 130
MKTG 200	MKTG 202
WRIT 127	SPCH 110
Lim.Ch.	Lim.Ch.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MEDIA TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0184 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 23.

**INFORMATION**

Contact the Media Technology Program, Technology Learning Center, Room 123, telephone number (517) 483-1677.

REQUIREMENTS		TOTAL: 35 CREDITS
CODE	TITLE	CREDIT HOURS
CISB 100	Intro Computer Info Systems (See Note 1)	3
MTEC 110	Intro Broadcast/Elec Media	4
MTEC 120	Audio Production I	4
MTEC 130	Radio Production I	4
MTEC 150	TV Production I	4
MTEC 240	Script/Copywriting for Media	3
MTEC 243	Ethics/Social Impact of 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: 27–32 CREDITS  
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	6 Credits
(See the <i>GENERAL EDUCATION</i> 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Media Specialty (Choose one subchoice)** 17–22 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 Promo	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 152	Video Production Techniques	3
MTEC 153	Video Post-Production Technqs	3
MTEC 250	TV Production II	4
MTEC 251	Advanced Field Production	4
MTEC 252	Lighting for Television/Video	3
MTEC 254	Electronic Presentat 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**

- Students having demonstrated computer proficiency should consult their program advisor for alternatives to CISB 100.
- Enrollment in MTEC 296 will be limited to Media Technology majors who have successfully completed 75% of their MTEC course work.
- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- 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.
- A Media Technology major may not apply more than four credits in MTEC 255 toward this degree.
- 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.
- 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	CISB 100	MTEC 240	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.	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MOTION PICTURE DIRECTION  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0900 (Effective Fall 2000-Summer 2005)

Motion pictures bring together elements from all the other arts: writing, photography, theater, music, dance, and all the visual arts. The Motion Picture Direction program gives students extensive practical experience working with other artists and technicians to create dramatic, documentary, experimental, or animated films. The degree is designed for students who wish to become screenwriters, directors, and film editors, the people who guide the film story-telling process. Entry-level jobs include production assistants as well as apprentices and interns in specialized roles with independent film production companies, advertising firms, and major film studios. **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, students may need to complete specific course work 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: 28 CREDITS**

CODE	TITLE	CREDIT HOURS
ENGL 240	The Film as Art	4
FILM 118	Film Production I	4
FILM 226	Film Production II	4
FILM 227	Film Production III	4
FILM 290	Motion Picture Portfolio	4
IMAG 111	Intro to Photographic Tech I	4
WRIT 121	Composition I	4

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 32 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Media Issues and Arts 23 Credits**

ARTS 102	2-Dimensional Design	3
ARTS 171	Computer Graphics/Photography	3
FILM 203	Topics in Film/Animation	3
FILM 281	Motion Picture Internship (See Note 2)	3
IMAG 204	Topics in Imaging Self-Express	3
IMAG 207	Imaging Issues	3
IMAG 208	Input Processes	3
MTEC 120	Audio Production I	4
MTEC 152	Video Production Techniques	3
MTEC 153	Video Post-Production Techniques	3
MTEC 243	Ethics/Social Impact of Media	3
STEC 140	Theatrical Make-Up/Wardrobe	3
THEA 120	Introduction to Acting	2
WRIT 282	Forum for Authors	3
WRIT 285	Creative Writing I	3

**MINIMUM TOTAL 60**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students should try to obtain internship experience, if possible.

**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
FILM 118	ENGL 240	FILM 227	FILM 290
IMAG 111	FILM 226	Lim.Ch.	Lim.Ch.
WRIT 121	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.			Lim.Ch.

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**MOTION PICTURE PRODUCTION  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0902 (Effective Fall 2000–Summer 2005)

Since the first film screening in 1895, motion pictures have grown into one of the world's most influential communication media and the United States' second leading export. The Motion Picture Production degree gives students extensive hands-on experience in creative and technical filmmaking skills, and it provides the opportunity to build a demonstration reel showcasing a student's ability. Filmmakers usually work in teams, each member specializing in one field such as cinematography, sound recording, lighting, special effects, or animation. While most films are produced by California companies, there are motion pictures made in every state. Filmmakers may work as independent contractors or find employment in companies that rent facilities, sell equipment, or contract services for film 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, students may need to complete specific course work 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: 45 CREDITS
CODE	TITLE	CREDIT HOURS
ENGL 240	The Film as Art	4
FILM 118	Film Production I	4
FILM 226	Film Production II	4
FILM 227	Film Production III	4
FILM 290	Motion Picture Portfolio	4
IMAG 111	Intro to Photographic Tech I	4
IMAG 112	Design for Imaging Tech	3
IMAG 113	Lighting Concepts/Applications	3
IMAG 114	Intro Photographic Color Tech	3
IMAG 117	Intro to Photographic Tech II	4
MTEC 120	Audio Production I	4
WRIT 121	Composition I	4

**LIMITED CHOICE REQUIREMENTS TOTAL: 15 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 <i>(See Note 1)</i>	0
Speech Communication Core Area	3
Science/Technology Core Area <i>(See Note 2)</i>	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 23 for information on how to fulfill this requirement. Course work may be needed.)</i>	
CHOICE 2: Media Issues and Technology	9 Credits
ARTS 171 Computer Graphics/Photography	3
ARTS 195 Employ/Busn Issues for Artists	1
ELCT 161 Soldering/Desoldering	1
ELTE 100 Electrical Safety Practices	1
FILM 203 Topics in Film/Animation	3
FILM 281 Motion Picture Internship <i>(See Note 3)</i>	3
IMAG 204 Topics in Imaging Self-Express	3
IMAG 207 Imaging Issues	3
IMAG 208 Input Processes	3
IMAG 232 Internship	3
MTEC 121 Audio Recording I	4
MTEC 243 Ethics/Social Impact of Media	3

STEC 100	Intro to Stage Tech Industry	2
STEC 120	Stage Lighting and Electricity	3
STEC 130	Audio/Visual Technology	3
STEC 140	Theatrical Make-Up/Wardrobe	3

**MINIMUM TOTAL 60**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. For students completing all requirements for this program (including IMAG 114), the Science/Technology Core Area requirement is waived.
3. Students should try to obtain internship experience, if possible.

**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
FILM 118	FILM 226	ENGL 240	FILM 290
IMAG 111	IMAG 114	FILM 227	Lim.Ch.
IMAG 112	IMAG 117	MTEC 120	Lim.Ch.
IMAG 113	WRIT 121	Lim.Ch.	Lim.Ch.
	Lim.Ch.		

**MOTION PICTURE PRODUCTION  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0901 (Effective Fall 2000–Summer 2005)

This program is designed for students who already have a degree or who are completing a degree in another area and wish to gain technical and creative hands-on experience to build a demonstration reel showcasing their skills.

REQUIREMENTS		TOTAL: 28 CREDITS
CODE	TITLE	CREDIT HOURS
ENGL 240	The Film as Art	4
FILM 118	Film Production I	4
FILM 226	Film Production II	4
FILM 227	Film Production III	4
IMAG 111	Intro to Photographic Tech I	4
MTEC 120	Audio Production I	4
WRIT 121	Composition I	4

**LIMITED CHOICE REQUIREMENTS TOTAL: 3-4 CREDITS**  
Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: Practical Production	3-4 Credits
FILM 281 Motion Picture Internship <i>(See Note 1)</i>	3
FILM 290 Motion Picture Portfolio	4
MINIMUM TOTAL	31

**NOTE**

1. Students should try to obtain internship experience, if possible.

**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
FILM 118	ENGL 240	MTEC 120
IMAG 111	FILM 226	Lim.Ch.
WRIT 121	FILM 227	

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**ADMINISTRATIVE ASSISTANT  
ASSOCIATE IN BUSINESS DEGREE**

**Curriculum Code: 0114 (Effective Fall 2000–Summer 2005)**

The administrative assistant curriculum provides skills in office procedures, word processing, spreadsheets, database management, electronic mail, and formatting documents. The administrative assistant is generally responsible for coordinating office functions and is characterized by varied skills and flexibility. Specific duties may include activities related to communications, personnel, budget, records management, and computers. Sample job titles include office manager, administrative secretary, and administrative assistant. Employment opportunities can be found in almost every 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, students may need to complete specific course work 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**

**TQTAL: 45 CREDITS**

CODE	TITLE	CREDIT HOURS
ACCG 100	Practical Accounting Non-Major	3
CABS 113	Microsoft Word Office/Int Key	4
CABS 118	Adv Microsoft Word for Office	4
CISB 102	Internet Literacy	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 195	Human Behavior in Work Place	3
OADM 200	Critical Thinking	3
OADM 215	Records and Info Management I	3
OADM 220	Administrative Office Mgmt	4
OADM 240	Office Internship	3
OADM 275	Cultural Differences in Busn	3
WRIT 114	Business English	3
WRIT 127	Business 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 6 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 (See Note 1)	0
Mathematics Competency (See Note 1)	0

**CHOICE 2: Office Administration Related 5-6 Credits**

LEGL 215 Business Law I, Basic Principles	3
OADM 110 Machine Transcription	3
OADM 203 Professional Office Procedures	2

**CHOICE 3: Computer Related 4 Credits**

CABS 104 Skillbuilding for Computers	2
CABS 126 Excel	2
CABS 133 Microsoft Access Database	2
CABS 182 Microsoft PowerPoint/Windows	2
CABS 219 Advanced Microsoft Word	2

**MINIMUM TOTAL 60**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. It is recommended that students entering this curriculum have keyboarding and Windows experience. This experience may come from life or work experience, CABS 100 seminars, CABS 101, or CABS 195.

**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 118	MATH 117	OADM 220
CABS 113	CISB 102	OADM 200	OADM 275
OADM 195	OADM 102	OADM 240	Lim.Ch.1
OADM 215	WRIT 127	Lim.Ch.1	Lim.Ch.2
WRIT 114	Lim.Ch.2	Lim.Ch.3	Lim.Ch.3

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**LEGAL SECRETARY  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0207 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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 113	Microsoft Word Office/Int Key	4
CABS 118	Adv Microsoft Word for Office	4
LEGL 215	Bush Law I, Basic Principles	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 110	Machine Transcription	3
OADM 195	Human Behavior in Work Place	3
OADM 200	Critical Thinking	3
OADM 206	Legal Vocabulary and Form Prep	3
OADM 215	Records and Info Management I	3
OADM 220	Administrative Office Mgmt	4
OADM 240	Office Internship	3
OADM 275	Cultural Differences in Bush	3
WRIT 114	Business English	3
WRIT 127	Business Writing	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 12–14 CREDITS**  
Complete the indicated number of credits from *each* CHOICE listed below.

<b>CHOICE 1: General Education Core Areas</b>	<b>6 Credits</b>
<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 <i>(See Note 1)</i>	0
Mathematics Competency <i>(See Note 1)</i>	
<b>CHOICE 2: Office Administration Related</b>	<b>2–3 Credits</b>
ACCG 100 Practical Accounting Non-Major	3
OADM 203 Professional Office Procedures	2
<b>CHOICE 3: Computer Related</b>	<b>4–5 Credits</b>
CABS 104 Skillbuilding for Computers	2
CABS 126 Excel	2
CABS 133 Microsoft Access Database	2
CABS 182 Microsoft PowerPoint/Windows	2
CABS 219 Advanced Microsoft Word	2
CISB 102 Internet Literacy	3
<b>MINIMUM TOTAL</b>	<b>60</b>

**NOTES**

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- It is recommended that students entering this curriculum have keyboarding and Windows experience. This experience may come from life or work experience, CABS 100 seminars, CABS 101, or CABS 195.

**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 113	CABS 118	OADM 200	MATH 117
OADM 110	LEGL 215	OADM 215	OADM 220
OADM 206	OADM 102	OADM 240	OADM 275
WRIT 114	OADM 195	WRIT 127	Lim.Ch.1
Lim.Ch.3	Lim.Ch.1	Lim.Ch.2	Lim.Ch.3

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**MEDICAL ADMIN ASSISTANT  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0185 (Effective Fall 2000–Summer 2005)

The medical administrative assistant is a specialist in the healthcare profession, the second-largest industry in the nation. The need for medical administrative assistants is expected to expand at a tremendous rate due in part to increased specialization in medical treatments and to technological advances in the diagnosis and treatment of diseases. Medical administrative assistants facilitate the work of physicians, researchers, and other health team professionals by managing health information, transcribing medical dictation, coding and billing for medical procedures, scheduling medical appointments and procedures, and arranging patient hospitalizations. Job opportunities are readily available in hospitals, medical centers, medical clinics, insurance companies, managed care organizations, and other private and public sector healthcare 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, students may need to complete specific course work 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: 58.5 CREDITS**

CODE	TITLE	CREDIT HOURS
ACCG 100	Practical Accounting Non-Major	3
ANAT 145	Introductory Anat & Physiology	4
CABS 113	Microsoft Word Office/ Int Key	4
CABS 118	Adv Microsoft Word for Office	4
CHSE 121	Medical Term Allied Health I	2.5
CHSE 123	Medical Insurance Billing I	3
CHSE 124	Medical Insurance Billing II	3
HUMS 265	Sem:Ethical Issues in Medicine	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 197	Medical Vocabulary	3
OADM 198	Health Information Management	3
OADM 207	Medical Transcription	3
OADM 220	Administrative Office Mgmt	4
OADM 222	Advanced Medical Transcription	4
OADM 275	Cultural Differences in Busn	3
WRIT 114	Business English	3
WRIT 127	Business Writing	3

**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
(See the <i>GENERAL EDUCATION</i> 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 (See Note 1)	0
Mathematics Competency (See Note 1)	
<b>MINIMUM TOTAL</b>	<b>64.5</b>

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. It is recommended that students entering this curriculum have keyboarding and Windows experience. This experience may come from life or work experience, CABS 100 seminars, CABS 101, CABS 104, or CABS 195.

**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 118	CHSE 123	CHSE 124
ANAT 145	CHSE 121	HUMS 265	MATH 117
CABS 113	OADM 198	OADM 207	OADM 102
OADM 197	OADM 220	WRIT 127	OADM 222
OADM 275	WRIT 114	Lim.Ch.1	Lim.Ch.1

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MEDICAL TRANSCRIPTIONIST  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0756 (Effective Fall 2000–Summer 2005)

A medical transcriptionist is a medical language specialist who interprets and transcribes dictation by physicians and other healthcare professionals in order to document patient care and facilitate delivery of healthcare services. Transcription areas may include patient assessment, workup, therapeutic procedures, clinical course, diagnosis, and prognosis. The medical transcriptionist can choose from a variety of employment options including hospitals, medical centers, medical clinics, insurance companies, managed care organizations, medical transcription services, and home office settings. Medical transcription is designated as one of the ten start-up businesses for the future. The employment outlook for medical transcriptionists is bright, with many opportunities for success and personal growth. **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, students may need to complete specific course work 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
ANAT 145	Introductory Anat & Physiology	4
CABS 113	Microsoft Word Office/ Int Key	4
CABS 118	Adv Microsoft Word for Office	4
CHSE 123	Medical Insurance Billing I	3
HUMS 265	Sem: Ethical Issues in Medicine	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 197	Medical Vocabulary	3
OADM 198	Health Information Management	3
OADM 207	Medical Transcription	3
OADM 222	Advanced Medical Transcription	4
OADM 240	Office Internship	3
OADM 275	Cultural Differences in Busn	3
WRIT 114	Business English	3
WRIT 127	Business Writing	3

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 13–14 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 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See Note 1)	0

**CHOICE 2: Computer Related 4–5 Credits**

CABS 104	Skillbuilding for Computers	2
CABS 110	Microsoft Office	3
CABS 126	Excel	2
CABS 133	Microsoft Access Database	2
CABS 219	Advanced Microsoft Word	2
CISB 102	Internet Literacy	3

CHOICE 3: Business Related (See Note 3)	3 Credits	
ACCG 100	Practical Accounting Non-Major	3
BUSN 118	Introduction to Business	3
MGMT 225	Principles of Management	3
MKTG 200	Principles of Marketing	3

**MINIMUM TOTAL**

**62**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. It is recommended that students entering this curriculum have keyboarding and Windows experience. This experience may come from life or work experience, CABS 100 seminars, CABS 101, or CABS 195.
3. Students may also choose a maximum of two credits total from the T.I.M.E. Series (course codes MGMT 240 through MGMT 279).

**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	CABS 118	CHSE 123	HUMS 265
CABS 113	OADM 102	OADM 207	MATH 117
OADM 197	OADM 198	OADM 275	OADM 222
WRIT 114	Lim.Ch.1	WRIT 127	OADM 240
Lim.Ch.2	Lim.Ch.2	Lim.Ch.1	Lim.Ch.3

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**OFFICE ASSISTANT  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0789 (Effective Fall 2000–Summer 2005)

Students completing this program are prepared for entry-level positions in an office. Training is focused on basic computer skills, editing documents, general office procedures, and internet usage. 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: 14 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 110	Microsoft Office	3
CABS 113	Microsoft Word Office/Int Key	4
CISB 102	Internet Literacy	3
OADM 102	Editing Business Documents	2
OADM 203	Professional Office Procedures	2
<b>MINIMUM TOTAL</b>		<b>14</b>

**NOTE**

1. It is recommended that students entering this curriculum have keyboarding and Windows experience. This experience may come from life or work experience, CABS 100 seminars, CABS 101, CABS 104 or CABS 195.

**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 110
- CABS 113
- CISB 102
- OADM 102
- OADM 203

**OFFICE SPECIALIST: COMP APPS  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0924 (Effective Fall 2000–Summer 2005)

An office specialist is skilled in the use of word processing, database, spreadsheet, and graphics software. Responsibilities include office procedures, business document preparation, proofreading, records management, and internet usage. 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: 32 Credits
CODE	TITLE	CREDIT HOURS
ACCG 100	Practical Accounting Non-Major	3
CABS 113	Microsoft Word Office/Int Key	4
CABS 126	Excel	2
CABS 133	Microsoft Access Database	2
CABS 182	Microsoft PowerPoint/Windows	2
CISB 102	Internet Literacy	3
OADM 102	Editing Business Documents	2
OADM 195	Human Behavior in Work Place	3
OADM 203	Professional Office Procedures	2
OADM 215	Records and Info Management I	3
OADM 240	Office Internship	3
WRIT 114	Business English	3
<b>MINIMUM TOTAL</b>		<b>32</b>

**NOTE**

1. It is recommended that students entering this curriculum have keyboarding and Windows experience. This experience may come from life or work experience, CABS 100 seminars, CABS 101, CABS 104, or CABS 195.

**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.

- |          |          |
|----------|----------|
| ACCG 100 | CABS 126 |
| CABS 113 | CABS 133 |
| CABS 182 | CISB 102 |
| OADM 195 | OADM 102 |
| OADM 203 | OADM 215 |
| WRIT 114 | OADM 240 |

**RECORDS MANAGEMENT  
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 0195 (Effective Fall 2000–Summer 2005)

Records and information management specialists account for and control 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. **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, students may need to complete specific course work 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
CABS 113	Microsoft Word Office/ Int Key	4
CABS 133	Microsoft Access Database	2
LEGL 215	Busn Law I, Basic Principles	3
MATH 117	Math for Business	4
OADM 102	Editing Business Documents	2
OADM 195	Human Behavior in Work Place	3
OADM 200	Critical Thinking	3
OADM 215	Records and Info Management I	3
OADM 216	Records and Info Management II	4
OADM 220	Administrative Office Mgmt	4
OADM 240	Office Internship	3
OADM 275	Cultural Differences in Busn	3
WRIT 114	Business English	3
WRIT 127	Business Writing	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 16–18 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 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See Note 1)	0

**CHOICE 2: Office Administration Related 5–6 Credits**

ACCG 100	Practical Accounting for Non-Major	3
BUSN 118	Introduction to Business	3
MGMT 225	Principles of Management	3
OADM 203	Professional Office Procedures	2

**CHOICE 3: Computer Related 5–6 Credits**

CABS 110	Microsoft Office	3
CABS 126	Excel	2
CABS 182	Microsoft Powerpoint/Windows	2
CABS 232	Advanced Microsoft Access	2
CISB 102	Internet Literacy	3

**MINIMUM TOTAL 60**

**NOTES**

- Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
- It is recommended that students entering this curriculum have keyboarding and Windows experience. This experience may come from life or work experience, CABS 100 Seminars, CABS 101, CABS 104, or CABS 195.

**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 113	CABS 133	LEGL 215	MATH 117
OADM 195	OADM 102	OADM 200	OADM 275
OADM 215	OADM 216	OADM 240	Lim.Ch.1
WRIT 114	OADM 220	WRIT 127	Lim.Ch.2
Lim.Ch.1	Lim.Ch.3	Lim.Ch.2	Lim.Ch.3

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**DANCE  
ASSOCIATE IN APPLIED ARTS DEGREE**

**Curriculum Code: 0118 (Effective Fall 2000–Summer 2005)**

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. Student must pass jury proficiency exam and submit a research paper prior to graduation. For information regarding the jury, please contact Dance Lead Faculty at 483-1018. 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, students may need to complete specific course work 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**

**TOTAL: 31 CREDITS**

CODE	TITLE	CREDIT HOURS
DANC 125	Dance Improvisation	2
DANC 126	Choreography	3
DANC 191	Dance History	3
DANC 193	Dance Anatomy	3
HUMS 120	Western Art and Music History	4
MUSC 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

**LIMITED CHOICE REQUIREMENTS (See Notes 1 and 2) TOTAL: 37–37.5 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	3
Global Perspectives and Diversity Core Area (See Note 3)	0
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	0

**CHOICE 2: Career OR Transfer (Choose one 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	4
Social Science	4

**MINIMUM TOTAL 68**

**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 or Humanities to complete all general education requirements. See *Transfer Information*.
- Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
- Choose from DANC courses numbered 101, 111, 201, 211, or 244 (one choice must be 201 or 211.)
- Choose from DANC courses numbered 102, 112, 202, or 212 (one choice must be 202 or 212.)
- Choose from DANC courses numbered (104, 114 or 204) and (103, 113, 203, 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.

**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 125	HUMS 120	DANC 126	Lim. Ch. 1
DANC 193	MUSC 199	DANC 191	Lim. Ch. 2
THEA 110	SOCL 120	SPCH 120	
WRIT 121	Lim. Ch. 2	Lim. Ch. 2	
Lim. Ch. 2			

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**MUSIC  
ASSOCIATE IN APPLIED ARTS DEGREE**

**Curriculum Code: 0270 (Effective Fall 2000–Summer 2005)**

The Music 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, students may need to complete specific course work 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 2300, Gannon Vocational-Technical Center, telephone number (517) 483-1254.

**REQUIREMENTS FOR ADMISSION TO THE MUSIC PROGRAM**

**Curriculum Code: 0721**

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 PROGRAM REQUIREMENTS**

**Curriculum Code: 0270**

REQUIREMENTS		TOTAL: 45 CREDITS
CODE	TITLE	CREDIT HOURS
ENGL 122	Writing: Literature and Ideas	4
MUSC 138	Class Piano Major I	2
MUSC 139	Class Piano Major II	2
MUSC 163	Aural Skills I	1
MUSC 164	Aural Skills II	1
MUSC 193	Basic Musicianship I	3
MUSC 194	Basic Musicianship II	3
MUSC 240	World Music History I	4
MUSC 241	World Music History II	4
MUSC 263	Aural Skills III	1
MUSC 264	Aural Skills IV	1
MUSC 293	Advanced Musicianship I	3
MUSC 294	Advanced Musicianship II	3
MUSC 297	Synthesizers and Computer Music	2
POLS 120	American Political System	4
SPCH 120	Dynamics of Communication	3
WRIT 121	Composition I	4

**LIMITED CHOICE REQUIREMENTS (See Note 1) TOTAL: 18–20 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 <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
Mathematics Competency <i>(See page 23 for information on how to fulfill this requirement. Course work may be needed.)</i>	

CHOICE 2: Private Lessons <i>(See Note 3)</i>	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 <i>(Choose one subchoice)</i>	4–6 Credits
<b>Subchoice 3A: Voice Requirements <i>(See Note 3)</i></b>	
MUSC 108 Concert Choir	1
MUSC 179 Class Voice Major I <i>(See Note 4)</i>	1
MUSC 180 Class Voice Major II <i>(See Note 4)</i>	1

<b>Subchoice 3B: Instrumental Requirements <i>(See Note 3)</i></b>	
MUSC 119 Lansing Concert Band	1
MUSC 121 Percussion Ensemble	1
MUSC 123 Jazz Ensemble	1

**MINIMUM TOTAL 63**

**NOTES**

- It is strongly recommended that students intending to transfer to 4-year institutions should meet additional course requirements as outlined in the MACRAO Transfer Agreement (see *Transfer Information*). Students should also consult appropriate Curriculum Guides for transfer to specific 4-year programs (available from advisors.)
- Students completing **REQUIREMENTS** have fulfilled the requirements for these Core areas.
- Course may be repeated and **MUST** be taken each semester student is enrolled as a major.
- Course required only of Voice Majors, and must be taken in addition to the required vocal ensemble.

**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
MUSC 138	ENGL 122	MUSC 240	MUSC 241
MUSC 163	MUSC 139	MUSC 263	MUSC 264
MUSC 193	MUSC 164	MUSC 293	MUSC 294
WRIT 121	MUSC 194	POLS 120	Lim. Ch. 1
Lim. Ch. 1	MUSC 297	SPCH 120	Lim. Ch. 2
Lim. Ch. 2	Lim. Ch. 2	Lim. Ch. 2	Lim. Ch. 3
Lim. Ch. 3	Lim. Ch. 3	Lim. Ch. 3	

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**MUSIC: COMMERCIAL  
ASSOCIATE IN APPLIED ARTS DEGREE**

**Curriculum Code: 0274 (Effective Fall 2000–Summer 2005)**

The Music: Commercial 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, students may need to complete specific course work 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 PROGRAM**

**Curriculum Code: 0722**

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: COMMERCIAL PROGRAM REQUIREMENTS**

**Curriculum Code: 0274**

REQUIREMENTS		TOTAL: 35 CREDITS
CODE	TITLE	CREDIT HOURS
MTEC 120	Audio Production I	4
MTEC 121	Audio Recording I	4
MUSC 138	Class Piano Major I	2
MUSC 155	Class Voice Commercial I	2
MUSC 163	Aural Skills I	1
MUSC 164	Aural Skills II	1
MUSC 193	Basic Musicianship I	3
MUSC 194	Basic Musicianship II	3
MUSC 253	Business of Music	3
MUSC 254	Band Management	2
MUSC 263	Aural Skills III	1
MUSC 264	Aural Skills IV	1
MUSC 293	Advanced Musicianship I	3
MUSC 294	Advanced Musicianship II	3
MUSC 297	Synthesizers & Computer Music	2

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 34 CREDITS**

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

<b>CHOICE 1: General Education Core Areas</b> <i>(See the GENERAL EDUCATION section above)</i>	<b>12 Credits</b>		
Writing Core Area	3		
Speech Communication Core Area	3		
Science/Technology Core Area	3		
Global Perspectives and Diversity Core Area	3		
Mathematics Competency <i>(See page 23 for information on how to fulfill this requirement. Course work may be needed.)</i>			
<b>CHOICE 2: History</b>	<b>4 Credits</b>		
MUSC 240 World Music History I	4		
MUSC 241 World Music History II	4		
MUSC 242 American Musical Theater	2		
MUSC 246 History of Blues and Jazz	2		
MUSC 247 History of Rock and Roll	2		
<b>CHOICE 3: Applied Skills</b>	<b>1–2 Credits</b>		
MUSC 139 Class Piano Major II	2		
MUSC 156 Class Voice Commercial II	2		
MUSC 232 Music Seminar	1		
MUSC 270 Rock Guitar I	1		
<b>CHOICE 4: Private Lessons Commercial</b> <i>(See Note 1)</i>	<b>8 Credits</b>		
MUSC 157 Applied Lesson I	2		
MUSC 158 Applied Lesson II	2		
MUSC 257 Applied Lesson III	2		
MUSC 258 Applied Lesson IV	2		
<b>CHOICE 5: Ensembles and Voice</b> <i>(Choose one subchoice)</i>	<b>4 Credits</b>		
<b>Subchoice 5A: Voice Requirements</b> <i>(See Note 1)</i>			
MUSC 108 Concert Choir	1		
<b>Subchoice 5B: Instrumental Requirements</b> <i>(See Note 1)</i>			
MUSC 119 Lansing Concert Band	1		
MUSC 121 Percussion Ensemble	1		
MUSC 123 Jazz Ensemble	1		
<b>CHOICE 6: Media Technology</b> <i>(See Note 2)</i>	<b>4 Credits</b>		
MTEC 122 Sound Reinforcement	4		
MTEC 130 Radio Production I	4		
MTEC 220 Audio Production II	4		
MTEC 221 Audio Recording II	4		
<b>CHOICE 7: Performing Arts Electives</b>	<b>1–2 Credits</b>		
MUSC 276 Lyric Writing	2		
MUSC 280 Private Songwriting	1		
THEA 120 Introduction to Acting	2		
Dance Classes <i>(See Note 3)</i>	1–2		
<b>MINIMUM TOTAL</b>	<b>69</b>		
<b>NOTES</b>			
1. Courses may be repeated and <i>must</i> be taken each semester student is enrolled as a major.			
2. Other Media Technology (MTEC) courses may be substituted with department approval.			
3. Students may choose from 100 level DANC courses, and may need to meet other audition requirements.			
<b>SUGGESTED COURSE SEQUENCE</b>			
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	MUSC 253	MUSC 254
MUSC 138	MUSC 164	MUSC 263	MUSC 264
MUSC 155	MUSC 194	MUSC 293	MUSC 294
MUSC 163	MUSC 297	Lim. Ch. 1	Lim. Ch. 1
MUSC 193	Lim. Ch. 1	Lim. Ch. 2	Lim. Ch. 4
Lim. Ch. 1	Lim. Ch. 2	Lim. Ch. 4	Lim. Ch. 5
Lim. Ch. 4	Lim. Ch. 3	Lim. Ch. 5	Lim. Ch. 6
Lim. Ch. 5	Lim. Ch. 4	Lim. Ch. 7	
	Lim. Ch. 5		

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**MUSIC: MANAGEMENT  
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 0861 (Effective Fall 2000–Summer 2005)

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.

**GENERAL EDUCATION**

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work 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: MANAGEMENT PROGRAM**

Curriculum Code: 0862

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: 0861

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	3
MTEC 120	Audio Production I	4
MTEC 121	Audio Recording I	4
MUSC 163	Aural Skills I	1
MUSC 164	Aural Skills II	1
MUSC 193	Basic Musicianship I	3
MUSC 194	Basic Musicianship II	3
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 & Computer Music	2
WRIT 127	Business Writing	3

**LIMITED CHOICE REQUIREMENTS**

TOTAL: 18–19 CREDITS

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

<b>CHOICE 1: General Education Core Areas</b>	<b>6–7 Credits</b>
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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

<b>CHOICE 2: Private Lessons Commercial (See Note 2)</b>	<b>8 Credits</b>
MUSC 157 Applied Lesson I	2
MUSC 158 Applied Lesson II	2
MUSC 257 Applied Lesson III	2
MUSC 258 Applied Lesson IV	2

<b>CHOICE 3: Ensembles and Voice (Choose one subchoice)</b>	<b>4 Credits</b>
<b>Subchoice 3A: Vocal Requirements (See Note 2)</b>	
MUSC 101 Lanswingers Vocal Ensemble	1
MUSC 102 Women's Chorus	1
MUSC 103 Men's Ensemble	1
MUSC 108 Concert Choir	1

<b>Subchoice 3B: Instrumental Requirements (See Note 2)</b>	
MUSC 119 Lansing Concert Band	1
MUSC 121 Percussion Ensemble	1
MUSC 123 Jazz 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 164	ACCG 210	ACCG 211
MATH 112	MUSC 194	MGMT 234	MTEC 121
MUSC 163	MUSC 253	MTEC 120	MUSC 241
MUSC 193	Lim. Ch. 1	MUSC 240	MUSC 254
WRIT 127	Lim. Ch. 1	Lim. Ch. 2	MUSC 297
Lim. Ch. 2	Lim. Ch. 2	Lim. Ch. 3	Lim. Ch. 2
Lim. Ch. 3	Lim. Ch. 3		Lim. Ch. 3

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**THEATRE  
ASSOCIATE IN APPLIED ARTS DEGREE**

**Curriculum Code: 0278 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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: 62 CREDITS**

CODE	TITLE	CREDIT HOURS
DANC 103	Jazz I	2
ENGL 122	Writing: Literature and Ideas	4
MUSC 182	Class Voice I	1
POLS 120	American Political System	4
SPCH 120	Dynamics of Communication	3
THEA 110	Introduction to Theatre	3
THEA 111	Basic Stagecraft	2
THEA 116	Scene Design 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	4
THEA 233	Studio Theatre Performance III	1
THEA 235	Studio Theatre Performance V	2
THEA 241	Acting III: Creating Theatre	2.5
THEA 251	Stage Voice for the Actor	3
THEA 261	Movement for the Actor	2
THEA 271	Dramatic Form and Function III	3
THEA 281	Advanced Improvisation II	1
WRIT 121	Composition I	4

**LIMITED CHOICE REQUIREMENTS (See Note 2)**

**TOTAL: 8 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 3)	0
Speech Communication Core Area (See Note 3)	0
Science/Technology Core Area (See Note 4)	4
Global Perspectives and Diversity Core Area (See Note 5)	0
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: 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**

**70**

**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. ASTR 201 or BIOL 210 is recommended.
5. Students completing *Limited Choice 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
MUSC 182	DANC 103	THEA 181	SPCH 120
THEA 110	ENGL 122	THEA 210	THEA 235
THEA 120	POLS 120	THEA 233	THEA 241
THEA 131	THEA 111	THEA 251	THEA 271
THEA 141	THEA 116	THEA 261	THEA 281
THEA 171	THEA 132	Lim. Ch. 2	
WRIT 121	THEA 142		
	THEA 172		

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**PHOTOGRAPHIC IMAGING  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0277 (Effective Fall 2000–Summer 2005)

The field of photography is vast and diverse with a wide range of employment opportunities. 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 communication. 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, students may need to complete specific course work 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: 42 CREDITS
CODE	TITLE	CREDIT HOURS
ARTS 171	Computer Graphics/Photography	3
IMAG 111	Intro to Photographic Tech I	4
IMAG 112	Design for Imaging Tech	3
IMAG 113	Lighting Concepts/Applications	3
IMAG 114	Intro Photographic Color Tech	3
IMAG 117	Intro to Photographic Tech II	4
IMAG 119	Intermediate Lighting	4
IMAG 210	Intermediate Color Ap and Tech	3
IMAG 211	Advanced Color Appl and Tech	4
IMAG 220	Intermed Still Imaging Tech	4
IMAG 221	Advanced Still Imaging Tech	4
IMAG 234	Portfolio Assembly/Degree Comp (See Note 1)	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 <i>GENERAL EDUCATION</i> 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
	Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2:	Business	3 Credits
BUSN 118	Introduction to Business	3
IMAG 233	The Business of Photography	3

CHOICE 3:	Special Interest	6 Credits
ARTS 228	Advanced Digital Imaging	3
FILM 118	Film Production I	4
FILM 203	Topics in Film/Animation	3
FILM 226	Film Production II	4
FILM 227	Film Production III	4
IMAG 201	Topics Commercial Photography	3
IMAG 202	Topics in Photo Communication	3
IMAG 204	Topics in Imaging Self-Express	3
IMAG 205	Topics in Hybrid Imaging	3
IMAG 206	End Technologies	3
IMAG 207	Imaging Issues	3
IMAG 208	Input Processes	3
IMAG 228	Independent Study	3
IMAG 229	Advanced Imaging Applications	1
IMAG 238	Project Lab Independent Study	3
IMAG 240	Internship	4

**MINIMUM TOTAL 60**

**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.
- For students completing all requirements for this program (including IMAG 114), the Science/Technology Core Area requirement is waived.
- Students completing this curriculum have the option of doing so through a two-year, full-time sequence of courses or through part-time enrollment over a longer period. The full-time sequence begins most efficiently in the Fall Semester. 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.

I	II	III	IV
IMAG 111	IMAG 114	ARTS 171	IMAG 211
IMAG 112	IMAG 117	IMAG 210	IMAG 221
IMAG 113	IMAG 119	IMAG 220	IMAG 234
Lim.Ch.1	Lim.Ch.1	Lim.Ch.3	Lim.Ch.2
Lim.Ch.1		Lim.Ch.3	

**QUALITY ASSURANCE  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0206 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

**TOTAL: 47 CREDITS**

CODE	TITLE	CREDIT HOURS
QUAL 100	Intro Quality Assurance	4
QUAL 103	Probability/Stats Qual Assur	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 Systems Management	4
QUAL 205	Cost of Quality	3
QUAL 209	Reliability	3
QUAL 212	Applied Stats/Qual Assur	4
QUAL 215	Experimental Design in QA	4
QUAL 239	Qual Plan/Project Management	4
QUAL 242	Quality Auditing	3

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 21–24 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Additional Quality Assurance/Technology Courses 9–12 Credits**

CNCP 101	PC Applications for Technology	3
DTDS 100	CAD/Drafting Concepts	4
DTDS 110	Industrial Blueprint Reading	3
MACH 100	Manufacturing Processes	4
QUAL 121	Intro Statistical Process Cont	3
QUAL 124	Quality Service/Customer Satis	3
QUAL 135	Measure/Gage Geom Tolerances	3
QUAL 224	Supervisory Skills for Quality	3
QUAL 251	Current Qual Assur Topics	1
QUAL 252	Current QA Topics II	2

**MINIMUM TOTAL 68**

**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 115	QUAL 209
QUAL 103	QUAL 203	QUAL 200	QUAL 215
QUAL 107	Lim.Ch.	QUAL 205	QUAL 239
Lim.Ch.	Lim.Ch.	QUAL 212	QUAL 242
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

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**QUALITY MANAGEMENT  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

**Curriculum Code: 0246 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 23.

**INFORMATION**

Contact the Technology Careers Department, Gannop Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

**REQUIREMENTS**

**TOTAL: 41 CREDITS**

CODE	TITLE	CREDIT HOURS
ACCG 101	Accounting Info for Management	3
QUAL 100	Intro Quality Assurance	4
QUAL 103	Probability/Stats Qual Assur	4
QUAL 104	Process Control Charting	3
QUAL 107	Problem-Solving Techniques	3
QUAL 124	Quality Service/Customer Satis	3
QUAL 200	Quality Improvement Teams	4
QUAL 203	Quality Systems Management	4
QUAL 205	Cost of Quality	3
QUAL 212	Applied Stats/Qual Assur	4
QUAL 224	Supervisory Skills for Quality	3
QUAL 242	Quality Auditing	3

**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
Mathematics Competency <i>(See page 23 for information on how to fulfill this requirement. Course work may be needed.)</i>	

**CHOICE 2: Additional Related Courses 10 Credits**

QUAL 115	Metrology	4
QUAL 121	Intro Statistical Process Cont	3
QUAL 124	Quality Service/Customer Satis	3
QUAL 209	Reliability	3
QUAL 224	Supervisory Skills for Quality	3
QUAL 239	Qual Plan/Project Management	4
QUAL 251	Current Qual Assur Topics	1
QUAL 252	Current QA Topics II	2

**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 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.

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I	II	III	IV
ACCG 101	QUAL 104	QUAL 200	QUAL 205
QUAL 100	QUAL 107	QUAL 212	Lim.Ch.
QUAL 103	QUAL 203	QUAL 242	Lim.Ch.
QUAL 124	QUAL 224	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	

**QUALITY TECHNICIAN  
CERTIFICATE OF ACHIEVEMENT**

**Curriculum Code: 0899 (Effective Fall 2000–Summer 2005)**

The quality technician is a paraprofessional who supports quality engineers and the manufacturing production function. Tasks of the quality technician include measuring, testing, and other evaluations of production; preparing quality plans and instructions; analyzing measurement systems; maintaining a program of certification and calibration for measurement devices; collecting and analyzing quality data; solving problems; and training inspectors and process operators. This program provides students with training and skills for an entry-level position in quality assurance with emphasis on technical areas of quality.

**REQUIREMENTS**

**TOTAL: 31 CREDITS**

CODE	TITLE	CREDIT HOURS
DTDS 100	CAD/Drafting Concepts	4
DTDS 110	Industrial Blueprint Reading	3
QUAL 100	Intro Quality Assurance	4
QUAL 103	Probability/Stats Qual Assur	4
QUAL 104	Process Control Charting	3
QUAL 107	Problem-Solving Techniques	3
QUAL 115	Metrology	4
QUAL 135	Measure/Gage Geom Tolerances	3
QUAL 242	Quality Auditing	3

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 5–12 CREDITS**

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

**CHOICE 1: Related Technical Courses 5–8 Credits**

CNCP 101	PC Applications for Technology	3
MACH 100	Manufacturing Processes	4
MACH 135	Metallurgy and Heat Treat	4
QUAL 200	Quality Improvement Teams	4
QUAL 203	Quality Systems Management	4
QUAL 205	Cost of Quality	3
QUAL 224	Supervisory Skills for Quality	3
QUAL 251	Current Qual Assur Topics	1
QUAL 252	Current QA Topics II	2

**CHOICE 2: Mathematics (See Note 1) 0–4 Credits**

MATH 112	Intermediate Algebra	4
MATH 115	Technical Math II	4

**MINIMUM TOTAL 36**

**NOTES**

- Students may waive the mathematics requirement by 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.
- Students should confer with a program advisor to assure that selection of Limited Choice courses will best fit their career plans.

**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
DTDS 100	DTDS 110	QUAL 135
QUAL 100	QUAL 104	QUAL 242
QUAL 103	QUAL 107	Lim.Ch.
Lim.Ch.	QUAL 115	Lim.Ch.

**SUPERVISION, MANUFACTURING  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0897 (Effective Fall 2000–Summer 2005)

A supervisor in the manufacturing industry is responsible to management and works to direct and facilitate production workers. Required skills include a technical expertise of manufacturing processes and materials, planning and organizational skills, interpersonal skills, an understanding of how organizations function, special requirements of the organization such as ISO and QS-9000, and a knowledge of systems to achieve a quality output. Many supervisors in manufacturing start their career in an entry-level manufacturing position in which they have acquired specific technical skills, then are promoted to a supervisory position and have a need for supervisory skills development. This curriculum provides a foundation of basic course work in supervision along with choices that allow the student to customize their program of study to fit the industry in which they work. **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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
EMTA 100	Medical First Responder	4
LABR 200	Intro to Labor Relations	3
MACH 100	Manufacturing Processes	4
QUAL 100	Intro Quality Assurance	4
QUAL 103	Probability/Stats Qual Assur	4
QUAL 121	Intro Statistical Process Cont	3
QUAL 124	Quality Service/Customer Satis	3
QUAL 200	Quality Improvement Teams	4
QUAL 203	Quality Systems Management	4
QUAL 224	Supervisory Skills for Quality	3
QUAL 239	Qual Plan/Project Management	4
WRIT 124	Technical Writing	3

**TOTAL: 46 CREDITS**

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 21–25 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**CHOICE 2: Related Technical Courses (See Note 2) 6–8 Credits**

CNCP 101	PC Applications for Technology	3
CNCP 130	Machine Controls and Setup	4
COQP 210	Cooperative Education (Tech)	3
DTDS 100	CAD/Drafting Concepts	4
DTDS 110	Industrial Blueprint Reading	3
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
MACH 105	Machine Tool Survey	3
MACH 135	Metallurgy and Heat Treat	4
MACH 140	Tooling Theory and Practices	4

**CHOICE 3: Business & Manufacturing Systems (See Note 2) 6–8 Credits**

ACCG 101	Accounting Info for Management	3
MGMT 227	Training/Development for Busn	3
QUAL 242	Quality Auditing	3
QUAL 251	Current Qual Assur Topics	1
QUAL 252	Current QA Topics II	2

**MINIMUM TOTAL 67**

**NOTES**

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students should confer with a program advisor to assure that selection of Limited Choice courses will best fit their career plans.

**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	BUSN 118	LABR 200	QUAL 203
MACH 100	QUAL 103	QUAL 124	QUAL 239
QUAL 100	QUAL 121	QUAL 200	Lim.Ch.
WRIT 124	QUAL 224	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

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**SUPERVISION, MANUFACTURING  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0898 (Effective Fall 2000-Summer 2005)

This program is designed for individuals seeking training for entry-level supervisory positions within the manufacturing industry. The courses required in this certificate program will also satisfy a portion of the Supervision, Manufacturing associate degree program, allowing students to continue their education and training.

**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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

**TOTAL: 31 CREDITS**

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
EMTA 100	Medical First Responder	4
LABR 200	Intro to Labor Relations	3
MACH 100	Manufacturing Processes	4
QUAL 100	Intro Quality Assurance	4
QUAL 121	Intro Statistical Process Cont	3
QUAL 200	Quality Improvement Teams	4
QUAL 224	Supervisory Skills for Quality	3
WRIT 124	Technical Writing	3

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 9-10 CREDITS**

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

CHOICE 1:	Business and Technical Courses	9-10 Credits
ACCG 101	Accounting Info for Management	3
CNCP 130	Machine Controls and Setup	4
CQOP 210	Cooperative Education (Tech)	3
DTDS 100	CAD/Drafting Concepts	4
DTDS 110	Industrial Blueprint Reading	3
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
MACH 105	Machine Tool Survey	3
MACH 135	Metallurgy and Heat Treat	4
MACH 140	Tooling Theory and Practices	4
MGMT 227	Training/Development for Busn	3
QUAL 251	Current Qual Assur Topics	1
QUAL 252	Current QA Topics II	2

**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
MACH 100	BUSN 118	LABR 200
QUAL 100	EMTA 100	QUAL 200
QUAL 224	QUAL 121	Lim.Ch.
WRIT 124	Lim.Ch.	Lim.Ch.

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**REAL ESTATE  
ASSOCIATE IN BUSINESS DEGREE**

**Curriculum Code: 0130 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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	Info Sys Tech/Problem Solving	3
MGMT 234	Diversity in the Workplace	3
MKTG 119	Mktg/Manage Your Profess 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 Communic in the Workplace	3
WRIT 127	Business Writing	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 0 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 (See Note 1)	0
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	0

**CHOICE 2: Accounting 3–4 Credits**

ACCG 100	Practical Accounting Non-Major	3
ACCG 101	Accounting Info 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	Busn Law III, Busn Organiza	3
LEGL 221	Real Estate Transaction	3
MATH 117	Math for Business	4
MGMT 225	Principles of Management	3

MGMT 228	Organizational Behavior	3
MGMT 239	Time and Stress Management	3
MKTG 140	Introduction to Advertising	3
MKTG 210	Marketing on the Internet	2
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 this Core area.
2. Students should confer with a Business Careers program advisor to assure that selection of Limited Choice courses will best fit their career plans.
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 275	REAL 273	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: 0148 (Effective Fall 2000–Summer 2005)**

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	Mktg/Manage Your Profess 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**

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
MKTG 120	REAL 275
REAL 273	REAL 280
REAL 279	Lim.Ch.
Lim.Ch.	

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**CHEMICAL PROCESS TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**
**Curriculum Code: 0859 (Effective Fall 2000–Summer 2005)**

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 and batch processes; 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, students may need to complete specific course work 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: 38 CREDITS**

CODE	TITLE	CREDIT HOURS
CHEM 151	General Chemistry Lecture I	4
CHEM 152	General Chemistry Lecture II	3
CHEM 161	General Chemistry Lab I	1
CHEM 162	General Chemistry Lab II	1
CHEM 182	Introductory Organic Chemistry	3
CHEM 192	Intro Organic Chemistry Lab	1
ENVR 131	Industrial Process & Pollut. Prevention	3
FIRE 220	Hazardous Materials/Fire Ser	4
MFGM 101	Industrial Hydraulics	4
PHYS 200	Applied Physics	4
SQCL 120	Introduction to Sociology	4
SPCH 110	Oral Communic in the Workplace	3
WRIT 124	Technical Writing	3

**LIMITED CHOICE REQUIREMENTS**
**TOTAL: 10–11 CREDITS**

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

**CHOICE 1: General Education Core Areas 0 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 (See Note 1)	0
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	0

**CHOICE 2: Mathematics (Choose one subchoice) 7–8 Credits**
**Subchoice 2A:**

MATH 112	Intermediate Algebra	4
QUAL 103	Probability/Stats Qual Assur	4

**Subchoice 2B:**

MATH 121	College Algebra I	4
STAT 170	Introduction to Statistics	3

**CHOICE 3: Computer Science 3 Credits**

CNCP 101	PC Applications for Technology	3
CPSC 120	Introduction to Computers	3

**ELECTIVES**
**TOTAL: 13 CREDITS**

Students must take at least 13 credits of electives. The following are recommended:

ENVR 121	Environmental Rules and Regs	3
ENVR 122	Enviro Sampl & Instrumentation	3
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
MACH 135	Metallurgy and Heat Treat	4
MFGM 102	Industrial Pneumatics	3
SCIN 287	Internship in Science Technolo	4
CHEM 262	Quantative Analysis	3

**MINIMUM TOTAL**
**51**
**NOTE**

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
CHEM 151	CHEM 152	ENVR 131	CHEM 182
CHEM 161	CHEM 162	MFGM 101	CHEM 192
WRIT 124	FIRE 220	Lim. Ch. 2	PHYS 200
Lim. Ch. 2	SOCL 120	Elective	Elective
Lim. Ch. 3	SPCH 110		Elective
	Elective		

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**CHEMICAL PROCESS TECHNOLOGY  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0860 (Effective Fall 2000–Summer 2005)

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.

**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 Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092.

REQUIREMENTS		TOTAL: 23 CREDITS
CODE	TITLE	CREDIT HOURS
CHEM 125	Basic Chemistry	4
CHEM 161	General Chemistry Lab I	1
CHEM 182	Introductory Organic Chemistry	3
CHEM 192	Intro Organic Chemistry Lab	1
PHYS 200	Applied Physics	4
QUAL 100	Intro Quality Assurance	4
SPCH 110	Oral Communic in the Workplace	3
WRIT 124	Technical Writing	3

**LIMITED CHOICE REQUIREMENTS TOTAL: 10–11 CREDITS**

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

CHOICE 1:	Computer Science	3 Credits
CNCP 101	PC Applications for Technology	3
CPSC 120	Introduction to Computers	3

**CHOICE 2: Mathematics (Choose one subchoice) 7–8 Credits**

**Subchoice 2A:**

MATH 112	Intermediate Algebra	4
QUAL 103	Probability/Stats Qual Assur	4

**Subchoice 2B:**

MATH 121	College Algebra I	4
STAT 170	Introduction to Statistics	3

**MINIMUM TOTAL 33–34**

**NOTE**

1. A minimum grade of 2.0 is required in MATH 112, PHYS 200, and in either CHEM 125 or CHEM 182.

**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 125	CHEM 182
CHEM 161	CHEM 192
QUAL 100	PHYS 200
Lim. Ch. 1	SPCH 110
Lim. Ch. 2	WRIT 124
	Lim. Ch. 2

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**CHEMICAL TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**
**Curriculum Code: 0163 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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: 55 CREDITS**

CODE	TITLE	CREDIT HOURS
CHEM 151	General Chemistry Lecture I	4
CHEM 152	General Chemistry Lecture II	3
CHEM 161	General Chemistry Lab I	1
CHEM 162	General Chemistry Lab II	1
CHEM 251	Organic Chemistry Lecture I	4
CHEM 252	Organic Chemistry Lecture II	4
CHEM 262	Quantitative Analysis	2
CHEM 272	Organic Chemistry Laboratory	2
CPSC 120	Introduction to Computers	3
FIRE 220	Hazardous Materials/Fire Ser	4
MATH 126	College Algebra and Trig	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: 10-12 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 <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
Mathematics Competency	

**CHOICE 2: Science Electives** **10-12 Credits**

BIOL 127	Cell Biology	4
ENVR 121	Environmental Rules and Regs	3
ENVR 122	Enviro Sampl & Instrumentation	4
ENVR 131	Indust Process & Pollut Preven	3
MICR 203	Microbiology	3
PHYS 202	Introductory Physics II	4
PHYS 225	Physics I Laboratory	1
PHYS 226	Physics II Laboratory	1
SCIN 287	Internship in Science Technolo	4

**MINIMUM TOTAL** **65**
**NOTE**

- 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
CHEM 151	CHEM 152	CHEM 251	CHEM 252
CHEM 161	CHEM 162	CHEM 262	CHEM 272
MATH 126	CPSC 120	PHYS 201	FIRE 220
SPCH 120	STAT 170	SOCL 120	Lim. Ch. 2
WRIT 121	WRIT 122	Lim. Ch. 2	Lim. Ch. 2

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**ENVIRONMENTAL TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0793 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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: 44 CREDITS**

CODE	TITLE	CREDIT HOURS
BIOL 210	Natural Resource Conservation	4
CHEM 151	General Chemistry Lecture I	4
CHEM 161	General Chemistry Lab I	1
CHEM 182	Introductory Organic Chemistry	3
CHEM 192	Intro Organic Chemistry Lab	1
CPSC 120	Introduction to Computers	3
ENVR 121	Environmental Rules and Regs	3
ENVR 122	Enviro Samp & Instrumentation	4
ENVR 131	Indust Process & Pollut Preven	3
FIRE 220	Hazardous Materials/Fire Ser	4
MATH 121	College Algebra I	4
SPCH 120	Dynamics of Communication	3
STAT 170	Introduction to Statistics	3
WRIT 121	Composition I	4

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 21–24 CREDITS**

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

**CHOICE 1: General Education Core Areas 3-4 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 (See Note 2)	3-4
Mathematics Competency (See Note 1)	

**CHOICE 2: Environmentally Related Courses 18–20 Credits**

CIVL 135	Soils Technology	3
GEOL 230	Environmental Geology	4
GRET 203	Beginning MicroStation	3
GRET 220	Hydrological Systems	3
GRET 255	Beginning ARC/Info	3
POLS 120	American Political System	4
SCIN 287	Internship in Science Technolo	4

**MINIMUM TOTAL 65**

**NOTES**

1. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
2. Students who plan to transfer to a 4 year institution should choose a 4 credit course in order to help meet the MACRAO 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
BIOL 210	CHEM 182	ENVR 122	ENVR 121
CHEM 151	CHEM 192	STAT 170	ENVR 131
CHEM 161	CPSC 120	Lim. Ch. 1	SPCH 120
MATH 121	FIRE 220	Lim. Ch. 2	Lim. Ch. 2
WRIT 121	Lim. Ch. 2		Lim. Ch. 2
Lim. Ch. 2			

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**HISTOLOGIC TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0923 (Effective Fall 2000–Summer 2002)

Histologic Technicians work under the supervision of a pathologist to prepare tissue specimens for diagnosis. They perform gross tissue preparation and laboratory procedures to show microscopic structure. Histologic Technicians solve problems, demonstrate ethics and patient confidentiality, and use chemical safety and universal precautions. Histologic Technicians work together with laboratory personnel to provide doctors with information for making a diagnosis. Histologic Technicians must be certified by the American Society of Clinical Pathologists (ASCP). This curriculum is intended for students who have been admitted to the joint LCC/Capital Area Career Center Histologic Technology Program.

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 Histologic 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, students may need to complete specific course work 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 Capital Area Career Center at (517) 244-1303.

**REQUIREMENTS FOR ADMISSION TO THE HISTOLOGIC TECHNOLOGY PROGRAM**

For current information about admission requirements, students must contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092 or the LCC Admissions Office, Room 2300, Gannon Vocational Technical Center, telephone number (517) 483-1254.

REQUIREMENTS		Total: 35 Credits
CODE	TITLE	CREDIT HOURS
ANAT 201	Human Anatomy	4
BIOL 127	Cell Biology	4
CHEM 151	General Chemistry Lecture I	4
CHEM 161	General Chemistry Lab I	1
CPSC 120	Introduction to Computers	3
MATH 112	Intermediate Algebra	4
SCIS 297	Independent Study in Science	4
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	3
WRIT 121	Composition I	4

Completion of the accredited Capital Area Career Center Histologic Technology Program Certification by the ASCP (see Note 1) **16 Credits**

**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 2)	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
Mathematics Competency	0

CHOICE 2: Electives	11 Credits
MATH 121 College Algebra I	4
MICR 203 Microbiology	3
MICR 204 Microbiology Laboratory	1
PHGY 202 Human Physiology	4
SCIN 287 Internship in Science Technology	4
STAT 170 Introduction to Statistics	3
WRIT 122 Composition II	4

**MINIMUM TOTAL 62**

**NOTES**

- The specific histologic technique courses necessary to prepare for this certification must be taken at the Capital Area Career Center or, students who have prepared for the certification exam in another program may apply for "Credit For Previously Acquired Knowledge and Learning Experience." See the *Student Records* section of this catalog.
- 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
SCIS 297	BIOL 127	ANAT 201	Lim. Ch.
	MATH 112	CHEM 151	Lim. Ch.
	SPCH 120	CHEM 161	Lim. Ch.
	WRIT 121	CPSC 120	
		SOCL 120	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MOLECULAR BIOTECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0212 (Effective Fall 2000–Summer 2005)

The Biotechnology program is a laboratory-intensive curriculum which emphasizes the wide-ranging applications of recombinant DNA technology (genetic engineering) including the preparation of gene libraries, Polymerase Chain Reaction, and DNA "fingerprinting." Graduates of this program will be able to work in many exciting areas of biotechnology, such as human genetic disease research, improvement of disease-resistance in plants, enhanced crop production, pharmaceutical research, biological cleanup of environmental pollution, or genome sequencing projects. Near the end of the program the Science Department will make every effort to arrange for internships in university or industrial research laboratories for students who wish to gain further experience. If you plan to transfer to a four-year school, please see an academic advisor or counselor before enrolling. Visit the biotechnology web site for further program details: [www.lansing.cc.mi.us/science/molecbio](http://www.lansing.cc.mi.us/science/molecbio)

**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, students may need to complete specific course work 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 (See Note 3)	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 Lab I	1
CHEM 162	General Chemistry Lab 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.

<b>CHOICE 1:</b>	<b>General Education Core Areas</b>	<b>0 Credits</b>
<i>(See the GENERAL EDUCATION section above)</i>		
	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 (See Note 1)	0
	Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	
<b>CHOICE 2:</b>	<b>Humanities (See Note 2)</b>	<b>8 Credits</b>
<b>CHOICE 3:</b>	<b>Social Science (See Note 2)</b>	<b>4 Credits</b>
<b>CHOICE 4:</b>	<b>Mathematics</b>	<b>4–5 Credits</b>
MATH 121	College Algebra I	4
MATH 126	College Algebra and Trig	5

<b>CHOICE 5:</b>	<b>Science Elective</b>	<b>4 Credits</b>
BIOL 128	Organismal Biology	4
SCIN 287	Internship in Science Technolo	4

**MINIMUM TOTAL 70**

**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 Humanities and Social Science courses.
3. Students are strongly urged to complete BIOL 127 and CHEM 161 before enrolling in BIOL 275.

**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
		Lim. Ch. 2	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

### VETERINARY TECHNOLOGY ASSOCIATE IN APPLIED SCIENCE DEGREE

Curriculum Code: 0287 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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 Lab 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: 46-47 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
Mathematics Competency (See Note 3)	

#### CHOICE 2: Math Requirement 4-5 Credits

MATH 121	College Algebra I	4
MATH 126	College Algebra and Trig	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.
- Students completing *Limited Choice 2* 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
CHEM 151	MICR 203
CHEM 161	MICR 204
SPCH 120	Lim. Ch. 1
WRIT 121	
Lim. Ch. 2	

**SIGN LANGUAGE INTERPRETER  
ASSOCIATE IN APPLIED ARTS DEGREE****Curriculum Code: 0282 (Effective Fall 2000–Summer 2005)**

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, students may need to complete specific course work 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: 53 CREDITS
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 168	Expressive Manual Commun	2	
SIGN 170	Creative Arts Signing	2	
SIGN 176	Advanced Fingerspelling	2	
SIGN 250	Deaf Culture and History	3	
SIGN 260	Linguistic Principles of ASL	3	
SIGN 261	Principles of Interpreting (See Note 1)	3	
SIGN 262	Mock Quality Assurance (QA)	3	
SIGN 263	Intermediate Sign to Voice	3	
SIGN 264	Advanced Sign to Voice	3	
SIGN 265	Adv Interpreting/Transliterate	3	
SIGN 267	Sign Internship I	3	
SIGN 268	Sign Internship II	3	
SIGN 295	Indepen Study/Sign Language	1	

**LIMITED CHOICE REQUIREMENTS****TOTAL: 12 CREDITS**

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

**CHOICE 1: General Education Core Areas (See Note 2) 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**MINIMUM TOTAL 65**

**NOTES**

1. An interpreter screening is required after the successful completion of SIGN 163 and SIGN 167 and prior to registering for SIGN 261.
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

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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.1	Lim.Ch.1	SIGN 168	
Lim.Ch.1	Lim.Ch.1	SIGN 170	
		SIGN 176	
V	VI	VII	
SIGN 250	SIGN 262	SIGN 260	
SIGN 263	SIGN 264	SIGN 265	
SIGN 267	SIGN 268		
	SIGN 295		

**SIGN LANGUAGE INTERPRETER  
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 0187 (Effective Fall 2000–Summer 2005)**

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.

**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 (See Note 1)	3
SIGN 262	Mock Quality Assurance (OA)	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 Commun	2
SIGN 170	Creative Arts Signing	2
SIGN 176	Advanced Fingerspelling	2
SIGN 250	Deaf Culture and History	3
SIGN 260	Linguistic Principles of ASL	3
SIGN 264	Advanced Sign to Voice	3
SIGN 265	Adv Interpreting/Transliterate	3

**MINIMUM TOTAL 36**

**NOTE**

- 1: An interpreter screening is required after the successful completion of SIGN 163 and SIGN 167 and prior to registering for SIGN 261.

**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: 0853 (Effective Fall 2000–Summer 2005)**

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 *Class 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 course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

CODE	TITLE	CREDIT HOURS	TOTAL: 44 CREDITS
ISCI 131	Integrated Science - Physical	4	
MFGM 125	Rigging	2	
MTEC 120	Audio Production I	4	
SOCL 120	Introduction to Sociology	4	
SPCH 110	Oral Communic in the Workplace	3	
STEC 100	Intro to Stage Tech Industry	2	
STEC 120	Stage Lighting and Electricity	3	
STEC 130	Audio/Visual Technology	3	
STEC 140	Theatrical Make-Up/Wardrobe	3	
THEA 110	Introduction to Theatre	3	
THEA 111	Basic Stagecraft	2	
THEA 116	Scene Design I	3	
THEA 210	Theatre History	4	
WRIT 121	Composition I	4	

**LIMITED CHOICE REQUIREMENTS****TOTAL: 28 CREDITS**

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

<b>CHOICE 1: General Education Core Areas</b> (See the <i>GENERAL EDUCATION</i> section above)	<b>0 Credits</b>
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 (See Note 1)	0
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	0
<b>CHOICE 2: Humanities</b>	<b>8 Credits</b>
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
<b>CHOICE 3: English Composition (See Note 2)</b>	<b>4 Credits</b>
<b>CHOICE 4: Science/Mathematics (See Note 2)</b>	<b>4 Credits</b>
<b>CHOICE 5: Social Science (See Note 2)</b>	<b>4 Credits</b>
<b>CHOICE 6: Stage Technology (See Note 3)</b>	<b>8 Credits</b>
<b>MINIMUM TOTAL</b>	<b>28</b>

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**NOTES**

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- See the MACRAO Transfer Agreement in the *Transfer Information* section of this catalog for appropriate english composition, science/mathematics, and social science courses.
- Students must take a minimum of 8 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.

**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 131	MTEC 120	STEC 130	MFGM 125
STEC 100	STEC 120	THEA 210	SOCL 120
THEA 110	THEA 116	Lim.Ch.	SPCH 110
THEA 111	Lim.Ch.	Lim.Ch.	STEC 140
WRIT 121	Lim.Ch.	Lim.Ch.	Lim.Ch.

**STAGE TECHNOLOGY  
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 0849 (Effective Fall 2000–Summer 2005)**

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 course work toward the Associate in Applied Arts Degree in Stage Technology, or use their skills in community service at schools, theatres, and churches.

**REQUIREMENTS****TOTAL: 27 CREDITS**

CODE	TITLE	CREDIT HOURS
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
MFGM 125	Rigging	2
MTEC 120	Audio Production I	4
STEC 100	Intro to Stage Tech Industry	2
STEC 120	Stage Lighting and Electricity	3
STEC 130	Audio/Visual Technology	3
STEC 140	Theatrical Make-Up/Wardrobe	3
THEA 111	Basic Stagecraft	2
WELD 100	Combination Welding	4

**LIMITED CHOICE REQUIREMENTS****TOTAL: 10 CREDITS**

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

<b>CHOICE 1: Stage Technology (See Note 1)</b>	<b>10 Credits</b>
<b>MINIMUM TOTAL</b>	<b>37</b>

**NOTE**

- Students must take a minimum of 10 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.

**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	MTEC 120	MFGM 125
ELTE 110	STEC 130	STEC 140
STEC 100	THEA 111	WELD 100
STEC 120	Lim.Ch.	Lim.Ch.



**CUSTOMER ENERGY SPECIALIST  
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 0893 (Effective Fall 2000–Summer 2005)

This curriculum is designed to give students the technical knowledge and customer relations skills to determine customer energy needs in the negotiation, design, installation, and application of utility facilities. Customer energy specialists are employed by utility companies, governmental agencies, heating and cooling contractors, the construction industry, and engineering and architectural firms.

**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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

**TOTAL: 42 CREDITS**

CODE	TITLE	CREDIT HOURS
ACCG 101	Accounting Info for Management	3
BUSN 118	Introduction to Business	3
CNCP 101	PC Applications for Technology	3
DTDS 101	Drafting I	4
DTDS 131	AutoCAD Basic 2-D	4
ELCT 101	Analog Problems	5
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
MATH 114	Technical Math I	4
MKTG 200	Principles of Marketing	3
PHYS 200	Applied Physics	4
SPCH 110	Oral Communic in the Workplace	3

**MINIMUM TOTAL 42**

**NOTE**

- Students who are employed or interning at Consumers Energy Company will also need to complete LEGL 215 and WRIT 124 for a total of 6 credits in addition to completing this certificate of achievement 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.

I	II	III
BUSN 118	ACCG 101	ELCT 110
CNCP 101	DTDS 131	MKTG 200
DTDS 101	ELCT 109	PHYS 200
ELCT 101	MATH 114	SPCH 110

**GENERAL TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 0213 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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 136, telephone number (517) 483-1336.

**REQUIREMENTS**

**TOTAL: 22 CREDITS**

CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	4
MACH 100	Manufacturing Processes	4
MACH 135	Metallurgy and Heat Treat	4
QUAL 100	Intro Quality Assurance	4
WRIT 124	Technical Writing	3

**LIMITED CHOICE REQUIREMENTS**

**TOTAL: 38 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

**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) 21 Credits**

**MINIMUM TOTAL 60**

**NOTES**

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Contact an advisor in GVT 136 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.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**AIRLINE OPERATIONS  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0918 (Effective Fall 2000–Summer 2005)

This curriculum is designed for individuals with travel experience who are interested in careers at airports or with airlines. It prepares the student with the basic skills and knowledge necessary for entry level positions as customer service representatives or flight attendants.

**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	TOTAL: 15 CREDITS
MGMT 150	Managing Customer Relations	3	
SPCH 130	Fundamental of Public Speaking ( <i>See Note 1</i> )	3	
TRVL 135	Airline/Airport Operations	3	
TRVL 140	Airline Computer Reservation I	3	
TRVL 180	Flight Attendant	3	

**MINIMUM TOTAL** 15

**NOTE**

- This course does not fulfill the Speech Communication Core requirement for those students planning to pursue an associate 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.

MGMT 150	
SPCH 130	
TRVL 135	
TRVL 140	
TRVL 180	

**TOUR CRUISE OPERATIONS  
CERTIFICATE OF COMPLETION**

Curriculum Code: 0920 (Effective Fall 2000–Summer 2005)

This curriculum is designed for individuals with travel experience who are interested in careers with cruiselines or tour operators. It gives students the basic skills and knowledge for entry level positions in businesses that offer group tours, tour packages, or cruises.

**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	TOTAL: 16 CREDITS
MGMT 150	Managing Customer Relations	3	
MGMT 239	Time and Stress Management	3	
SPCH 130	Fundamental of Public Speaking ( <i>See Note 1</i> )	3	
TRVL 145	Intro Cruise Sales/Ground Tran	3	
TRVL 210	Group Travel/Escorting Ops	4	

**MINIMUM TOTAL** 16

**NOTE**

- This course does not fulfill the Speech Communication Core requirement for those students planning to pursue an associate 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.

MGMT 150	
MGMT 239	
SPCH 130	
TRVL 145	
TRVL 210	

**TRAVEL AGENCY OPERATIONS  
CERTIFICATE OF COMPLETION****Curriculum Code: 0919 (Effective Fall 2000–Summer 2005)**

This curriculum is designed to give individuals with travel experience the basic skills and knowledge necessary for entry level positions in a travel agency.

**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 102	Internet Literacy	3
MGMT 150	Managing Customer Relations	3
MGMT 239	Time and Stress Management	3
OADM 203	Professional Office Procedures	2
TRVL 100	Travel Agency Operations	3
TRVL 140	Airline Computer Reservation I	3
<b>MINIMUM TOTAL</b>		<b>17</b>

**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.

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CISB 102  
MGMT 150  
MGMT 239  
OADM 203  
TRVL 100  
TRVL 140

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

## TRAVEL AND TOURISM ASSOCIATE IN BUSINESS DEGREE

Curriculum Code: 0229 (Effective Fall 2000–Summer 2005)

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, students may need to complete specific course work 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: 55 CREDITS

CODE	TITLE	CREDIT HOURS
CABS 110	Microsoft Office	3
CISB 200	Info Sys Tech/Problem Solving	3
HMFS 101	Intro Hospitality/Tourism	3
MGMT 150	Managing Customer Relations	3
MGMT 239	Time and Stress Management	3
MKTG 210	Marketing on the Internet	2
OADM 203	Professional Office Procedures	2
SPCH 110	Oral Communic in the Workplace	3
TRVL 125	Destinations I	3
TRVL 130	Destinations II	3
TRVL 131	Destinations III	3
TRVL 140	Airline Computer Reservation I	3
TRVL 145	Intro Cruise Sales/Ground Tran	3
TRVL 190	Internship and Seminar	3
TRVL 200	Sales/Mktg for Travel/Tourism	3
TRVL 230	Travel/Tourism Law	3
TRVL 250	Airline Comptr Reservation II	3
TRVL 265	Fundamentals of Bus Travel	3
WRIT 127	Business Writing	3

### LIMITED CHOICE REQUIREMENTS

TOTAL: 15–18 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
Mathematics Competency (See page 23 for information on how to fulfill this requirement. Course work may be needed.)	

#### CHOICE 2: Specific Travel Occupations (Choose one subchoice) 12–15 Credits

##### Subchoice 2A: Tour/Cruise Operations

HMFS 229	Convention/Meeting Management	3
MKTG 119	Mktg/Manage Your Profess Image	3
SPCH 130	Fundamental of Public Speaking	3
TRVL 146	Seminar at Sea	2
TRVL 210	Group Travel/Escorting Ops	4

##### Subchoice 2B: Airline Operations

MKTG 119	Mktg/Manage Your Profess Image	3
SPCH 130	Fundamental of Public Speaking	3
TRVL 135	Airline/Airport Operations	3
TRVL 180	Flight Attendant	3

##### Subchoice 2C: Travel Agencies

TRVL 100	Travel Agency Operations	3
TRVL 170	Owning/Managing Trvl Agency	3
TRVL 210	Group Travel/Escorting Ops	4
TRVL 260	Travel Agency Accounting	2

MINIMUM TOTAL

70

### NOTE

- 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 110	SPCH 110	CISB 200	TRVL 131
HMFS 101	TRVL 125	MKTG 210	TRVL 230
MGMT 150	TRVL 140	OADM 203	TRVL 265
MGMT 239	TRVL 145	TRVL 130	Lim.Ch.
WRIT 127	TRVL 200	TRVL 190	Lim.Ch.
Lim.Ch.	Lim.Ch.	TRVL 250	Lim.Ch.
		Lim.Ch.	

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**TRUCK DRIVER TRAINING  
CERTIFICATE OF COMPLETION**

**Curriculum Code: 0262 (Effective Fall 2000 - Summer 2001)**

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 2000/2001 academic year.** For the most recent and complete information, interested students should contact Lansing Community College, Truck Driver Training Program, 2417 25th Street, Augusta, MI 49012, telephone number (616) 731-4125.

**REQUIREMENTS FOR ADMISSION TO THE TRUCK DRIVER TRAINING PROGRAM**

**Curriculum Code: 0718**

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 judgement, 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 & 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 Driver Training I	3
TDTP 111	Truck Driver Training II	3
TDTP 112	Truck Driver Training III	3
<b>MINIMUM TOTAL</b>		<b>9</b>

**NOTE**

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.

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# 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 Services Department, Suite 2300, Gannon Vocational-Technical Center.

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 Services Department, Suite 2300, Gannon Vocational-Technical Center; TEL (517) 483-1904; FAX (517) 483-1970; E-MAIL mgarrison@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
Accounting	Human Resources Management
Actuarial Science and Economics	Industrial Management
Administrative Assistant	Information Systems
Advertising	Insurance
Agriculture and Natural Resources	Integrated Supply Management
Communication	International
Agriscience	Logistics
Animal Science	Management
Apparel Design	Marketing
Applied Liberal Studies	Operations Management
Applied Mathematics	Organizational Behavior
Applied Physics	Product Operation & Management
Architecture	Public Administration
Art	Retail
Art History	Statistics
Athletic Training	Chemistry
Atmospheric, Oceanic, and Space Sciences	Child Development
Audiology and Speech Sciences	Chiropractic, Pre-Professional
Automotive and Heavy Equipment Management	Clinical Laboratory Science
Aviation Flight Science - Pilot	Communication
Aviation Maintenance Technology	Interpersonal and Public
Behavioral Science	Scientific and Technical
Biochemistry	Studies
Biological Science	Technical and Professional
Biology	Communication Arts
Biotechnology	Computational Mathematics
Broadcasting	Computer Information Science
Building Construction Management	Computer and Mathematical Sciences
Business	Computer Information/Management
Accounting	Computer Information Systems
Accounting Information Systems	Computer Networks and Systems
Administration	Computer Science
Banking	Conservation
Business Studies	Construction Management
Computer Management/Systems	Criminal Justice
Economics	Criminology
Finance	Crop and Soil Science
Food Industry Management	Dental Hygiene
Food Marketing	Dentistry, Pre-Professional
General Business	Dietetics
Health Care/Services	Earth Science
Administration	Economics
	Education
	Elementary

Physical	Hospitality
Secondary	Business
Allied Health	Management
Biology	Human Resources
Business	Administration
Chemistry	Management
Home Economics	Industrial
Industrial	Environmental Health
Mathematics	Health and Safety
Music	Management
Technology	Technology
Vocation Technology	Insurance
Special	Interdisciplinary Studies
Engineering	Humanities
Administration	Human Resources
Arts	Public Policy
Aeronautical	Social Science
Aerospace	Interior Architecture
Biosystems	Interior Design
Chemical	International
Civil	Business
Computer	Studies
Construction and Management	James Madison
Electrical	Journalism
Environmental	Kinesiology
Geological	Land Use Planning and Management
Industrial and Operations	Landscape Architecture
Marine & Naval Architecture	Law
Material Science	Pre-Professional
Mechanical	Legal Assistant
Metallurgical	Liberal Arts
Mining	Management
Nuclear	Microcomputer and Network
Paper	Health and Fitness
Physics	Health Services
Surveying	Organizational Development
Engineering Technology	Marketing
Automated Manufacturing	Mathematical Sciences
Automotive	Mathematics
Electrical/Electronics	Mechanics
Heating, Ventilation, Air	Medical Laboratory Sciences
Condition and Refrigeration	Medical, Pre-Professional
Heavy Equipment Service	Medical Technology
Manufacturing	Merchandising Management
Product Design	Mortuary Science, Pre-Professional
Welding	Music
English	Natural Resources
Environmental & Applications Studies	Nursing
Environmental Chemistry	Nutritional Sciences
Environmental Science	Occupational Therapy
Exercise and Sport Science	Optometry, Pre-Professional
Facilities Management	Packaging
Family Consumer Resources	Park, Recreation, and Tourism
Family Community Services	Resources
Family Life Education	Pharmacy, Pre-Professional
Family Studies	Philosophy
Fire Science General Emphasis	Photography
Fisheries and Wildlife Management	Physical Therapy
Food	Physician Assistant
Industry Management	Physics
Science	Podiatry, Pre-Professional
Service Administration	Political Science
Forestry	Polymers and Coatings Technology
Geography	Printing Management/Marketing
Geological Sciences	Psychology
Geology	Public Administration
Health Fitness in Prevent and	Public Relations
Rehab Program	Public Resource Management
Health Information Management	Quality Management
History	Radiation Therapy Technology
Home Economics	Recreation
Horticulture	Recreational Management

Retail	Telecommunication
Social Science	Television Production
Social Work	Textile and Apparel Studies
Sociology	Merchandising
Speech	Production
Communication	Theater
Pathology and Audiology	Tourism Management
Sports Medicine/Science	Urban and Regional Planning
Surveying	Veterinary Medicine
Systems Analysis and Application	Water Purification Tech
Development	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	Morehouse University
Andrews University	Morris Brown College
Aquinas College	National College of Chiropractic
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
Cleary College	School of the Art Institute of Chicago
Concordia College	Sherman College of Straight
Davenport College/Lansing	Chiropractic
Eastern Michigan University	Siena Heights University
Ferris State University	Spelman University
Franklin University	Spring Arbor College
Grand Valley State University	Thomas M. Cooley Law School
Johnson and Wales University	Tri-State University
Kendall College of Art and Design	University of Detroit Mercy
Kettering University (formerly GMI)	University of Michigan/Ann Arbor
Lake Superior State University	University of Michigan/Dearborn
Lawrence Technological University	University of Michigan/Flint
Life Chiropractic College	Walsh College
Michigan State University	Wayne State University
Michigan Technological University	Western Michigan 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 two-year to four-year institutions. 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:

- WRIT 121 or WRIT 131
- 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.

NOTE: Areas below have 3-credit semester courses, and taking these courses may necessitate taking 3 courses to reach the 8 semester credit hour minimum.

#### II. Science and Mathematics (minimum of eight (8) semester credit hours)

Choose courses in at least two (2) subject areas, with a minimum of one laboratory science course. *Underlined courses indicate a laboratory course.*

**Biological Science:** ANAT 145, 151, 152, 201; BIOL 120, 121, 127, 128, 210, 260, 265; ISCI 122; MICR 203 AND 204; PFHW 123; PHGY 202  
**Mathematics and Statistics:** MATH 121, 122, 126, 130, 141, 151, 152, 201, 202; STAT 170, 215. (Note: MSU does not accept Math/Stat courses for the science requirement.)  
**Physical Science:** ASTR 201; CHEM 120, 125, 135, 151 and 161; GEOL 221, 222, 230; ISCI 121, 131; METR 220, PHYS 201 and 225, 215 and 225

#### III. Social Science (minimum of eight (8) semester credit hours)

Choose courses in at least two (2) subject areas.

**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 200, 202, 203, 205, 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)

Take 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

- Take courses in at least two (2) of the following areas:

**Art History:** HUMS 120, 211, 212  
**Foreign Language:** FREN 121, 122, 201, 202; GRMN 121, 122, 201, 202; JAPN 121, 122, 201, 202; SPAN 121, 122, 201, 202. (Note: MSU does not accept Foreign Language courses for the Humanities requirement.)  
**History:** ECON 213; HIST 150, 210, 211, 212, 214, 220, 230, 260  
**Humanities:** HUMS 160, 213, 214, 215; HIST 240, 250  
**Literature:** ENGL 201, 202, 203, 211, 212, 255, 256, 260, 266, 267, 270, 290  
**Performing Arts:** MUSC 199, 240, 241; THEA 210  
**Philosophy:** PHIL 151, 152, 153, 211, 212, 260  
**Religion:** RELG 211, 212, 241, 242, 250

#### NOTES

- 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.
- 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 Suite 2300, Gannon Vocational-Technical Center, (517) 483-1904.

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
Cleary College	*Oakland University
Davenport College	Olivet College
*Detroit College of Business	Rochester College (formerly
*Eastern Michigan University	Michigan Christian College)
Ferris State University	*Saginaw Valley State University
*Grand Valley State University	*St. Mary's College
*Hope College	*Siena Heights University
*Kalamazoo College	Spring Arbor College
*Kettering University (formerly GMI)	*Western Michigan University

\*Some limitations may apply. Check with individual college/university.

LANSING COMMUNITY COLLEGE 2000-2001 CATALOG

# Course Descriptions



Course Descriptions

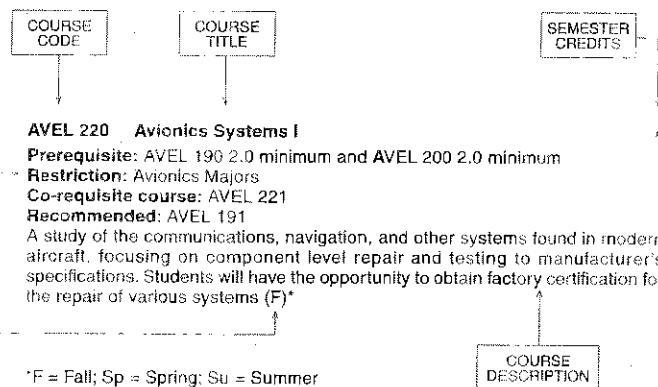


## HOW TO READ COURSE DESCRIPTIONS

Each course description has seven (7) categories of information as follows:

1. Course code
2. Course title
3. Number of semester credit hours
4. Prerequisite
5. Course description
6. Semester planned

For example:



Previous courses, skill levels, training and/or experience required for enrollment. **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.

## COURSE CODES USED IN DESCRIPTIONS

Courses are listed in course code order. The sequence is as follows:

ACCG	Accounting
AERO	Aerospace Studies
AGRI	Agriculture
AHCC	Allied Health Courses
AIBL	American Institute of Banking: Lansing
ANAT	Anatomy
ANTH	Anthropology
ARCH	Architecture
ARTS	Art, Design and Multimedia
ARWS	Art Seminars and Workshops
ASTR	Astronomy
AUTO	Automotive
AVAF	Aviation Airframe Maintenance
AVEL	Aviation Electronics
AVFT	Aviation Flight Training
AVGM	Aviation General Maintenance
AVGS	Aviation Ground School
AVIR	Aviation Instrument Repair
AVPP	Aviation Powerplant Maintenance
AVST	Aviation Simulator Training
BDCS	Business Development Seminars
BIOL	Biology
BLDR	Building Related
BLDT	Building Trades
BUSN	Business
CABS	Computer Applications Using Business Software
CHCE	Continuing Health Careers
CHDV	Child Development
CHEM	Chemistry
CHSE	Community Health Services
CISB	Computer Information Systems for Business
CIVL	Civil Technology
CJUS	Criminal Justice
CNCP	Computerized Numerical Control Program
COOP	Cooperative Education
CPSC	Computer Science
CTRT	Court Reporting
CUAI	Credit Union Accounting and Insurance
CUMA	Credit Union Management
DADH	Dental Assistant/Dental Hygiene
DANC	Dance
DAST	Dental Assisting
DHYN	Dental Hygiene
DTDS	Drafting and Design
ECON	Economics
EDUC	Education
ELCT	Electronics Technology
ELTE	Electrical Technology
EMSA	Emergency Medical Services
EMSB	Emergency Medical Services Seminars
EMTA	Emergency Medical Technology
ENGL	English
ENRI	Enrichment
ENVR	Environmental Science
ESLP	English as a Second Language
ESLW	English as a Second Language Workshop
FILM	Film Production and Direction
FIRE	Fire Science
FLNG	Foreign Language
FREN	French
GEOG	Geography
GEOL	Geology
GERO	Gerontology
GRET	Geographic Information Systems
GRMN	German
HIST	History
HMFS	Hotel/Motel and Food Service Operations
HONR	Honors
HORT	Horticulture
HUMS	Humanities
HUSE	Human Services
HVAC	Heating, Ventilating, and Air Conditioning
IDMS	Diagnostic Medical Sonography
IMAG	Photography Technology
INAU	Industrial Automation
INSU	Insurance
INTR	Interior Design
IRXT	Radiologic Technology
ISCI	Integrated Science
JAPN	Japanese
JRNL	Journalism
LABR	Labor Relations

LAND	Landscape	PHON	Phonics
LEGL	Legal Assistant/Law	PHYS	Physics
LING	Linguistics	POLS	Political Science
MACH	Machine Tool Technology	PSYC	Psychology
MASG	Massage Therapy	PVAA	Property Valuation and Assessment Administration
MATH	Mathematics	QSEM	Quality Assurance Seminars
MEDA	Medical Assistant	UAL	Quality Assurance
METR	Meteorology	RDGR	Reading: Restricted
MFGM	Manufacturing Maintenance	READ	Reading
MGMT	Management	REAL	Real Estate
MICR	Microbiology	RELG	Religion
MILS	Military Science	SCIN	Science Technology Internship
MKTG	Marketing	SCIS	Science Seminars
MTEC	Media Technology	SDEV	Student Development
MUSC	Music	SIGN	Sign Language
NURS	Nursing	SOCL	Sociology
OADM	Office Administration	SOWK	Social Work
PARA	Paramedic	SPAN	Spanish
PFAO	Physical Fitness: Aquatics	SPCH	Speech Communication
PFCW	Physical Fitness: Combative/Weight Training	SPEL	Spelling Development
PFDA	Physical Fitness: Dance	STAT	Statistics
PFFT	Physical Fitness: Fitness	STEC	Stage Technology
PFHC	Physical Fitness: Health/Fitness Cardiac	SURG	Surgical Technology
PFHW	Physical Fitness: Health/Fitness Wellness	TDTP	Truck Driver Training Program
PFIS	Physical Fitness: Individual Sport/Interest	TECH	Technology General
PFKN	Physical fitness: Kinesiology	THEA	Theater
PFOA	Physical Fitness: Outdoor Activity	TRVL	Travel and Tourism
PFPR	Physical Fitness: Professional	VCBL	Vocabulary Improvement
PFTS	Physical Fitness: Team Sport	WELD	Welding Technology
PHGY	Physiology	WRIT	Writing
PHIL	Philosophy	WRTR	Writing: Restricted

## DESCRIPTIONS

### ACCG - ACCOUNTING

<b>ACCG 100 Practical Accounting Non-Major</b>	3	<b>ACCG 235 Budgeting</b>	2
<b>Prerequisite:</b> None		<b>Prerequisite:</b> ACCG 211 2.0 minimum	
Students will learn the bookkeeping procedures necessary for preparation of financial statements and payroll. Manual and computer systems will be covered. (F, Sp, Su)		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)	
<b>ACCG 101 Accounting Info for Management</b>	3	<b>ACCG 240 Federal Income Tax I</b>	4
<b>Prerequisite:</b> None		<b>Prerequisite:</b> ACCG 211 2.0 minimum	
Students will learn to interpret financial statements and use this information for analysis, budgeting, and decision-making. (F, Sp)		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)	
<b>ACCG 140 Income Tax Preparation</b>	3	<b>ACCG 241 Federal Income Tax II</b>	4
<b>Prerequisite:</b> None		<b>Prerequisite:</b> ACCG 240 2.0 minimum	
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)		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)	
<b>ACCG 160 Payroll Systems and Taxes</b>	2	<b>ACCG 245 Accounting Internship</b>	2
<b>Prerequisite:</b> None		<b>Prerequisite:</b> ACCG 210 2.0 minimum and Department Approval	
<b>Recommended:</b> ACCG 100 or Equivalent Work Experience		This internship provides the student with on-the-job experience in the accounting field. It requires 128 hours of work experience. (F, Sp, Su)	
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)		<b>ACCG 250 Advanced Accounting</b>	4
<b>ACCG 210 Principles of Accounting I</b>	4	<b>Prerequisite:</b> ACCG 221 2.0 minimum	
<b>Prerequisite:</b> None		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)	
<b>Recommended:</b> Algebra Knowledge		<b>ACCG 260 Accounting Systems</b>	4
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)		<b>Prerequisite:</b> ACCG 210 2.0 minimum	
<b>ACCG 211 Principles of Accounting II</b>	4	<b>Recommended:</b> Keyboarding Experience	
<b>Prerequisite:</b> ACCG 210 2.0 minimum		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 analyze systems, work with manual and computerized accounting systems, database design, and problem solving with spreadsheets. (F, Sp, Su)	
<b>Recommended:</b> Intermediate Algebra or Higher		<b>ACCG 266 Independent Study Accounting</b>	1-4
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)		<b>Prerequisite:</b> Department Approval	
<b>ACCG 220 Intermediate Accounting I</b>	4	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)	
<b>Prerequisite:</b> ACCG 211 2.0 minimum		<b>ACCG 271 Principles of Finance</b>	3
<b>Recommended:</b> Electronic Spreadsheet Experience		<b>Prerequisite:</b> ACCG 211 2.0 minimum	
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)		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)	
<b>ACCG 221 Intermediate Accounting II</b>	4	<b>ACCG 280 Governmental Accounting</b>	4
<b>Prerequisite:</b> ACCG 220 2.0 minimum		<b>Prerequisite:</b> ACCG 211 2.0 minimum	
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)		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 nonprofit organizations. Governmental Accounting Standards Board (GASB) and Financial Accounting Standards Board (FASB) requirements are taught. (F)	
<b>ACCG 230 Cost Accounting</b>	4	<b>ACCG 290 Auditing</b>	3
<b>Prerequisite:</b> ACCG 211 2.0 minimum		<b>Prerequisite:</b> ACCG 220 2.0 minimum	
<b>Recommended:</b> Electronic Spreadsheet Experience		In this course, students will learn the theory and practice of auditing in accordance with generally accepted auditing standards. (F)	
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)			
<b>ACCG 231 Managerial Accounting</b>	4		
<b>Prerequisite:</b> ACCG 230 2.0 minimum			
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 295 CPA Review - Tax,Mgr,Cost,Gov** 1  
**Prerequisite:** None  
**Recommended:** Meet Requirements for CPA Examination  
 This 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  
**Prerequisite:** None  
**Recommended:** Meet Requirements for CPA Examination  
 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  
**Prerequisite:** None  
**Recommended:** Meet Requirements for CPA Examination  
 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 - Fin Acct/Report** 1  
**Prerequisite:** None  
**Recommended:** Meet Requirements for CPA Examination  
 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  
**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  
**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  
**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  
**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/Precision Agritech** 2  
**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 Disease/Insect Agrinomic Crops** 2  
**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 agronomic 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  
**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 Prin/Sustainable Agriculture** 3  
**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)

**AGRI 202 Agri Soils and Crop Management** 3  
**Prerequisite:** None  
 This course covers all aspects of soils related to agricultural production of food and fiber crops. Soil classification, texture, composition and conditions will be analyzed, evaluated and managed. Soil conditions relating to environmental fertilization and composition problems will be evaluated. Soil erosion and conservation management practices will also be highlighted. (F, Sp)

**AGRI 211 Agricultural Crop Production** 3  
**Prerequisite:** None  
 This course will focus on the basic components of cash crop production in the modern agricultural environment. Crop identification management and harvesting techniques will be highlighted for the major crops utilized in today's marketplace. Crop production techniques will be emphasized with a thorough evaluation of modern technology practices. (F, Sp, Su)

**AGRI 212 Vegetable Crop Production** 3  
**Prerequisite:** None  
 This agricultural production course will cover the seed production, planting, management, IPM and harvesting of vegetable crop plants. Vegetable crops such as sweet corn, tomatoes, peppers, beans, spinach, melons, peas and cold weather crops will be discussed. Vegetable crop marketing in the Great Lakes region will also be discussed. (F, Sp)

**AGRI 213 Ag Site Specific Research Tech** 3  
**Prerequisite:** None  
 This course will evaluate the various new technologies available to farmers and agriculturists. Technologies such as computers, GIS systems, GPS receivers, field monitors, sensors, pad computers, etc. will be evaluated as to their function and incorporation into specific farming production practices. IPM and crop genetic technologies will also be discussed. (F, Sp)

#### AHCC - ALLIED HEALTH COURSES

**AHCC 104 Patient Care Principles** 2  
**Prerequisite:** Admission to Radiologic Technology Program  
 Principles of basic patient care are presented to assist the non-nursing 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)

**AHCC 106 Introduction to Pathology** 2  
**Prerequisite:** ANAT 145 2.5 minimum  
 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  
**Prerequisite:** ANAT 145 2.5 minimum  
 This course is designed to familiarize the student with common medications encountered in health care occupations. Emphasis is on drug categories and the responsibilities associated with medication administration. (F, Sp, Su)

**AHCC 111 EKG for Health Care Providers** 1  
**Prerequisite:** None  
**Recommended:** Health Careers Applicant or Professional  
 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  
**Prerequisite:** None  
**Recommended:** Health Careers Applicant or Professional  
 This course presents for discussion legal and ethical issues arising from the organization and delivery of health care services. Topics include contracts, torts, business law; medical recordkeeping and retention; physicians' public duties; licensure, certification and regulation of health professionals; consent for treatment; and exploration of issues arising from various bioethical topics. (F, Sp)

**AIBL - AMERICAN INSTITUTE OF BANKING: LANSING AREA**

**AIBL 101 Principles of Banking** 3  
**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)

**ANAT - ANATOMY**

**ANAT 145 Introductory Anat & Physiology** 4  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 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  
**Prerequisite:** ANAT 151 2.0 minimum and Reading Level 5  
 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. (Sp)

**ANAT 201 Human Anatomy** 4  
**Prerequisite:** Reading Level 5 and Writing Level 6  
**Recommended:** Biology and Chemistry  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 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. (Sp)

**ANTH 271 Medical Anthropology** 3  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 An overview of concepts used in anthropology of health and illness, and delivery of health care in diverse settings. Biocultural and cultural approaches to illness are examined from a comparative cross-cultural perspective against a background of evolutionary ecology, illustrating how therapeutic systems form an integrated aspect of society and culture. (F)

**ANTH 275 Physical Anthr and Archaeology** 3  
**Prerequisite:** Reading Level 5 and Writing Level 6  
**Recommended:** 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. (F)

**ANTH 276 World Archaeology** 3  
**Prerequisite:** Reading Level 5 and Writing Level 6  
**Recommended:** ANTH 270 and/or 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. (Sp)

**ARCH - ARCHITECTURE**

**ARCH 100 Introduction to Architecture** 3  
**Prerequisite:** Math Level 3  
 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)

**ARCH 101 Architectural Drafting I** 4  
**Prerequisite:** Math Level 3  
**Recommended:** ARCH 100 or Equivalent  
 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)

**ARCH 102 Architectural Drafting II** 4  
**Prerequisite:** ARCH 101 1.0 minimum  
**Recommended:** ARCH 121 or Concurrently  
 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)

**ARCH 121 Visual Communication I** 3  
**Prerequisite:** None  
**Recommended:** ARCH 100 or 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)

**ARCH 122 Visual Communication II** 3  
**Prerequisite:** None  
**Recommended:** ARCH 121  
 This course is a continuation of Visual Communication I. Students will gain knowledge of basic color rendering techniques using a variety of media. (Sp)

**ARCH 123 Visual Communication III** 3  
**Prerequisite:** None  
**Recommended:** 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)

**ARCH 126 Architectural Model Building** 2  
**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)

3	<p><b>ARCH 128 Residential Planning</b> 2</p> <p><b>Prerequisite:</b> None</p> <p>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>	<p><b>ARCH 202 Architectural Drafting IV</b> 4</p> <p><b>Prerequisite:</b> ARCH 201 1.0 minimum</p> <p><b>Recommended:</b> ARCH 271 or Concurrently</p> <p>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><b>ARCH 131 City Planning</b> 3</p> <p><b>Prerequisite:</b> None</p> <p>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>	<p><b>ARCH 211 Design Studio I</b> 3</p> <p><b>Prerequisite:</b> None</p> <p><b>Recommended:</b> ARCH 101 or Concurrently</p> <p>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><b>ARCH 138 Architecture Portfolio</b> 4</p> <p><b>Prerequisite:</b> None</p> <p><b>Recommended:</b> ARCH 102 or Equivalent</p> <p>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>	<p><b>ARCH 212 Design Studio II</b> 3</p> <p><b>Prerequisite:</b> ARCH 211 2.0 minimum</p> <p>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>
4	<p><b>ARCH 141 Architectural History I</b> 3</p> <p><b>Prerequisite:</b> None</p> <p>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>	<p><b>ARCH 213 Facilities Design</b> 3</p> <p><b>Prerequisite:</b> None</p> <p><b>Recommended:</b> ARCH 101 or Equivalent</p> <p>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><b>ARCH 142 Architectural History II</b> 3</p> <p><b>Prerequisite:</b> None</p> <p><b>Recommended:</b> ARCH 141</p> <p>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>	<p><b>ARCH 221 Architectural DataCAD I</b> 4</p> <p><b>Prerequisite:</b> None</p> <p><b>Recommended:</b> ARCH 100 or Equivalent and Windows Experience</p> <p>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>
3	<p><b>ARCH 146 Preser/Adaptive Reuse Architec</b> 3</p> <p><b>Prerequisite:</b> None</p> <p>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>	<p><b>ARCH 222 Architectural DataCAD II</b> 4</p> <p><b>Prerequisite:</b> None</p> <p><b>Recommended:</b> ARCH 221</p> <p>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)</p>
3	<p><b>ARCH 181 Barrier-Free Design</b> 3</p> <p><b>Prerequisite:</b> None</p> <p>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>	<p><b>ARCH 225 Arch DataCAD Independent Study</b> 1-4</p> <p><b>Prerequisite:</b> ARCH 222 2.0 minimum and Department Approval</p> <p>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)</p>
3	<p><b>ARCH 182 Universal Design</b> 3</p> <p><b>Prerequisite:</b> None</p> <p><b>Recommended:</b> ARCH 100 and ARCH 181</p> <p>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>	<p><b>ARCH 231 Architectural AutoCAD I</b> 4</p> <p><b>Prerequisite:</b> None</p> <p><b>Recommended:</b> ARCH 100 or Equivalent and Windows Experience</p> <p>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)</p>
2	<p><b>ARCH 201 Architectural Drafting III</b> 4</p> <p><b>Prerequisite:</b> ARCH 102 1.0 minimum and Math Level 4</p> <p><b>Recommended:</b> ARCH 141</p> <p>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>	<p><b>ARCH 232 Architectural AutoCAD II</b> 4</p> <p><b>Prerequisite:</b> None</p> <p><b>Recommended:</b> ARCH 231</p> <p>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)</p>

- ARCH 235 Arch AutoCAD Independent Study** 1-4  
**Prerequisite:** ARCH 231 2.0 minimum and Department Approval  
 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 Arch Computer Rendering** 3  
**Prerequisite:** None  
**Recommended:** (ARCH 222 or ARCH 232) and 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 Arch AES Computer Graphics I** 4  
**Prerequisite:** None  
**Recommended:** ARCH 100 or 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 Arch AES Computer Graphics II** 4  
**Prerequisite:** None  
**Recommended:** 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 Arch AES Independent Study** 1-4  
**Prerequisite:** ARCH 242 2.0 minimum and Department Approval  
 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  
**Prerequisite:** None  
**Recommended:** ARCH 100 or Equivalent and 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  
**Prerequisite:** None  
**Recommended:** ARCH 251 or 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** 1-4  
**Prerequisite:** ARCH 252 2.0 minimum and Department Approval  
 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  
**Prerequisite:** Math Level 4  
**Recommended:** ARCH 101 or 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  
**Prerequisite:** None  
**Recommended:** ARCH 101 or 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 Arch Professional Practice** 3  
**Prerequisite:** None  
 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  
**Prerequisite:** None  
 Architectural and construction specialties will include earth sheltered homes, steel and in-steel 3-D, log building, pole construction, timberframe, stress skin panel, straw bale, tire building and alternative foundation systems. Field examples will demonstrate many different technologies. Concepts will relate these structures to emerging appropriate architecture issues: integrated technologies, material sustainability and recycling in construction. (F, Sp)
- ARCH 278 Energy Efficient Design** 4  
**Prerequisite:** None  
 Building science is used to examine how buildings work. The concept of systems integration is studied from the perspective of the building and its occupants in their environmental context. Computer assisted calculation of heat loss, passive solar design and economic analysis will be covered. Communication and analytic skills will be developed through classroom activities and research. (F, Sp)
- ARCH 283 Materials of Construction** 4  
**Prerequisite:** None  
**Recommended:** ARCH 101 or 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 Arch Independent Study** 1-4  
**Prerequisite:** Department 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 102 2-Dimensional Design** 3  
**Prerequisite:** Reading Level 3 and Writing Level 2  
**Recommended:** Macintosh Experience  
 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  
**Prerequisite:** ARTS 102 2.0 minimum or IMAG 112 2.0 minimum  
 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)
- ARTS 131 Drawing I** 3  
**Prerequisite:** (ARTS 102 2.0 minimum or IMAG 112 2.0 minimum) or Concurrently  
 An introductory studio course using a variety of drawing 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  
**Prerequisite:** ARTS 131 2.0 minimum  
 Basic concepts, approaches, and techniques involving drawing the human figure, using materials such as pencil, ink, charcoal, and conte crayon. (F, Sp, Su)
- ARTS 133 Surface Anatomy for Artists** 2  
**Prerequisite:** ARTS 131 2.0 minimum  
 This course is designed specifically for the visual artist. Emphasis will be on identifying and visually representing the effects that the skeletal and muscular systems and body type have on human surface anatomy. Live models will be used. This course cannot be taken as a Science Department anatomy requirement. (F, Sp, Su)

3	<p><b>ARTS 136 Figure Sculpture</b> 3  <b>Prerequisite:</b> ARTS 132 2.0 minimum and (ARTS 133 2.0 minimum or Concurrently)                  A studio course in the 3-Dimensional representation of the human figure. The student will use various modeling tools to sculpt the figure in clay. Projects will include: gestural sketches, anatomical details, and reclining, seated and standing full-figure poses. (F, Sp)</p>
3	<p><b>ARTS 137 Perspective Drawing</b> 2  <b>Prerequisite:</b> ARTS 131 2.0 minimum                  Further development of the drawing process. This course includes expanded perspective principles and quality of light with an emphasis on visualization. (F, Sp, Su)</p>
4	<p><b>ARTS 140 Printmaking I</b> 4  <b>Prerequisite:</b> ARTS 102 2.0 minimum or Concurrently                  An introduction to the various printmaking techniques, tools, and vocabulary of the printmaker. Includes etching, collagraph, monoprinting, and linoleum cut. (F, Sp)</p>
4	<p><b>ARTS 141 Printmaking II</b> 4  <b>Prerequisite:</b> ARTS 140 2.0 minimum                  Students expand on processes and concepts introduced in Printmaking (ARTS 140). Emphasizes refining technical skills and conceptual development. (F, Sp)</p>
4	<p><b>ARTS 145 Screen Printing I</b> 4  <b>Prerequisite:</b> ARTS 102 2.0 minimum or Concurrently                  An introduction to basic silkscreen stencil processes with an emphasis on registration techniques. Includes constructing a frame and making a phototransparency. (F, Sp)</p>
4	<p><b>ARTS 146 Screen Printing II</b> 4  <b>Prerequisite:</b> ARTS 145 2.0 minimum                  Students expand on processes and concepts introduced in Screen Printing I (ARTS 145). Includes an in-depth study of photographic processes in combination with paper, cut film, and block-out stencils. (F, Sp)</p>
4	<p><b>ARTS 151 Computer Graphics/Illustration</b> 3  <b>Prerequisite:</b> ARTS 131 2.0 minimum  <b>Recommended:</b> Windows 95/98/NT Experience                  A beginning course for students interested in creating artistic images using a computer as a tool, building on design and drawing skills. (F, Sp, Su)</p>
3	<p><b>ARTS 162 Typography</b> 3  <b>Prerequisite:</b> (ARTS 102 2.0 minimum or IMAG 112 2.0 minimum) or Concurrently                  Use of type in visual communication with an emphasis on creativity. Students will be introduced to the tools, materials, and manual and digital type techniques necessary to professionally use type. (F, Sp, Su)</p>
3	<p><b>ARTS 171 Computer Graphics/Photography</b> 3  <b>Prerequisite:</b> ARTS 102 2.0 minimum or IMAG 112 2.0 minimum  <b>Recommended:</b> Macintosh Experience                  An introduction to computer manipulation of photographic images. Resolution, design and color skills are required for enrollment. (F, Sp, Su)</p>
3	<p><b>ARTS 173 Computer Graphics/Web Design</b> 2  <b>Prerequisite:</b> (ARTS 151 2.0 minimum or ARTS 171 2.0 minimum) or Concurrently and CISB 102 2.0 minimum                  A course in visual design—the effective visual presentation of ideas for the web from concept and design to structure, preparation and production. Focus on the elements and principles of design as applied to layout, graphics and animation. (F, Sp, Su)</p>
3	<p><b>ARTS 175 Electronic Design</b> 3  <b>Prerequisite:</b> ARTS 102 2.0 minimum and (ARTS 162 2.0 minimum or Concurrently)  <b>Recommended:</b> Knowledge of Mac OS and Basic Keyboarding Skills                  An introduction to page layout software and object-oriented illustration software programs utilizing the Macintosh computer. Emphasis is on using electronic publishing applications for design. (F, Sp, Su)</p>
1	<p><b>ARTS 190 Matting and Framing Techniques</b> 1  <b>Prerequisite:</b> 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)</p>

1	<p><b>ARTS 195 Employ/Busn Issues for Artists</b> 1  <b>Prerequisite:</b> None                  An introduction to business, legal, and specific marketing issues relevant to visual artists. Students will be introduced to copyrights, contracts, and basic record keeping. The focus is on specific employment goals relevant to artists. (F, Sp)</p>
4	<p><b>ARTS 200 Painting I</b> 4  <b>Prerequisite:</b> ARTS 102 2.0 minimum and ARTS 131 2.0 minimum                  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)</p>
4	<p><b>ARTS 201 Painting II</b> 4  <b>Prerequisite:</b> ARTS 200 2.0 minimum                  A continuation of Painting I (ARTS 200) emphasizing more advanced techniques and increasingly complex problems in painting. A variety of media, techniques, and approaches is encouraged. (F, Sp, Su)</p>
4	<p><b>ARTS 203 Figure Painting</b> 4  <b>Prerequisite:</b> ARTS 102 2.0 minimum and ARTS 132 2.0 minimum                  A studio course in the human figure using various media such as oil paint, watercolor, acrylic paint, and pastel. (F, Sp, Su)</p>
4	<p><b>ARTS 204 Watercolor I</b> 4  <b>Prerequisite:</b> ARTS 102 2.0 minimum and ARTS 131 2.0 minimum                  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)</p>
4	<p><b>ARTS 205 Watercolor II</b> 4  <b>Prerequisite:</b> ARTS 204 2.0 minimum                  A continuation of Watercolor I (ARTS 204) emphasizing more advanced techniques and increasingly complex problems using watercolor. (F, Sp)</p>
4	<p><b>ARTS 206 Advanced Watercolor</b> 4  <b>Prerequisite:</b> ARTS 205 2.0 minimum                  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)</p>
3	<p><b>ARTS 213 Illustration Fundamentals</b> 3  <b>Prerequisite:</b> ARTS 132 2.0 minimum and ARTS 137 2.5 minimum                  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)</p>
3	<p><b>ARTS 216 Humorous Illustration I</b> 3  <b>Prerequisite:</b> ARTS 131 2.0 minimum or Concurrently                  Basic humorous illustration/cartooning foundations are demonstrated. Exercises are given on cartooning heads, animals, objects, and drawing techniques. Graded projects include a caricature utilizing a drawing technique. Originality and imagination are emphasized. (F, Sp, Su)</p>
3	<p><b>ARTS 217 Humorous Illustration II</b> 3  <b>Prerequisite:</b> ARTS 216 2.5 minimum and (ARTS 132 2.0 minimum or Concurrently)                  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)</p>
4	<p><b>ARTS 221 Airbrush Techniques I</b> 4  <b>Prerequisite:</b> 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)</p>
4	<p><b>ARTS 222 Airbrush Techniques II</b> 4  <b>Prerequisite:</b> ARTS 131 2.0 minimum or Concurrently and ARTS 221 2.0 minimum                  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)</p>



<b>ARTS 224 Automotive Airbrush Techniques</b>	<b>4</b>
<b>Prerequisite:</b> ARTS 221 2.0 minimum This course introduces techniques for painting on contoured automotive surfaces. Projects incorporate various masking techniques, handbrush techniques, and specialized paint systems. (F, Sp, Su)	
<b>ARTS 227 Humorous Illustration III</b>	<b>3</b>
<b>Prerequisite:</b> ARTS 217 2.5 minimum 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)	
<b>ARTS 228 Advanced Digital Imaging</b>	<b>3</b>
<b>Prerequisite:</b> ARTS 171 2.5 minimum An advanced level study in the manipulation and processing of digital photographic images. Emphasis is on professional scanning, manipulation and output of digital images using available software products. Instruction includes preparation of images for prepress (hardcopy) and soft display (Multimedia, CD-ROM and World Wide Web). (F, Sp, Su)	
<b>ARTS 231 Comp Graphics/Advanced Illustration</b>	<b>3</b>
<b>Prerequisite:</b> (ARTS 151 2.5 minimum or ARTS 175 2.5 minimum) and ARTS 171 2.5 minimum 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)	
<b>ARTS 232 Comp Graphics/2-D Animation</b>	<b>4</b>
<b>Prerequisite:</b> (ARTS 216 2.5 minimum or IMAG 111 2.5 minimum) and ARTS 151 2.5 minimum and ARTS 171 2.5 minimum Create 2-D animations using the computer. Emphasis is on the history, theory, and principles of animation. (F, Sp, Su)	
<b>ARTS 233 Comp Graphics/2-D Interactive</b>	<b>4</b>
<b>Prerequisite:</b> ARTS 232 2.5 minimum 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)	
<b>ARTS 234 Comp Graphics/3-D Animation I</b>	<b>4</b>
<b>Prerequisite:</b> ARTS 151 2.5 minimum and ARTS 171 2.5 minimum 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, Su)	
<b>ARTS 235 Comp Graphics/3-D Animation II</b>	<b>3</b>
<b>Prerequisite:</b> ARTS 234 2.5 minimum A continuation of 3-D Animation I (ARTS 234). Emphasis on creation of more complex models and animations. (F, Sp)	
<b>ARTS 236 Computer Graphics/Production</b>	<b>3</b>
<b>Prerequisite:</b> (ARTS 233 2.5 minimum or ARTS 235 2.5 minimum) and (ARTS 228 2.5 minimum or IMAG 205 2.5 minimum) 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)	
<b>ARTS 240 Art for Elementary Teachers</b>	<b>3</b>
<b>Prerequisite:</b> 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)	
<b>ARTS 251 Graphic Design I</b>	<b>4</b>
<b>Prerequisite:</b> ARTS 102 2.0 minimum and ARTS 162 2.0 minimum and (ARTS 175 2.0 minimum or Concurrently) An overview of the designer's role in developing comprehensive designs for clients. Color, paper, and type selection will be emphasized. (F, Sp, Su)	
<b>ARTS 252 Graphic Design II</b>	<b>4</b>
<b>Prerequisite:</b> ARTS 251 2.5 minimum (previously ARTS 180) An overview of publication 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)	

<b>ARTS 253 Graphic Design III</b>	<b>4</b>
<b>Prerequisite:</b> ARTS 252 2.5 minimum (previously ARTS 181) and MKTG 140 2.5 minimum An advanced collaborative learning course involving corporate image and the design of promotional graphics, both two- and three-dimensional. Utilizes innovative design and media considerations. (F, Sp)	
<b>ARTS 257 Computer Prepress Prod Tech</b>	<b>4</b>
<b>Prerequisite:</b> ARTS 171 2.5 minimum and (ARTS 252 2.5 minimum (previously ARTS 181) or Concurrently) An overview of digital prepress techniques for computer-generated media, including color separations, trapping, output, and digital file preparation. Instruction includes computer system components, printing terminology and processes. The course emphasis is on professional knowledge and accuracy. (F, Sp, Su)	
<b>ARTS 269 The Portfolio</b>	<b>2</b>
<b>Prerequisite:</b> Department Approval The student will assemble his or her best work under faculty supervision into a cohesive, relevant presentation for the purpose of securing employment in a chosen career area. Includes creative resume, cover letter writing and self promotion. This course is intended to be a final course in the Art, Design and Multimedia Program. (F, Sp)	
<b>ARTS 270 Comp Graphics Independent Study</b>	<b>3</b>
<b>Prerequisite:</b> Department 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. (F, Sp, Su)	
<b>ARTS 272 Printmaking Independent Study</b>	<b>3</b>
<b>Prerequisite:</b> Department 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. (F, Sp, Su)	
<b>ARTS 276 Art Independent Study</b>	<b>3</b>
<b>Prerequisite:</b> Department 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. (F, Sp, Su)	
<b>ARTS 281 Art Internship</b>	<b>3</b>
<b>Prerequisite:</b> Department 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)	

**ARWS - ART SEMINARS AND WORKSHOPS**

<b>ARWS 120 Basic Drawing</b>	<b>1</b>
<b>Prerequisite:</b> None An introductory course using a variety of materials including pencil, charcoal, and ink. For non-majors. (F, Sp, Su)	
<b>ARWS 131 Intro to Computer Illustration</b>	<b>1</b>
<b>Prerequisite:</b> None A condensed hands-on workshop introducing computer graphics utilizing sophisticated, user-friendly, artistic software. Programming skills are not necessary. (F, Sp, Su)	
<b>ARWS 132 Introduction to QuarkXpress</b>	<b>1</b>
<b>Prerequisite:</b> 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)	
<b>ARWS 133 Introduction to PageMaker</b>	<b>1</b>
<b>Prerequisite:</b> 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)	

4	<b>ARWS 136 Intro to Adobe Illustrator</b> 1
	<b>Prerequisite:</b> 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)
4	<b>ARWS 137 Intro to Adobe Photoshop</b> 1
	<b>Prerequisite:</b> None A condensed, hands-on workshop designed to provide the student with a working knowledge of Adobe Photoshop software. Emphasis is on desktop publishing applications. (F)
2	<b>ARWS 139 Multi-Media Web Graphics</b> 1
	<b>Prerequisite:</b> None A hands-on course designed to provide the student with a working knowledge of multi-media and web page design. Emphasis is on web design issues for artistic, creative and/or visual learners using Macintosh computers and a variety of multi-media/web software. (F, Sp, Su)
3	<b>ARWS 141 Watercolor Workshop</b> 1
	<b>Prerequisite:</b> 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)
3	<b>ARWS 142 Watercolor Workshop II</b> 1
	<b>Prerequisite:</b> None 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)
3	<b>ARWS 145 Landscape Painting &amp; Drawing</b> 1
	<b>Prerequisite:</b> 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)
3	<b>ARWS 221 Calligraphy I</b> 1
	<b>Prerequisite:</b> 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)
3	<b>ARWS 224 Cartooning Workshop</b> 1
	<b>Prerequisite:</b> 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**

1	<b>ASTR 201 Introductory Astronomy</b> 4
	<b>Prerequisite:</b> Reading Level 5 and Writing Level 4 and Math Level 4 A survey course 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**

1	<b>AUTO 100 Auto Service I</b> 3
	<b>Prerequisite:</b> Reading Level 3 and Writing Level 2 and Math Level 3 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)
1	<b>AUTO 102 Basic Car Care for the Novice</b> 1
	<b>Prerequisite:</b> None This course is designed for the typical automobile owner who wants to gain a better understanding of the automobile and be able to make some basic repairs. It will encompass an overview of servicing needs and factors related to vehicle safety. Students will be able to inspect their vehicles, make informed decisions on purchasing vehicle products and services, and identify service items the owner might do themselves. (F, Sp)

1	<b>AUTO 105 Automotive Safety</b> 1
	<b>Prerequisite:</b> Department Approval This course will provide the student with an overview of safety policies and procedures used in the automotive repair field. (Su)
5	<b>AUTO 110 Auto Electrical Theory</b> 5
	<b>Prerequisite:</b> AUTO 100 2.0 minimum or Concurrently This course in basic electricity covers the fundamentals of automobile electricity. Materials covered will include electron theory, circuits and wiring diagrams. The student will learn how circuits work and how to diagnose malfunctioning circuits. Maximum emphasis will be directed to vehicle diagnosis. (F, Sp)
3	<b>AUTO 120 Auto Drive Train</b> 3
	<b>Prerequisite:</b> AUTO 100 2.0 minimum or Concurrently 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)
5	<b>AUTO 121 Automatic Transmissions I</b> 5
	<b>Prerequisite:</b> AUTO 110 2.0 minimum or Concurrently 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)
3	<b>AUTO 122 Automatic Transmissions II</b> 3
	<b>Prerequisite:</b> AUTO 121 2.0 minimum 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)
3	<b>AUTO 130 Automotive Engines</b> 3
	<b>Prerequisite:</b> AUTO 110 2.0 minimum or Concurrently 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, Su)
3	<b>AUTO 133 Small Engine Repair</b> 3
	<b>Prerequisite:</b> None This is a basic course that covers the 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)
3	<b>AUTO 140 Automotive Brakes</b> 3
	<b>Prerequisite:</b> AUTO 110 2.0 minimum or Concurrently 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, Su)
3	<b>AUTO 141 Non-Structural Repair</b> 3
	<b>Prerequisite:</b> Department Approval <b>Recommended:</b> Evidence of Mechanical Ability This course introduces the student to elementary repairs that are completed in the collision repair industry. This allows the student to become familiar with the collision repair field environment. (F, Sp, Su)
5	<b>AUTO 142 Advanced Non-Structural Repair</b> 5
	<b>Prerequisite:</b> AUTO 141 2.0 minimum This course is for students who are familiar with the auto body repair environment and are ready to begin development of specific marketable repair skills. (F, Sp, Su)
5	<b>AUTO 143 Auto Body Welding and Cutting</b> 5
	<b>Prerequisite:</b> Department Approval <b>Recommended:</b> Evidence of Mechanical Ability This course will present welding processes that will be the basis of many of the repair techniques in any advanced auto body course. MIG, TIG, oxy-acetylene resistance spot welding and oxy-acetylene plasma arc cutting are included. (F, Sp, Su)

**AUTO 144 Auto Body Structural Repair** 5  
**Prerequisite:** AUTO 141 2.0 minimum and AUTO 143 2.0 minimum  
 This course addresses the repair of the unibody and vehicle frames which often are damaged by major collision forces. The student will learn damage diagnosis and repair techniques including stress relief, heating, welding and corrosion protection. (F, Sp, Su)

**AUTO 145 Introduction to Refinishing** 5  
**Prerequisite:** Department Approval  
 The material in this course will form the basis for all automotive refinishing work. Surface preparation, material selection and the use of hand and power tools (including automotive spray guns) will be covered. (F, Sp, Su)

**AUTO 146 Advanced Refinishing** 5  
**Prerequisite:** AUTO 145 2.0 minimum  
 This course builds on skills developed in AUTO 145. Overall refinishing, spot repairs and color matching with a variety of contemporary color-coat materials will be stressed. (F, Sp, Su)

**AUTO 147 Collision Repair Estimating** 3  
**Prerequisite:** AUTO 142 2.0 minimum and AUTO 144 2.0 minimum and AUTO 146 2.0 minimum  
 This course prepares the student for analyzing collision damage, determining what parts are needed for repair, calculating labor allowances and figuring the total cost of repair. Collision repair manuals and computer programs will be used as sources of information. (F, Sp, Su)

**AUTO 148 Automotive Plastic Repair** 3  
**Prerequisite:** AUTO 145 2.0 minimum  
 This course covers repair techniques and materials for repairing the wide variety of plastic materials used in the manufacturing of current vehicles. Refinishing repaired parts is also included. (F, Sp, Su)

**AUTO 150 Auto Steering & Suspension** 3  
**Prerequisite:** AUTO 100 2.0 minimum or Concurrently  
 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 Heat & Air Conditioning** 3  
**Prerequisite:** AUTO 110 2.0 minimum  
 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 heating and air conditioning systems. Both mechanical and electronic controlled systems will be studied. (F, Sp, Su)

**AUTO 165 General Auto Mechanics** 2.5  
**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 188 Auto Body Repair and Painting** 4  
**Prerequisite:** Department Approval  
 This is a combined course of auto body repair and painting. It provides an opportunity to practice the techniques learned in AUTO 141, 142, 143 and 145. (F, Sp, Su)

**AUTO 215 Engine Performance/Tune-Up** 5  
**Prerequisite:** AUTO 130 2.0 minimum  
 This course prepares technicians to enter the auto repair and service industry. Theory and fundamentals of basic engine tune-up procedures will be studied. General engine diagnosis, introduction to computerized engine controls, ignition system diagnosis and repair, carburation and fuel injection, and examination of emission control systems will also be covered. (F, Sp)

**AUTO 225 Automotive Computers** 5  
**Prerequisite:** AUTO 215 2.0 minimum  
 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  
**Prerequisite:** AUTO 140 2.0 minimum and AUTO 225 2.0 minimum  
 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  
**Prerequisite:** AUTO 225 2.0 minimum  
 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 Intro to Alternative Fuels** 2  
**Prerequisite:** AUTO 130 2.0 minimum and AUTO 225 2.0 minimum  
 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)

**AUTO 261 Alternative Fuels - CNG** 3  
**Prerequisite:** AUTO 260 2.0 minimum  
 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 262 Alt Fuels-Propane (LPG)** 3  
**Prerequisite:** AUTO 225 2.0 minimum  
 This course is an intensive study covering the use of propane as fuel for automobiles and light trucks. Theory, application, installation, diagnosis and safety regulations applicable to LPG vehicles will be covered. (F, Sp)

**AUTO 280 Automotive Service Laboratory** 6  
**Prerequisite:** Department Approval  
 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  
**Prerequisite:** Department Approval  
 Students are able to earn credits while employed as a technician in auto mechanics or auto body. The program coordinator must approve the training station and working conditions. (F, Sp)

**AUTO 286 Indepen Study/Automotive** 1-3  
**Prerequisite:** Department Approval  
 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 per credit, and the completion of a written project report. This course cannot be audited. (Su)

**AVAF - AVIATION AIRFRAME MAINTENANCE**

**AVAF 125 Aircraft Systems I** 2  
**Prerequisite:** Department 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  
**Prerequisite:** Department 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  
**Prerequisite:** Department Approval  
 Course 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  
**Prerequisite:** Department Approval  
 This course covers 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  
**Prerequisite:** Department 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  
**Prerequisite:** Department Approval  
 This course introduces the procedures for identification, inspection, testing and repairing of wood, fabric-covered and sheet metal aircraft. The installation and removal of conventional rivets, forming of aircraft sheet metal, installation of special rivets and fasteners, and an introduction to applying finishing materials will also be covered. (Sp)

**AVAF 209 Aircraft Structures II** 4  
**Prerequisite:** Department 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. Aircraft inspection procedures to insure conformity with flight safety standards will be included. (F)

**AVAF 210 Aircraft Structures III** 3  
**Prerequisite:** Department Approval  
 An advanced course covering inspection, repair, layout, bending and assembly of aircraft sheet metal. Inspection, testing and repair of fiberglass, plastics, honeycomb, composite and laminated structures are 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  
**Prerequisite:** Department Approval  
 An intermediate aviation electrical course concentrating on 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. The installation, checking and servicing of airframe and engine wiring, controls, switches, indicators and protective devices are also covered. (Sp, Su)

**AVAF 212 Aircraft Electrical II** 4  
**Prerequisite:** Department Approval  
 Repair of airframe and engine electrical system components with an emphasis on the inspection, checking, servicing and repair of alternating and direct current systems. General troubleshooting techniques are practiced with special emphasis on A.C. and D.C. electrical systems. (Su)

**AVAF 246 National Airframe Cert Proced** 1  
**Prerequisite:** Department 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 130 Avionics Installations** 3  
**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 Installat/Generat** 2  
**Prerequisite:** ELCT 110 2.0 minimum  
**Co-requisite Course:** AVEL 151  
 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 Installat/Generat Lab** 1  
**Prerequisite:** ELCT 110 2.0 minimum  
**Co-requisite Course:** AVEL 150  
 Subjects covered in AVEL 150 will be put to practical use in this laboratory. The student builds and calibrates his/her own volt ohm meter. The student will construct aircraft wiring harnesses and complete soldering exercises. Common electronic and specialized avionics test equipment are used in the lab. (Sp)

**AVEL 190 Receiver Troubleshooting** 2  
**Prerequisite:** AVEL 151 2.0 minimum and ELCT 112 2.0 minimum  
**Co-requisite Course:** AVEL 191  
 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  
**Prerequisite:** AVEL 151 2.0 minimum and ELCT 112 2.0 minimum  
**Co-requisite Course:** AVEL 190  
 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  
**Prerequisite:** Department Approval  
 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  
**Prerequisite:** AVEL 151 2.0 minimum  
 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  
**Prerequisite:** AVEL 190 2.0 minimum and AVEL 200 2.0 minimum  
**Restriction:** Avionics Majors  
**Co-requisite Course:** AVEL 221  
 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  
**Prerequisite:** AVEL 201 2.0 minimum  
**Restriction:** Avionics Majors  
**Co-requisite Course:** AVEL 220  
 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/Regulations** 1  
**Prerequisite:** ELCT 112 2.0 minimum  
 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/Regs Avionics Techs** 1  
**Prerequisite:** AVAF 130 2.0 minimum  
 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  
**Prerequisite:** AVEL 190 2.0 minimum and AVEL 200 2.0 minimum  
**Restriction:** Avionics Majors  
**Co-requisite Course:** AVEL 231  
 A study of navigation, microwave pulse equipment 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 certification of the repair of various systems. (Sp)

- AVEL 231 Avionics Systems II Lab** 2  
**Prerequisite:** AVEL 201 2.0 minimum  
**Restriction:** Avionics Majors  
**Co-requisite Course:** AVEL 230  
 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  
**Prerequisite:** AVEL 151 2.0 minimum  
**Restriction:** Avionics and Avionics Installation Majors  
 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  
**Prerequisite:** AVEL 151 2.0 minimum  
**Restriction:** Avionics and Avionics Installation Majors  
 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  
**Prerequisite:** Department Approval  
 Provides in-flight and ground training in a 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  
**Prerequisite:** Department Approval  
 Provides in-flight and ground training in a 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  
**Prerequisite:** Department Approval  
 Provides instruction in a complex, single-engine airplane; developing the student's skill at IFR navigation and ATC procedures in en route and terminal environments. (F, Sp, Su)
- AVFT 204 Flight Training IV** 5  
**Prerequisite:** Department Approval  
 Provides in-flight and ground instruction in a complex airplane; developing student skills in IFR navigation and ATC procedures in en route and terminal environments. Students will develop skills at performing commercial proficiency flight maneuvers. Upon completion of this course, the student will take the practical test for commercial/instrument pilot airplane. (F, Sp, Su)
- AVFT 205 CFI Flight Training** 3.5  
**Prerequisite:** Department Approval  
 Provides in-flight and ground training in common primary training and complex airplanes. The student will develop instructional skills necessary to train pilots for certification in accordance with Federal Aviation Regulations. The student will take his/her practical test for Certified Flight Instructor Airplane upon completion. (F, Sp, Su)
- AVFT 206 Flight Inst Instrument Flight** 2.5  
**Prerequisite:** Department Approval  
 Provides in-flight and ground training in a non-complex aircraft. The student will develop instructional skills necessary to train pilots for the instrument rating. The student will take the practical test for the instrument flight instructor rating airplane upon completion of this course. (F, Sp, Su)
- AVFT 207 Multi-Engine Flight Training** 1.5  
**Prerequisite:** Department Approval  
 Provides in-flight and ground instruction in a multi-engine airplane. The student will take the multi-engine practical test upon completion of this course. (F, Sp, Su)
- AVFT 208 Multi-Engine Instructor Flight** .75  
**Prerequisite:** Department Approval  
 Provides in-flight and ground instruction in a multi-engine airplane. The student will develop instructional skills necessary to train students for the multi-engine practical test. The student will take the multi-engine instructor practical test upon completion of this course. (F, Sp, Su)

**AVGM - AVIATION GENERAL MAINTENANCE**

- AVGM 111 Aviation General I** 4  
**Prerequisite:** Department 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  
**Prerequisite:** Department Approval  
 Introduces the Federal Aviation Regulations involving the mechanic's privileges, 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  
**Prerequisite:** Department 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; and 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  
**Prerequisite:** Department Approval  
 This course covers identification and selection of the appropriate aviation hardware, hand tools, cleaning materials, fluid lines and non-destructive testing methods. Performance of non-destructive testing, precision measurements, aircraft cleaning and corrosion control, fabrication, installation and testing of fluid lines is included. (F, Sp)

**AVGS - AVIATION GROUND SCHOOL**

- AVGS 101 Private Pilot Ground School** 4  
**Prerequisite:** None  
**Recommended:** SDEV 124  
 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  
**Prerequisite:** None  
**Recommended:** SDEV 124  
 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 domestic and international weather charts, forecasts and reports, (ICAO) and make appropriate "go/no go" decisions. (Sp)
- AVGS 211 Instrument Pilot Ground School** 4  
**Prerequisite:** None  
**Recommended:** AVGS 121 and SDEV 124  
 This course prepares the student for 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  
**Prerequisite:** None  
**Recommended:** AVGS 121 and SDEV 124  
 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 Instruct Ground School** 4  
**Prerequisite:** None  
**Recommended:** AVGS 121  
 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  
**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  
**Prerequisite:** Department Approval  
 This course covers 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. Safety, responsibility and operations of various aircraft systems will be discussed. (F, Sp, Su)

**AVPP 241 Reciprocating Engine** 8  
**Prerequisite:** Department 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  
**Prerequisite:** Department 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  
**Prerequisite:** Department 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 System** 4  
**Prerequisite:** Department 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  
**Prerequisite:** Department 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  
**Prerequisite:** Department 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  
**Prerequisite:** Department 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 are included. (Sp, Su)

**AVPP 263 Turbine Engine Systems** 2  
**Prerequisite:** Department 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 265 Powerplant Instruments** 2  
**Prerequisite:** Department Approval  
 This course covers the inspection and repair of turbine and reciprocating engine instruments. Troubleshooting of mechanical/electrical fluid rate-of-flow, temperature, pressure, RPM and airflow indicators will be included. (Sp, Su)

**AVPP 267 National Powerplant Cert Proc** 1  
**Prerequisite:** Department 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 a 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  
**Prerequisite:** None  
 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  
**Prerequisite:** None  
 Provides flight simulator and ground training to develop student's skills in IFR navigation and ATC procedures in terminal environment. This course is 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  
**Prerequisite:** None  
 Provides flight simulator and ground training to further develop the student's skills at IFR navigation and ATC procedures in en route and terminal environments. This course is 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  
**Prerequisite:** None  
 Provides flight simulator and ground training to develop student skills to the level of instrument rating practical test standards. Student will perform simulated flights in en route and terminal environments, including compliance with emergency procedures. This course is 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  
**Prerequisite:** None  
 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)

**BDCS - BUSINESS DEVELOPMENT SEMINARS**

**BDCS 201 Starting a Business** .5  
**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 Pitfall to Avoid: Open/Operate Bus** .5  
**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)

<b>BDCS 205 Systems for Record Keeping</b>	<b>.5</b>
<b>Prerequisite:</b> 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)	
<b>BDCS 209 Finan Mgmtnt for Sm Business</b>	<b>.5</b>
<b>Prerequisite:</b> 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)	
<b>BDCS 210 Customer Relations</b>	<b>.5</b>
<b>Prerequisite:</b> 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)	
<b>BDCS 211 Advertising for Small Business</b>	<b>.5</b>
<b>Prerequisite:</b> 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)	
<b>BDCS 215 Developing a Marketing Plan</b>	<b>.5</b>
<b>Prerequisite:</b> 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)	
<b>BDCS 225 Writing a Business Plan</b>	<b>.5</b>
<b>Prerequisite:</b> 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)	
<b>BDCS 230 Small Business Taxes</b>	<b>.75</b>
<b>Prerequisite:</b> 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**

<b>BIOL 120 Environmental Science</b>	<b>4</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6	
Students will develop an ecological knowledge base to allow them to understand how human actions impact the environment. They will develop applied analytical skills through laboratories, fieldwork, simulations and a discussion of contemporary issues. They will investigate and evaluate basic ecological and environmental issues. (F, Sp, Su)	
<b>BIOL 121 Biol Foundation for Physiology</b>	<b>4</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6 and Math Level 4	
<b>Recommended:</b> Chemistry	
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. Recommended prerequisite for PHGY 202. (F, Sp, Su)	
<b>BIOL 127 Cell Biology</b>	<b>4</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6 and Math Level 4	
<b>Recommended:</b> CHEM 120 or CHEM 125 or High School Chemistry	
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, Su)	

<b>BIOL 128 Organismal Biology</b>	<b>4</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6 and Math Level 4	
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. (F, Sp, Su)	
<b>BIOL 210 Natural Resource Conservation</b>	<b>4</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6	
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, Sp, Su)	
<b>BIOL 260 Botany</b>	<b>4</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6	
<b>Recommended:</b> One Semester of Biology	
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. (F)	
<b>BIOL 265 Zoology</b>	<b>4</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6 and Math Level 4	
<b>Recommended:</b> Biology	
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)	
<b>BIOL 270 Human Genetics</b>	<b>3</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6 and Math Level 5	
<b>Recommended:</b> BIOL 121 or Equivalent	
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)	
<b>BIOL 275 Molecular Biology I</b>	<b>4</b>
<b>Prerequisite:</b> BIOL 127 2.0 minimum and CHEM 151 2.0 minimum and CHEM 161 2.0 minimum and Reading Level 5 and Writing Level 6 and Math Level 4	
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)	
<b>BIOL 276 Molecular Biology II</b>	<b>4</b>
<b>Prerequisite:</b> BIOL 275 2.0 minimum and Reading Level 5 and Writing Level 6 and Math Level 4	
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)	
<b>BIOL 285 Biology in the Tropics</b>	<b>2</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6 and Math Level 4	
A field experience to study tropical ecosystems in Costa Rica. An eight week lecture series on campus will culminate with a ten day visit to various ecosystems in Costa Rica. Individual projects emphasizing evolutionary and ecological concepts will be conducted in the field. (Sp)	

**BLDR - BUILDING RELATED**

<b>BLDR 101 Basic Woodworking</b>	<b>2</b>
<b>Prerequisite:</b> None	
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 110 Wood Projects** 1.5  
**Prerequisite:** None  
 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 132 General Home Maintenance** 2  
**Prerequisite:** None  
 This is an introductory course in general home maintenance. Areas to be covered will include basic tools, electrical, plumbing, framing, roofing, interior trim, drywall and painting, appliance maintenance and repair, and concrete flatwork and block-laying. (F, Sp, Su)

**BLDR 144 Build Your Own Home** 1.5  
**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  
**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  
**Prerequisite:** None  
 This course covers symbols, conventions and abbreviations used in structural blueprints. The student 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** 4  
**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. Various types of foundations and the advantages and disadvantages of each are covered. Hands-on methods are used. (F, Sp)

**BLDT 124 Remodeling, Shingling/Siding** 4  
**Prerequisite:** BLDT 121 1.0 minimum or Concurrently  
 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  
**Prerequisite:** BLDT 121 1.0 minimum or Concurrently  
 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 262 Builder's Business License** 4  
**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  
**Prerequisite:** (BLDT 103 1.0 minimum or ARCH 101 1.0 minimum) or Concurrently  
 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 International Code** 3  
**Prerequisite:** None  
 Students will be introduced to the International Building Code. This course will emphasize the interpretation and application of the International Building Code. Requirements for materials, barrier-free design and fire standards for residential and commercial construction will also be emphasized. (F, Sp)

**BLDT 285 Residential Building Intern** 2  
**Prerequisite:** BLDT 121 1.0 minimum and Department Approval  
**Restriction:** Residential Building Majors  
 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  
**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  
**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  
**Prerequisite:** Reading Level 5  
 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/Business** 1-3  
**Prerequisite:** Department 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 per credit required, plus completion of written project report. (F, Sp, Su)

**BUSN 201 International Business** 3  
**Prerequisite:** None  
**Recommended:** BUSN 118  
 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  
**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  
**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  
**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  
**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  
**Prerequisite:** None  
**Recommended:** 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  
**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** .25-1  
**Prerequisite:** None  
 This series of seminars provides the successful participant with operational proficiency in using specific microcomputer software. The seminars also provide the 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 Begin Keyboarding on Computer** 2  
**Prerequisite:** None  
 This course is designed for students having no previous typing experience. Basic keyboarding skills using the touch method are developed. Emphasis is on correct finger usage, developing speed and accuracy using the alphabetic keyboard, number and symbol keys. Basic speed level of 20-35 is developed (F, Sp, Su)

**CABS 102 Microcomputers for Non-Majors** 2  
**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  
**Prerequisite:** None  
**Recommended:** Previous Keyboarding  
 This course is designed to develop speed and accuracy at the keyboard. Students need to know the alphabetic key locations prior to taking this class. A net speed of 25 words per minute on a three-minute timing is recommended. (F, Sp)

**CABS 110 Microsoft Office** 3  
**Prerequisite:** None  
**Recommended:** Windows 95 and 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 113 Microsoft Word Office/Int Key** 4  
**Prerequisite:** None  
**Recommended:** 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 118 Adv Microsoft Word for Office** 4  
**Prerequisite:** None  
**Recommended:** CABS 113 2.0 minimum or 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  
**Prerequisite:** None  
**Recommended:** Windows 95 and 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  
**Prerequisite:** None  
**Recommended:** Windows 95 and Keyboard Experience  
 Provides instruction in the use of WordPerfect for Windows. Topics include creating, editing, formatting, and storing word processing documents. Also taught are the use of the block technique, spell-checker, thesaurus, merge feature for form letters, and other related skills. (F, Sp, Su)

**CABS 126 Excel** 2  
**Prerequisite:** None  
**Recommended:** Windows 95 and 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 128 Lotus 1-2-3 for Windows** 2  
**Prerequisite:** None  
**Recommended:** Windows 95 and 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  
**Prerequisite:** None  
**Recommended:** 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 133 Microsoft Access Database** 2  
**Prerequisite:** None  
**Recommended:** Windows 95 and 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 180 Desktop Publishing PageMaker** 3  
**Prerequisite:** None  
**Recommended:** Windows 95 and 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  
**Prerequisite:** None  
**Recommended:** Windows 95 and 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****Prerequisite:** None

This course is designed to provide students with a broad base of knowledge that is necessary for enhancing PC productivity through the efficient and effective utilization of Microsoft Windows for file, application, and system, use and management. It serves as an excellent introductory course or comprehensive course that fills in the gaps for intermediate users of the operating system. Topics include the use of Windows Interface Objects, Utilities, Help features, Multimedia features, Internet features, closely related applications, and Applets (Windows 98). (F, Sp, Su)

**CABS 210 Advanced Microsoft Office 3****Prerequisite:** None**Recommended:** 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****Prerequisite:** None**Recommended:** CABS 119

Advanced-level training in word processing 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 232 Advanced Microsoft Access 2****Prerequisite:** CABS 133 2.0 minimum

Advanced-level training in the creation of database management using the Microsoft Access Program. The instruction includes the manipulation and generation of reports and tables. (F, Sp)

**CABS 234 Programming Microsoft Access 2****Prerequisite:** None**Recommended:** CABS 133 and CABS 232 and CISB 119

Advanced-level database management for the Access user who already has a knowledge of databases and the basic objects of an Access database such as tables, queries, forms and reports, but now wants to learn how to program with Visual Basic for Applications to endow application with a professional and intelligent interface. (F, Sp, S)

**CABS 282 Advanced Microsoft PowerPoint 2****Prerequisite:** CABS 182 2.0 minimum

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)

**CHCE - CONTINUING HEALTH CAREERS****CHCE 106 Cardiac Dysrhythmia Interpreta 2.75****Prerequisite:** None

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 Phys Asses Skill fr Nrs Prctc 1.75-2.5****Prerequisite:** None

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 185 Lab Tests for Nurses .5****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 205 Intravenous Therapy .5****Prerequisite:** None

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 206 Hlth Care Pro Indpdndt Study .25-4****Prerequisite:** None

This course is for health care professionals who need to acquire credits in continuing professional education. The individual student will provide specific course content and description. This information is often provided by the specific profession. An instructor will be identified to assist with the learning experience. (F, Sp, Su)

**CHCE 210 PALS Training 1****Prerequisite:** None

This seminar is designed for members of the health care team who work with pediatric patients. A combination of lecture and practica 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 PALS Refresher .5****Prerequisite:** None

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 Health Related Seminars .25-4****Prerequisite:** None

Seminar content is dependent upon course requirement. (F, Sp, Su)

**CHCE 230 ACLS Training Seminar 1****Prerequisite:** None

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 235 ACLS Refresher .5****Prerequisite:** None

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 266 Focal Problems: Geriatric Nsg .25-1.5****Prerequisite:** None

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 273 Reg Nurse Crit Cr Core Curr 3****Prerequisite:** None

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 287 Health Care Risk Managment 4.5****Prerequisite:** None

This course covers the healthcare system and management functions necessary to control risk and promote quality, the skills necessary to develop and maintain an effective loss prevention and risk financing program in a healthcare setting, healthcare law, the medical malpractice arena, and claims management principles. (Sp)

**CHCE 288 Risk & Qual Mgmt/Hlth Care Set .25-2.5****Prerequisite:** None

This course covers the integration of risk and quality management in an evolving healthcare delivery system; the role of accreditation ((JCAHO) and third-party payor (MPRO) bodies in the review of physician practice and patient care, quality and peer review processes, medical staff governance, credentialing, privileging, quality/risk issues in high risk clinical areas, future of risk and quality management, adapting to new technology, delivery models, and customer expectations. (F)

**CHCE 295 Hlth Cr Risk Mt & Qlty Rv/Sp Is .5****Prerequisite:** None

This seminar will highlight a specially selected issue and examine how that issue impacts health care risk management and quality review. (Su)

**CHCE 296 Hlth Cr Risk Mgt & Qlty Rv Updt .25-1****Prerequisite:** None

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 ACLS Instructor Seminar 2****Prerequisite:** None

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/Devel: 0-5 Years 4****Prerequisite:** Reading Level 5 and Writing Level 4

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 Child Guidance/Communication 4****Prerequisite:** Reading Level 3 and Writing Level 4

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 Family Relationship/Child Care 2****Prerequisite:** CHDV 111 2.5 minimum

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. (F, Sp, Su)

**CHDV 113 Health/Safety Issue:Child Care 2****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 Curriculum: Physical Dev 1****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 Curriculum: Cognitive/Lang 1****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 Curriculum: Creative Dev 1****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****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, Sp, Su)

**CHDV 131 Family Child Care Management 2****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 181 Problem Solving with Adults 1****Prerequisite:** None**Recommended:** Experience in Child Care

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. Seminar format is used. (Sp)

**CHDV 184 Children and Stress 1****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 1****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 Child Self-Esteem/Pos Discipl 1****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/Children/Special Needs 2****Prerequisite:** None

This course focuses on the special and diverse individual needs of children and their families, including handicapping conditions 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 Help Children Value Diversity** 1  
**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** 25-1  
**Prerequisite:** None  
 This course provides a variety of topics of special interest to child care providers. (F, Sp)
- CHDV 220 Preschool Curric/Learning Env** 4  
**Prerequisite:** CHDV 101 2.0 minimum and CHDV 111 2.5 minimum  
 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 Dev** 3  
**Prerequisite:** CHDV 101 2.0 minimum or 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 Prog Dev** 2  
**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 Admin** 2  
**Prerequisite:** CHDV 220 2.5 minimum  
 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 251 CDA Credentialing Preparation** 3  
**Prerequisite:** CHDV 111 2.5 minimum and (CHDV 220 2.5 minimum or CHDV 221 2.0 minimum) and Department Approval  
 This course, and accompanying field work, examines credentialing procedures and competency standards for the 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. Content of the course covers the functional area of families and professionalism. (Sp)
- CHDV 252 CDA Completion** 1  
**Prerequisite:** CHDV 112 2.0 minimum and CHDV 220 2.5 minimum and (CHDV 284 2.0 minimum or Concurrently) and Department Approval  
 This course is designed for associate degree candidates and allows them to complete the CDA assessment readiness requirements as part of the associate degree practicum. Resource file development, statements of competence, advisor observation, and assessment procedures are included. Taken concurrently with CHDV 284. (F, Sp)
- CHDV 284 Child Development Practicum** 5  
**Prerequisite:** CHDV 220 2.5 minimum and Reading Level 5 and Writing Level 6 and Department 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 Gen Organic & Biological Chem** 4  
**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4  
 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)
- CHEM 125 Basic Chemistry** 4  
**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4  
**Recommended:** Chemistry Inventory  
 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  
**Prerequisite:** Writing Level 4  
**Recommended:** CHEM 120 or CHEM 125 2.0 minimum  
 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. (Sp, Su)
- CHEM 135 Chemistry in Society** 4  
**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4  
 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)
- CHEM 151 General Chemistry Lecture I** 4  
**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 5  
**Recommended:** CHEM 125 2.0 minimum or High School Chemistry  
 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 acids and bases. (F, Sp, Su)
- CHEM 152 General Chemistry Lecture II** 3  
**Prerequisite:** Math Level 6  
**Recommended:** CHEM 151 and MATH 121 2.0 minimum  
 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 Lab I** 1  
**Prerequisite:** CHEM 151 2.0 minimum or Concurrently and Reading Level 5 and Writing Level 4 and Math Level 5  
**Recommended:** Students with CHEM 125, consult Department  
 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 Lab II** 1  
**Prerequisite:** None  
**Recommended:** CHEM 161 2.0 minimum and 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  
**Prerequisite:** None  
**Recommended:** CHEM 125 3.0 minimum or CHEM 151 2.0 minimum  
 A survey of the principles of organic chemistry. Introduces the student to structure, nomenclature, chemical and physical properties, selected characteristics, preparations and reactions of the most common classes of organic compounds. Other topics include polymers, optical isomerism, and selected reaction mechanisms. (Sp)

<b>CHEM 192 Intro Organic Chemistry Lab</b> 1	<b>CHSE 123 Medical Insurance Billing I</b> 3
<b>Prerequisite:</b> None	<b>Prerequisite:</b> CHSE 121 2.5 minimum or OADM 197 2.5 minimum
<b>Recommended:</b> CHEM 182 2.0 minimum or Concurrently	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)
Designed for students in majors such as chemical processing, 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)	
<b>CHEM 251 Organic Chemistry Lecture I</b> 4	<b>CHSE 124 Medical Insurance Billing II</b> 3
<b>Prerequisite:</b> None	<b>Prerequisite:</b> CHSE 123 2.5 minimum (previously CHSE 111)
<b>Recommended:</b> CHEM 152 2.0 minimum	Second course in a two-semester sequence. Comprehensive billing directions for Medicare, Medicaid, PHP, and other commercial insurance carriers for billing in the physician's office are covered. (Sp)
The first lecture course of a two-semester sequence in organic chemistry for chemical engineering, chemical technology, 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)	
<b>CHEM 252 Organic Chemistry Lecture II</b> 4	<b>CHSE 125 Computers in Medical Office</b> 1
<b>Prerequisite:</b> None	<b>Prerequisite:</b> (CHSE 123 2.5 minimum (previously CHSE 111) or CHSE 124 2.5 minimum (previously CHSE 112)) or Concurrently
<b>Recommended:</b> CHEM 251 2.0 minimum	<b>Recommended:</b> Keyboard Experience
Continuation of CHEM 251. Topics include aromatic compounds, spectroscopy, organometallic compounds, aldehydes and ketones, carboxylic acids and their derivatives, amines, enolates, phenols, carbohydrates, polymers, and proteins. (Sp, Su)	Course covers one or more current computer software programs. Students learn to record charges/payments/information, schedule appointments, ICD-9 and CPT coding, produce claim forms and patient statements, submit claims electronically, and build office databases. A certificate of completion is awarded for Medical Insurance Billing if a grade point of 2.5 or better is earned in CHSE 123, 124, and 125. (F, Sp)
<b>CHEM 262 Quantitative Analysis</b> 2	<b>CHSE 126 Med Term for Insure Examiners</b> 1.25
<b>Prerequisite:</b> CHEM 152 2.0 minimum and CHEM 162 2.0 minimum	<b>Prerequisite:</b> None
Theory and procedures of classical analytical techniques, including gravimetric analysis and titrimetric methods. Use of instruments such as spectrophotometers, pH meters, and others is also included. (F)	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)
<b>CHEM 272 Organic Chemistry Laboratory</b> 2	<b>CHSE 132 Health Unit Coordinator</b> 7
<b>Prerequisite:</b> CHEM 251 2.0 minimum	<b>Prerequisite:</b> CHSE 121 2.5 minimum
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. (F, Sp)	Course is designed to introduce the student to basic health care 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)
<b>CHSE - COMMUNITY HEALTH SERVICES</b>	
<b>CHSE 101 Acute Care Nurse Assis/Orderly</b> 6	<b>CHSE 143 Phlebotomy Technician</b> 2
<b>Prerequisite:</b> Reading Level 3	<b>Prerequisite:</b> None
This course will prepare an individual for employment as a nursing assistant/orderly in a hospital, or other acute care delivery setting. The course will provide the knowledge and skills needed in order to provide safe basic patient care. (F, Sp, Su)	This course is designed to prepare a person to function as a phlebotomy technician. It will provide the knowledge and skill necessary to safely and skillfully obtain a blood specimen from a patient. The course includes lecture, campus, and clinical laboratory. (F, Sp)
<b>CHSE 108 Long-term Care Nurse Aide</b> 4	<b>CHSE 145 Central Service Technician</b> 4
<b>Prerequisite:</b> None	<b>Prerequisite:</b> None
This course will prepare an individual to be a nurse aide in a long-term care facility or home health care agency. This state-approved course will provide specific knowledge and skills required for a nurse aide to safely function in a long-term care setting. Upon completion of this course, the student is qualified to take the State Competency Evaluation Nurse Aide Examination. (F, Sp, Su)	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)
<b>CHSE 109 Advanced Acute Care Nr Assist</b> 4.5	<b>CHSE 201 Dietary Manager I</b> 5
<b>Prerequisite:</b> CHSE 101 2.0 minimum or CHSE 108 2.0 minimum	<b>Prerequisite:</b> Department Approval
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)	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)
<b>CHSE 121 Medical Term Allied Health I</b> 2.5	<b>CHSE 202 Dietary Manager II</b> 5
<b>Prerequisite:</b> Reading Level 5 and Writing Level 4	<b>Prerequisite:</b> CHSE 201 2.5 minimum
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)	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)
<b>CHSE 122 Medical Term Allied Health II</b> 2.5	<b>CHSE 205 Advanced Dietary Therapy</b> 2
<b>Prerequisite:</b> CHSE 121 2.5 minimum	<b>Prerequisite:</b> CHSE 202 2.5 minimum
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)	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 235 Pharmacy Technician 4**

**Prerequisite:** MATH 050 2.0 minimum or Math Level 4  
**Recommended:** AHCC 110 2.5 minimum

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)

**CISB - COMPUTER INFORMATION SYSTEMS FOR BUSINESS****CISB 100 Intro Computer Info Systems 0 or 3**

**Prerequisite:** None

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 Internet Literacy 3**

**Prerequisite:** None

**Recommended:** Windows Familiarity

Designed to explore the potential uses of the Internet for business, students will develop hands-on assignments. This includes the use of e-mail, search engines, and others including the Internet applications and development of a web page. The course also discusses the rapidly changing world of the Internet including current software, trends and societal issues. (F, Sp, Su)

**CISB 104 Introduction to DOS 1**

**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 organize disk directories and how to create and work with files. File attributes, pipes, filters, and redirection are also discussed. (F, Sp, Su)

**CISB 107 DOS Management 1**

**Prerequisite:** None

**Recommended:** CISB 104

Students in this course learn advanced concepts in managing a DOS based operating system. Techniques are introduced for batch files, replaceable parameters, batch programming, memory and configuration files, viruses, and the Windows Registry. (F, Sp, Su)

**CISB 114 Programming Logic 3**

**Prerequisite:** None

An introduction to programming logic which includes an introduction to structured design; programming control structures; arrays; object-oriented programming concepts; file update; and control break processing. Flowcharts and the Warnier-Orr diagram are used for logic diagramming. Coding examples and problems are covered are studied using OBASIC and Visual BASIC. (F, Sp, Su)

**CISB 119 Intro Window Prog Visual BASIC 4**

**Prerequisite:** None

**Recommended:** MATH 050 or Equivalent

An introduction to concepts of Windows programming using Visual Basic. Students learn to develop business applications by designing and creating a user interfaces and writing the necessary procedures. Students also learn to use logic development tools and object-oriented programming techniques. Topics include user interface design, beginning programming concepts, file and database programming. (F, Sp, Su)

**CISB 122 Adv Windows Prog Visual BASIC 3**

**Prerequisite:** None

**Recommended:** CISB 119

A second course in the Visual Basic programming sequence. This course presents programming in the Windows environment and leads to the creation of functional Windows application programs. Topics include advanced form design, random access files, development of error handlers, development of keyboard handlers creating class modules, database access and programming, developing help systems, and making Windows API calls. (F, Sp)

**CISB 130 Data Communications 3**

**Prerequisite:** None

**Recommended:** CISB 100 and (CISB 114 or CISB 119 or 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**

**Prerequisite:** None

**Recommended:** CISB 100 and (CISB 114 or CISB 119 or 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 along with device and file management. Case studies of current operating systems are studied. (F, Sp)

**CISB 136 SQL: Structured Query Language 2**

**Prerequisite:** None

**Recommended:** Windows Familiarity

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)

**CISB 141 Powerbuilder 3**

**Prerequisite:** None

**Recommended:** CISB 119 and CISB 136

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)

**CISB 143 ORACLE Database for Business 2**

**Prerequisite:** None

**Recommended:** Windows Familiarity and CISB 136 or CABS 136 or Equivalent

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)

**CISB 145 Operations Internship 1 2**

**Prerequisite:** Department Approval

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)

**CISB 146 Operations Internship 2 2**

**Prerequisite:** CISB 145 2.0 minimum

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)

**CISB 151 Using Lotus Notes 2**

**Prerequisite:** None

**Recommended:** Windows Familiarity

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)

**CISB 152 Developing Lotus Notes Appi 2**

**Prerequisite:** None

**Recommended:** CISB 151 or Equivalent

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)

**CISB 170 COBOL I 4**

**Prerequisite:** None

**Recommended:** CISB 100 and (CISB 114 or CISB 120)

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)

**CISB 180 Intro to C/C++ Program for Bus** 3  
**Prerequisite:** None  
**Recommended:** CISB 100 and (CISB 114 or CISB 120)  
 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)

**CISB 200 Info Sys Tech/Problem Solving** 3  
**Prerequisite:** Reading Level 5  
 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 work in teams, make group presentations and apply continuous improvement methods. (F, Sp, Su)

**CISB 204 Commercial Internet Site Mgmt** 3  
**Prerequisite:** None  
**Recommended:** CISB 102 and/or CISB 258  
 This course introduces concepts of website management. Students will explore website planning, promotion, security, and access control, as well as the legal issues with website management. Students will gain familiarity with various operating platforms and service software. (F, Sp)

**CISB 227 Adv Concepts Computer Info Sys** .25-4  
**Prerequisite:** Department 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. (F, Sp, Su)

**CISB 230 Intro to Local Area Networks** 3  
**Prerequisite:** None  
**Recommended:** CISB 130 and 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)

**CISB 231 Advanced Local Area Networks** 3  
**Prerequisite:** None  
**Recommended:** CISB 230 or 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)

**CISB 233 Microsoft Windows NT Server** 3  
**Prerequisite:** None  
**Recommended:** CISB 230 or Equivalent  
 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)

**CISB 234 Linux/UNIX Operating System** 3  
**Prerequisite:** None  
**Recommended:** CISB 130 and CISB 133  
 This course provides hands-on training in the Linux/UNIX operating system. Students will learn to install, use, and administer a Linux/UNIX operating system including shell programming and user account management. Application software for Linux/UNIX operating systems will also be discussed. (F, Sp)

**CISB 235 Microcomputer Hardware Support** 3  
**Prerequisite:** None  
**Recommended:** CISB 100 and CISB 130 and 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)

**CISB 236 Microcomputer Software Support** 3  
**Prerequisite:** None  
**Recommended:** CABS 195 and CISB 133 and CISB 200  
 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)

**CISB 245 Programming Internship** 3  
**Prerequisite:** Department 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)

**CISB 247 Microcomputer Project** 2  
**Prerequisite:** Department Approval  
 With this course, students apply what they have learned about programming and systems development computer support 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)

**CISB 250 Database Concepts** 3  
**Prerequisite:** None  
**Recommended:** CISB 100 and (CISB 114 or CISB 119 or 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 253 WWW Interactive Programming** 4  
**Prerequisite:** None  
**Recommended:** (CISB 119 or Equivalent) and CISB 258  
 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 258 Developing Pages for the Web** 3  
**Prerequisite:** None  
**Recommended:** CISB 102 or Equivalent  
 This course explores techniques of web page construction including HTML and the appropriate use of multimedia elements. Students will develop individual web-sites that progress to include elements such as graphics, sound, video and forms. Students will also demonstrate, as in a team, their understanding and application of the concepts introduced during the semester. (F, Sp, Su)

**CISB 260 Systems Analysis and Design** 4  
**Prerequisite:** None  
**Recommended:** CISB 100 and (CISB 114 or CISB 119 or 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 270 COBOL II** 3  
**Prerequisite:** None  
**Recommended:** CISB 170  
 An advanced COBOL course covering indexed file creation and updating, sub-program concepts, and writing interactive programs. Copy libraries are used, and a system of related programs is completed as a class project. (F, Sp)

**CISB 280 Adv C/C++ Program with OOP** 4  
**Prerequisite:** None  
**Recommended:** CISB 180  
 Students will build on their knowledge of C Programming to become familiar with the C++ programming language and object-oriented programming and design by designing, implementing, and testing programming projects. Encapsulation, inheritance, and polymorphism are explored. (F, Sp)

**CISB 281 Visual C++ Programming** 3  
**Prerequisite:** None  
**Recommended:** 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 283 Intro to JAVA Programming** 3  
**Prerequisite:** None  
**Recommended:** CISB 102 and (CISB 119 or CISB 122)  
 This course introduces students to the essential elements of the Java Programming language. 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  
**Prerequisite:** DTDS 100 2.5 minimum or Basic Drafting Test 70%  
 This course 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  
**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, Su)

**CIVL 120 Surveying** 4  
**Prerequisite:** MATH 114 3.0 minimum or Math Level 4  
 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 and Total Station) and basic computational techniques (chaining corrections, azimuths, bearings, coordinates and traverses). (F, Sp)

**CIVL 124 Route Survey** 4  
**Prerequisite:** CIVL 120 2.5 minimum  
 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  
**Prerequisite:** None  
 This course introduces 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  
**Prerequisite:** MATH 114 3.0 minimum or Math Level 4  
 Students will study techniques and equipment used in constructing bridges, buildings, highways and pipelines. Deals with 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 are covered. (Sp)

**CIVL 135 Soils Technology** 3  
**Prerequisite:** MATH 114 3.0 minimum or Math Level 4  
 Exploring, sampling, testing and evaluating subsurface materials and their effect on construction are covered in this course. Includes an introduction to methods of subsurface drainage, soil classifications and physical properties of soils; and discussion, demonstration and performance with equipment used in density testing. (Sp)

**CIVL 136 Hydrology and Highway Tech** 5  
**Prerequisite:** CIVL 131 3.0 minimum and (MATH 114 3.0 minimum or Math Level 4)  
 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  
**Prerequisite:** MATH 114 3.0 minimum or Math Level 4  
 This course applies 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/Civil** 1-4  
**Prerequisite:** None  
**Restriction:** Civil Technology Majors  
 Students are allowed to undertake special research projects to apply to their professional experience and academic major. A minimum of 48 hours of work per credit is required and the completion of a written project report. This course cannot be audited. (Sp)

**CIVL 241 Statics/Strength of Materials** 5  
**Prerequisite:** CIVL 200 2.5 minimum  
 Structural terminology and concepts are introduced. 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. (Sp)

#### CJUS - CRIMINAL JUSTICE

**CJUS 101 Intro to Criminal Justice** 3  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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  
**Prerequisite:** CJUS 101 1.0 minimum or Concurrently  
 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 Intro to Juvenile Justice** 3  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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 126 Juvenile Offenders/Their Fam** 3  
**Prerequisite:** CJUS 106 1.0 minimum or Concurrently  
 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)

**CJUS 130 Local Detention** 3  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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 clienteles are also covered. (F, Sp)



<b>CJUS 131 Introduction to Corrections</b> 3	<b>CJUS 242 Unarmed Defense</b> 3
<b>Prerequisite:</b> Reading Level 5 and Writing Level 4 <b>Recommended:</b> Math Level 3 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)	<b>Prerequisite:</b> None 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)
<b>CJUS 133 Juvenile Residential Services</b> 3	<b>CJUS 245 Report Writing in CJ</b> 2
<b>Prerequisite:</b> None <b>Recommended:</b> CJUS 106 1.0 minimum or Concurrently 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)	<b>Prerequisite:</b> (CJUS 101 1.0 minimum or CJUS 131 1.0 minimum) or Concurrently 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)
<b>CJUS 134 Probation and Parole</b> 3	<b>CJUS 246 Jail Safety and I.D. Issues</b> 4
<b>Prerequisite:</b> (CJUS 101 1.0 minimum or CJUS 131 1.0 minimum) or Concurrently 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)	<b>Prerequisite:</b> (CJUS 130 1.0 minimum and CJUS 242 1.0 minimum) or Concurrently and Department Approval 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)
<b>CJUS 135 Legal Issues in Corrections</b> 3	<b>CJUS 250 Correctional Institutions</b> 3
<b>Prerequisite:</b> (CJUS 130 1.0 minimum or CJUS 131 1.0 minimum) or Concurrently 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)	<b>Prerequisite:</b> CJUS 131 1.0 minimum or Concurrently 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)
<b>CJUS 170 Emergency Dispatching I</b> 4	<b>CJUS 251 Correctional Clients</b> 3
<b>Prerequisite:</b> Reading Level 5 and Writing Level 4 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)	<b>Prerequisite:</b> (CJUS 130 1.0 minimum or CJUS 131 1.0 minimum) or Concurrently 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)
<b>CJUS 171 Emergency Dispatching II</b> 4	<b>CJUS 255 Human Relations/Criminal Just</b> 3
<b>Prerequisite:</b> CJUS 170 1.0 minimum or Concurrently 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)	<b>Prerequisite:</b> (CJUS 101 1.0 minimum or CJUS 130 1.0 minimum or CJUS 131 1.0 minimum) or Concurrently and Reading Level 5 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)
<b>CJUS 201 Criminal Justice Org/Admin</b> 3	<b>CJUS 256 Interpersonal Comm in Jails</b> 1
<b>Prerequisite:</b> CJUS 101 1.0 minimum or Concurrently 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)	<b>Prerequisite:</b> CJUS 130 1.0 minimum and CJUS 255 1.0 minimum and Department Approval 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)
<b>CJUS 203 Criminal Procedure</b> 3	<b>CJUS 260 Criminal Invest &amp; Procedures</b> 3
<b>Prerequisite:</b> CJUS 103 1.0 minimum or Concurrently Study of criminal procedural law. Includes laws of arrest, search and seizure, and admissions and confessions; suspect identification; and rules of evidence. (F, Sp)	<b>Prerequisite:</b> None <b>Co-requisite Courses:</b> CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114 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)
<b>CJUS 204 Criminal Investigation</b> 4	<b>CJUS 261 Michigan Crim Law &amp; Procedure</b> 3
<b>Prerequisite:</b> Reading Level 5 and Writing Level 4 <b>Recommended:</b> CJUS 103 1.0 minimum Examines the fundamentals of criminal investigation such as crime scene procedures, collection and preservation of physical evidence, interviewing, interrogation, and latent investigation. (F, Sp)	<b>Prerequisite:</b> None <b>Co-requisite Courses:</b> CJUS 260 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114 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)
<b>CJUS 205 Policing into the 21st Century</b> 3	<b>CJUS 262 Patrol Procedures and Tactics</b> 3
<b>Prerequisite:</b> CJUS 101 1.0 minimum 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)	<b>Prerequisite:</b> None <b>Co-requisite Courses:</b> CJUS 260 and CJUS 261 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114 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)
<b>CJUS 206 Interview and Interrogation</b> 2	
<b>Prerequisite:</b> Reading Level 5 and Writing Level 4 Provides students with the techniques and procedures utilized in conducting lawful, admissible, and successful investigative interviews and interrogations. (F, Sp, Su)	

3	<b>CJUS 263 Standard First Aid</b> 2
	<b>Prerequisite:</b> None
	<b>Co-requisite Courses:</b> CJUS 260 and CJUS 261 and CJUS 262 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114
	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)
2	<b>CJUS 264 Rprt Writing in Law Enforce</b> 1
	<b>Prerequisite:</b> None
	<b>Co-requisite Courses:</b> CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114
	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)
4	<b>CJUS 265 Highway Traffic Operations</b> 3
	<b>Prerequisite:</b> None
	<b>Co-requisite Courses:</b> CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114
	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.I.L., and accident investigation. (F, Sp, Su)
3	<b>CJUS 266 Basic Police Science</b> 3
	<b>Prerequisite:</b> None
	<b>Co-requisite Courses:</b> CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 267 and CJUS 268 and PFFT 114
	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)
3	<b>CJUS 267 Law Enforcement Phys Traing</b> 2
	<b>Prerequisite:</b> None
	<b>Co-requisite Courses:</b> CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 268 and PFFT 114
	Designed to assist law enforcement students in developing and improving their physical fitness. The course includes running, aerobics, calisthenics, and stretching. (F, Sp, Su)
3	<b>CJUS 268 Precision Driving</b> 3
	<b>Prerequisite:</b> None
	<b>Co-requisite Courses:</b> CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and PFFT 114
	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)
4	<b>CJUS 281 Directed Independent Study</b> 1-3
	<b>Prerequisite:</b> Department 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)
3	<b>CJUS 285 Law Enforcement Internship</b> 2
	<b>Prerequisite:</b> Department Approval
	Sixteen eight-hour shifts are scheduled with an approved police department. Written reports are required. (F, Sp, Su)
4	<b>CJUS 286 Juvenile Internship I</b> 3
	<b>Prerequisite:</b> CJUS 106 1.0 minimum or Concurrently and Department Approval
	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)

3	<b>CJUS 287 Juvenile Internship II</b> 3
	<b>Prerequisite:</b> (CJUS 133 1.0 minimum or Concurrently) and CJUS 286 1.0 minimum and Department Approval
	<b>Recommended:</b> For Juvenile Care Worker Students
	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)
3	<b>CJUS 288 Corrections Internship</b> 3
	<b>Prerequisite:</b> Department 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**

3	<b>CNCP 101 PC Applications for Technology</b> 3
	<b>Prerequisite:</b> 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)
3	<b>CNCP 105 Basic Machining Processes</b> 3
	<b>Prerequisite:</b> (MATH 114 2.0 minimum or Math Level 4) and Reading Level 5 and Writing Level 4
	<b>Recommended:</b> Computer Experience
	This course is designed for non-machinists/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)
4	<b>CNCP 110 Foundations of CNC Programming</b> 4
	<b>Prerequisite:</b> MACH 105 3.0 minimum and (MATH 114 2.0 minimum or Math Level 4) and Reading Level 5 and Writing Level 4
	<b>Recommended:</b> Computer Experience
	This course lays the foundation for all other Computerized Numerical Control (CNC) courses. Subjects covered include Z-axis cycles, tool diameter compensation, rough and pocketing cycles, macros and sub-programs, and parametric programming with equations. Students will write programs for 3-axis and 5-axis mills and 3-axis lathes. (F, Sp, Su)
4	<b>CNCP 130 Machine Controls and Setup</b> 4
	<b>Prerequisite:</b> CNCP 110 2.0 minimum
	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)
1-4	<b>CNCP 194 CNC Project Lab</b> 1-4
	<b>Prerequisite:</b> CNCP 130 2.0 minimum
	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)
4	<b>CNCP 200 Unigraphics NC</b> 4
	<b>Prerequisite:</b> CNCP 110 2.0 minimum and DTDS 180 2.0 minimum
	Unigraphics NC (Numerical Control) is a leader in parametric Computer Aided Manufacturing software used to graphically program CNC machine tools. Course topics will cover preparation of drawings for programming, basic APT programming, Multi-axis programming and Overlay features. Selected programs will be run on CNC machines. (Sp)
4	<b>CNCP 210 Mastercam</b> 4
	<b>Prerequisite:</b> CNCP 110 2.0 minimum
	Mastercam is a powerful graphics based programming software for CNC machine tools. Mastercam software is designed to generate CNC programs from mechanical CAD drawings. Students will use Mastercam to solve CNC programming problems in both 2-D and 3-D environments and run selected programs on CNC equipment. (F, Sp)

**CNCP 215 Generative Machining** 4  
**Prerequisite:** CNCP 110 2.0 minimum  
 Generative Machining (Gen-Mach) is an advanced CNC programming module that is part of the IDEAS engineering design software. Gen-Mach uses IDEAS CAD drawings to graphically create CNC cutter path programs that are parametrically linked to the CAD model. Students will learn a variety of profile contouring and complex surface machining methods for CNC lathes and mills. (F, Sp)

**COOP - COOPERATIVE EDUCATION**

**COOP 210 Cooperative Education (Tech)** 3  
**Prerequisite:** Department Approval  
**Recommended:** 2.5 GPA or Greater  
 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  
**Prerequisite:** Reading Level 3 and Writing Level 4 and Math Level 4  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 4 and (Math Level 9 or MATH 122 2.0 minimum or MATH 126 2.0 minimum)  
 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 230 Algorithms and Computing W/C++** 4  
**Prerequisite:** Reading Level 5 and Writing Level 4 and (MATH 151 2.0 minimum or Concurrently)  
 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 231 Computing and Data Structures** 4  
**Prerequisite:** CPSC 230 2.0 minimum and Reading Level 5 and Writing Level 4  
 Data abstraction and related theory for representation and access of information using C++. Algorithms and abstract data structures such as the stack, queue, binary search tree, heap and priority queue are studied. (F, Su)

**CPSC 260 Computer Science Structures** 4  
**Prerequisite:** Reading Level 5 and Writing Level 4 and MATH 151 2.0 minimum and (CPSC 150 2.0 minimum or CPSC 230 2.0 minimum)  
 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 295 Independent Study in Computer Sci** 1-4  
**Prerequisite:** Department 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. Student devotes three or more hours per week to this study in addition to their work with the assigned instructor. (F, Sp, Su)

**CTRT - COURT REPORTING**

**CTRT 100 Machine Shorthand Theory I** 6  
**Prerequisite:** Admission to Court Reporting Program and Reading Level 5 and Writing Level 4  
 This course is specifically designed for conflict-free theory taught on a steno machine to develop note writing accuracy from 95 to 100 percent. (F, Sp)

**CTRT 110 Machine Shorthand Theory II** 6  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 100 or CTRT 120 or CACR 101  
 This course is specifically designed for conflict-free theory taught on a steno machine to develop note writing accuracy from 96 to 100 percent. (F, Sp)

**CTRT 120 Summer Skill Building I** 3  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 100 or CTRT 110 or CACR 111  
 This course is specifically designed for machine shorthand skill building in the areas of Theory or Q & A and Literary dictation. It will assist students in developing the required levels and/or accuracy. (Su)

**CTRT 200 Court Reporting I** 6  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 120 or CACR 121  
 This course is specifically designed for machine shorthand skill building in the areas of Q & A, multi-voice dictation, Jury Charge, and Literary dictation at speeds ranging from 100 to 140 wpm. (F, Sp)

**CTRT 210 Court Reporting II** 6  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 200 or CACR 205  
 This course is specifically designed for machine shorthand skill building in the areas of Q & A, multi-voice dictation, Jury Charge, and Literary dictation at speeds ranging from 150 to 190 wpm. (F, Sp)

**CTRT 220 Summer Skill Building II** 3  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 200 or CTRT 210 or CACR 206  
 This course is specifically designed for machine shorthand skill building in the areas of Q & A, multi-voice and Literary dictation. It will assist students in developing the required levels and/or accuracy. (Su)

**CTRT 230 Advanced Skill Building** 4  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 220 or CACR 206  
 This capstone course is specifically designed for machine shorthand skill building in the areas of Q & A, multi-voice, Literary, and Jury Charge dictation to assist the students to reach graduation speeds. To graduate, students must meet the NCRA CASE minimum requirements. (F, Sp)

**CTRT 235 English for Court Reporters** 1  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** CTRT 120 3.0 minimum  
 This course is specifically designed to reinforce proper grammar and punctuation usage, how to punctuate the spoken word and proofreading skills for court reporting students. (F)

**CTRT 240 CAT-Comp-Aided Transcription** 2  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 200 or CACR 205 or CACR 206 or CACR 215  
 This Computer Aided Transcription (CAT) course is specifically designed to assist court reporting students in developing their skill and knowledge of court reporting software. (F)

- CTRT 245 Realtime Reporting** 1  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 200 or CACR 110  
 This course consists of instruction in realtime reporting through lectures, guest speakers, video tapes, assigned readings, and hand-on applications. (Sp)
- CTRT 250 Medical Vocab/Court Report I** 1  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 120 or CACR 121  
 This is the first of two courses specifically designed to assist the student in gaining knowledge of medical terminology, body systems and functions, psychological and physical diseases, drugs, methods of research, and skill in medical transcription. (F, Sp)
- CTRT 255 Medical Vocab/Court Report II** 1  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 250 or CACR 121  
 This is the second of two courses specifically designed to assist the student in gaining knowledge of medical terminology, body systems and functions, psychological and physical diseases, drugs, methods of research, and skill in medical transcription. (F, Sp)
- CTRT 260 Legal Vocab/Court Reporters** 1  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 100 or CACR 101  
 This course is specifically designed to assist the student in gaining knowledge of legal terminology and how it applies to the court reporting profession. (F, Sp)
- CTRT 265 Captioning** 1  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 200 or CACR 205 or CACR 206 or CACR 215  
 This course provides instruction, field trip experience, and hands-on computer lab application of entry-level on-line captioning knowledge and skill. (Sp)
- CTRT 270 Court Reporting Procedures** 2  
**Prerequisite:** None  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum 3.0 in CTRT 200 or CACR 205 or CACR 206 or CACR 215  
 This course consists of lecture and field trips to assist the court reporting student to learn reporting techniques and procedures in trials, depositions, and administrative hearings. (F)
- CTRT 275 Internship** 1  
**Prerequisite:** Department Approval  
**Restriction:** Court Reporting Majors  
**Recommended:** Minimum speed level of 180 wpm  
 Students placed in internship will spend a minimum of 100 hours with official, deposition, hearings and realtime reporters and/or captioners. They will write and transcribe notes in proper form, producing 100 pages of transcript, and/or develop a personal dictionary in order to learn specific techniques and procedures. (F, Sp, Su)
- CUAI - CREDIT UNION ACCOUNTING AND INSURANCE**
- CUAI 102 Credit Union Accounting** 3  
**Prerequisite:** None  
 This course emphasizes those areas of financial accounting relevant to external reporting by credit unions. (Sp)
- CUMA - CREDIT UNION MANAGEMENT**
- CUMA 100 Intro Credit Union Operations** 3  
**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  
**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 U. Financial Counseling** 2  
**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  
**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  
**Prerequisite:** (DAST 111 2.0 minimum and DAST 112 2.0 minimum and DAST 114 2.0 minimum) or (DHYN 110 2.0 minimum and DHYN 112 2.0 minimum and DHYN 114 2.0 minimum)  
**Co-requisite Courses:** Second Semester Dental Hygiene and Dental Assistant  
 Lectures discuss production and emission of dental X-radiation, indications for exposure, techniques 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  
**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 Ballet I** 2  
**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 Modern Dance I** 2  
**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 Jazz I** 2  
**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 Tap I** 2  
**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)

<p><b>DANC 105 Jazz I - Summer</b> 1  <b>Prerequisite:</b> 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)</p> <p><b>DANC 106 Tap I - Summer</b> 1  <b>Prerequisite:</b> 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)</p> <p><b>DANC 107 Ballet I - Summer</b> 1  <b>Prerequisite:</b> 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. (Su)</p> <p><b>DANC 108 Modern Dance I - Summer</b> 1  <b>Prerequisite:</b> None  This course is designed for the student 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. (Su)</p> <p><b>DANC 110 High School Dance Workshop</b> 3  <b>Prerequisite:</b> Dance Audition  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)</p> <p><b>DANC 111 Ballet II</b> 2  <b>Prerequisite:</b> None  <b>Recommended:</b> DANC 101 or Previous Ballet Experience  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)</p> <p><b>DANC 112 Modern Dance II</b> 2  <b>Prerequisite:</b> None  <b>Recommended:</b> DANC 102 or Previous Modern Experience  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)</p> <p><b>DANC 113 Jazz II</b> 2  <b>Prerequisite:</b> None  <b>Recommended:</b> DANC 103 or Previous Jazz Experience  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)</p> <p><b>DANC 114 Tap II</b> 2  <b>Prerequisite:</b> None  <b>Recommended:</b> DANC 104 or Previous Tap Experience  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)</p> <p><b>DANC 115 Jazz II - Summer</b> 1  <b>Prerequisite:</b> None  <b>Recommended:</b> DANC 103 or Previous Jazz Experience  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)</p>	<p><b>DANC 116 Tap II - Summer</b> 1  <b>Prerequisite:</b> None  <b>Recommended:</b> DANC 104 or Previous Tap Experience  Emphasis is placed on increased complexity in rhythms and combinations. Course includes a continuation of tap vocabulary, steps, combinations, and rhythms. (Su)</p> <p><b>DANC 125 Dance Improvisation</b> 2  <b>Prerequisite:</b> DANC 101 2.0 minimum or DANC 102 2.0 minimum or DANC 103 2.0 minimum  This course is designed for the major and nonmajor. 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)</p> <p><b>DANC 126 Choreography</b> 3  <b>Prerequisite:</b> DANC 125 2.0 minimum (previously 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)</p> <p><b>DANC 132 Spanish Dance</b> 2  <b>Prerequisite:</b> 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)</p> <p><b>DANC 134 African Dance</b> 2  <b>Prerequisite:</b> 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)</p> <p><b>DANC 161 Ballet Repertory</b> 1  <b>Prerequisite:</b> Dance Audition for Ballet Repertory  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)</p> <p><b>DANC 162 Modern Dance Repertory</b> 1  <b>Prerequisite:</b> Dance Audition for Modern Dance Repertory  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)</p> <p><b>DANC 163 Jazz Repertory</b> 1  <b>Prerequisite:</b> Dance Audition for Jazz Repertory  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)</p> <p><b>DANC 164 Tap Repertory</b> 1  <b>Prerequisite:</b> Dance Audition for Tap Repertory  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)</p> <p><b>DANC 165 Video Dance Repertory</b> 5  <b>Prerequisite:</b> Department 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)</p>
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<b>DANC 191 Dance History</b> 3	<b>DANC 211 Ballet IV</b> 3
<b>Prerequisite:</b> None	<b>Prerequisite:</b> Dance Audition for Ballet IV
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)	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)
<b>DANC 193 Dance Anatomy</b> 3	<b>DANC 212 Modern Dance IV</b> 3
<b>Prerequisite:</b> DANC 101 2.0 minimum or DANC 102 2.0 minimum or DANC 103 2.0 minimum	<b>Prerequisite:</b> Dance Audition for Modern Dance IV
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)	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 personal movement style. Performance skills are sharpened and include projection, musicality, flow, articulation, clarity of intent, motivation, phrasing, and gesture. (F, Sp, Su)
<b>DANC 201 Ballet III</b> 3	<b>DANC 217 Ballet IV - Summer</b> 1.5
<b>Prerequisite:</b> Dance Audition for Ballet III	<b>Prerequisite:</b> Department 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)	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. (Su)
<b>DANC 202 Modern Dance III</b> 3	<b>DANC 218 Modern Dance IV - Summer</b> 1.5
<b>Prerequisite:</b> Dance Audition for Modern Dance III	<b>Prerequisite:</b> Department 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)	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 personal movement style. Performance skills are sharpened and include projection, musicality, flow, articulation, clarity of intent, motivation, phrasing, and gesture. (Su)
<b>DANC 203 Jazz III</b> 3	<b>DANC 225 Jazz IV - Summer</b> 1.5
<b>Prerequisite:</b> Dance Audition for Jazz III	<b>Prerequisite:</b> Dance Audition for Jazz IV
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)	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)
<b>DANC 204 Tap III</b> 3	<b>DANC 244 Pointe Technique I</b> 2
<b>Prerequisite:</b> Dance Audition for Tap III	<b>Prerequisite:</b> Dance Audition for Pointe Technique I
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)	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)
<b>DANC 205 Jazz III - Summer</b> 1.5	<b>DANC 295 Directed Studies I</b> 1-3
<b>Prerequisite:</b> Dance Audition for Jazz III	<b>Prerequisite:</b> Department 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)	Working under the guidance of an approved instructor, the student will pursue studies not otherwise available through scheduled course offerings. (F, Su)
<b>DANC 206 Tap III - Summer</b> 1.5	
<b>Prerequisite:</b> Dance Audition for Tap III	
Emphasis is placed on increased complexity of rhythms and combinations in order to develop a personal style in preparation for performance. (Su)	
<b>DANC 207 Ballet III - Summer</b> 1.5	
<b>Prerequisite:</b> Dance Audition for Ballet III	
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. (Su)	
<b>DANC 208 Modern Dance III - Summer</b> 1.5	
<b>Prerequisite:</b> Dance Audition for Modern Dance III	
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. (Su)	
	<b>DAST - DENTAL ASSISTING</b>
	<b>DAST 110 Dental Instruments</b> 1
	<b>Prerequisite:</b> Admission to Dental Assistant Program
	<b>Co-requisite Courses:</b> DAST 111 and DAST 112 and DAST 114 and DAST 116 and DAST 118
	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)
	<b>DAST 111 Preclinical Dental Assisting</b> 3
	<b>Prerequisite:</b> Admission to Dental Assistant Program
	<b>Co-requisite Courses:</b> DAST 110 and DAST 112 and DAST 114 and DAST 116 and DAST 118
	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)

<b>DAST 112 Dental Anatomy</b>	4
<b>Prerequisite:</b> Admission to Dental Assistant Program	
<b>Co-requisite Courses:</b> DAST 110 and DAST 111 and DAST 114 and DAST 116 and DAST 118	
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)	
<b>DAST 114 Preventive Dentistry &amp; Prc</b>	3
<b>Prerequisite:</b> Admission to Dental Assistant Program	
<b>Co-requisite Courses:</b> DAST 110 and DAST 111 and DAST 112 and DAST 116 and DAST 118	
An introduction to the dental operator, aseptic techniques, and oral hygiene procedures for preventing dental diseases. Dental emergency prevention, protocol, care, and OSHA regulations are reviewed. (F)	
<b>DAST 116 Dental Materials</b>	3
<b>Prerequisite:</b> Admission to Dental Assistant Program	
<b>Co-requisite Courses:</b> DAST 110 and DAST 111 and DAST 112 and DAST 114 and DAST 118	
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)	
<b>DAST 118 Dental Assisting Principles</b>	1
<b>Prerequisite:</b> Admission to Dental Assistant Program	
<b>Co-requisite Courses:</b> DAST 110 and DAST 111 and DAST 112 and DAST 114 and DAST 116	
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)	
<b>DAST 120 Clinical Dental Assisting I</b>	6
<b>Prerequisite:</b> DAST 111 2.0 minimum and DAST 112 2.0 minimum and DAST 116 2.0 minimum and DAST 118 2.0 minimum and EMSB 102	
<b>Co-requisite Courses:</b> DADH 128 and DAST 126 and DAST 130	
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)	
<b>DAST 126 RDA Procedures - DA</b>	3
<b>Prerequisite:</b> DAST 110 2.0 minimum and DAST 111 2.0 minimum and DAST 112 2.0 minimum and DAST 114 2.0 minimum and DAST 116 2.0 minimum	
<b>Co-requisite Courses:</b> DADH 128 and DAST 120 and DAST 130	
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 technics and gain proficiency in those procedures that will be performed during clinic rotations. (Sp)	
<b>DAST 130 Clinical Dental Assisting II</b>	2
<b>Prerequisite:</b> (DADH 128 2.0 minimum and DAST 120 2.0 minimum and DAST 126 2.0 minimum) or Concurrently	
<b>Co-requisite Courses:</b> DADH 128 and DAST 120 and DAST 126	
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)	
<b>DAST 140 Clinical Dental Assisting III</b>	4
<b>Prerequisite:</b> DAST 130 2.0 minimum	
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)	

**DHYN - DENTAL HYGIENE**

<b>DHYN 110 Preclinical Dental Hygiene</b>	6
<b>Prerequisite:</b> Admission to Dental Hygienist Program	
<b>Co-requisite Courses:</b> DHYN 112 and DHYN 114 and DHYN 116	
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)	
<b>DHYN 112 Oral Anatomy</b>	4
<b>Prerequisite:</b> Admission to Dental Hygienist Program	
<b>Co-requisite Courses:</b> DHYN 110 and DHYN 114 and DHYN 116	
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)	
<b>DHYN 114 Oral Pathology</b>	2
<b>Prerequisite:</b> Admission to Dental Hygienist Program	
<b>Co-requisite Courses:</b> DHYN 110 and DHYN 112 and DHYN 116	
Study of the diseases effecting 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)	
<b>DHYN 116 Dental Pharmacology</b>	2
<b>Prerequisite:</b> Admission to Dental Hygienist Program	
<b>Co-requisite Courses:</b> DHYN 110 and DHYN 112 and DHYN 114	
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)	
<b>DHYN 120 Clinical Dental Hygiene I</b>	6
<b>Prerequisite:</b> DHYN 110 2.0 minimum and DHYN 112 2.0 minimum and DHYN 114 2.0 minimum and DHYN 116 2.0 minimum and EMSB 102	
<b>Co-requisite Courses:</b> DADH 128 and DHYN 122 and DHYN 124 and DHYN 126	
Initial clinical practice of basic dental hygiene services: recognition and recording or 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)	
<b>DHYN 122 Principles of Periodontics</b>	2
<b>Prerequisite:</b> DHYN 110 2.0 minimum and DHYN 112 2.0 minimum and DHYN 114 2.0 minimum and DHYN 116 2.0 minimum	
<b>Co-requisite Courses:</b> DADH 128 and DHYN 120 and DHYN 124 and DHYN 126	
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)	
<b>DHYN 124 Nutrition and Oral Health</b>	2
<b>Prerequisite:</b> DHYN 110 2.0 minimum and DHYN 112 2.0 minimum and DHYN 114 2.0 minimum and DHYN 116 2.0 minimum and EMSB 102	
<b>Co-requisite Courses:</b> DADH 128 and DHYN 120 and DHYN 122 and DHYN 126	
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)	
<b>DHYN 126 Dental Materials and Methods</b>	3
<b>Prerequisite:</b> DHYN 110 2.0 minimum and DHYN 112 2.0 minimum and DHYN 114 2.0 minimum and DHYN 116 2.0 minimum	
<b>Co-requisite Courses:</b> DADH 128 and DHYN 120 and DHYN 122 and DHYN 124	
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)	

<b>DHYN 210 Clinical Dental Hygiene II</b>	<b>6</b>
<b>Prerequisite:</b> DADH 128 2.0 minimum and DHYN 120 2.0 minimum and DHYN 122 2.0 minimum and DHYN 124 2.0 minimum and DHYN 126 2.0 minimum	
<b>Co-requisite Courses:</b> DHYN 212 and DHYN 214 and DHYN 216	
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)	
<b>DHYN 212 Advanced Dental Hygiene Proced</b>	<b>4</b>
<b>Prerequisite:</b> DADH 128 2.0 minimum and DHYN 120 2.0 minimum and DHYN 122 2.0 minimum and DHYN 124 2.0 minimum and DHYN 126 2.0 minimum	
<b>Co-requisite Courses:</b> DHYN 210 and DHYN 214 and DHYN 216	
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)	
<b>DHYN 214 Clinical Oral Pathology</b>	<b>1</b>
<b>Prerequisite:</b> DADH 128 2.0 minimum and DHYN 120 2.0 minimum and DHYN 122 2.0 minimum	
<b>Co-requisite Courses:</b> DHYN 210 and DHYN 212 and DHYN 216	
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)	
<b>DHYN 216 Dental Public Health &amp; Educ</b>	<b>2</b>
<b>Prerequisite:</b> DADH 128 2.0 minimum and DHYN 120 2.0 minimum and DHYN 122 2.0 minimum and DHYN 124 2.0 minimum and DHYN 126 2.0 minimum	
<b>Co-requisite Courses:</b> DHYN 210 and DHYN 212 and DHYN 214	
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)	
<b>DHYN 220 Clinical Dental Hygiene III</b>	<b>7</b>
<b>Prerequisite:</b> DHYN 210 2.0 minimum and DHYN 212 2.0 minimum and DHYN 214 2.0 minimum and DHYN 216 2.0 minimum	
<b>Co-requisite Course:</b> DHYN 222	
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)	
<b>DHYN 222 Community Oral Health</b>	<b>4</b>
<b>Prerequisite:</b> DHYN 210 2.0 minimum and DHYN 212 2.0 minimum and DHYN 214 2.0 minimum and DHYN 216 2.0 minimum	
<b>Co-requisite Course:</b> DHYN 220	
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)	
<b>DHYN 224 Testing Styles and Inventory</b>	<b>2</b>
<b>Prerequisite:</b> DHYN 210 2.0 minimum and DHYN 212 2.0 minimum and DHYN 214 2.0 minimum and DHYN 216 2.0 minimum	
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)	
<b>DHYN 230 RDA Procedures - DH</b>	<b>2</b>
<b>Prerequisite:</b> DADH 128 2.0 minimum and DHYN 120 2.0 minimum and DHYN 126 2.0 minimum	
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**

<b>DTDS 100 CAD/Drafting Concepts</b>	<b>4</b>
<b>Prerequisite:</b> None	
This course teaches the fundamental concepts of drafting and design both manually and using computer-aided drafting (CAD). The student will learn the basics of orthographic projection, lettering, sketching, dimensioning techniques, computer hardware setup, Windows NT, file management, printing and much more. (F, Sp, Su)	
<b>DTDS 101 Drafting I</b>	<b>4</b>
<b>Prerequisite:</b> (DTDS 100 2.0 minimum or Drafting Placement Test 80% and Reading Level 3 and Writing Level 2 and Math Level 4)	
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)	
<b>DTDS 102 Drafting II</b>	<b>4</b>
<b>Prerequisite:</b> DTDS 101 2.0 minimum	
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)	
<b>DTDS 103 Geometric Tolerancing</b>	<b>2</b>
<b>Prerequisite:</b> DTDS 100 2.0 minimum or Drafting Placement Test 80%	
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)	
<b>DTDS 104 Descriptive Geometry</b>	<b>4</b>
<b>Prerequisite:</b> DTDS 101 2.0 minimum	
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)	
<b>DTDS 110 Industrial Blueprint Reading</b>	<b>3</b>
<b>Prerequisite:</b> DTDS 100 2.0 minimum or Drafting Placement Test 80%	
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)	
<b>DTDS 121 CATIA I</b>	<b>4</b>
<b>Prerequisite:</b> DTDS 101 2.0 minimum	
An intermediate level computer aided design (CAD) class for students who have basic board drafting and CAD skills. Instruction covers basic concepts of the CATIA system of CAD. Students will learn 3D wireframe modeling as well as basic solid modeling concepts. Students will construct models of aircraft parts, automotive components and consumer goods. (F, Sp, Su)	
<b>DTDS 131 AutoCAD Basic 2-D</b>	<b>4</b>
<b>Prerequisite:</b> DTDS 100 2.0 minimum or DTDS 101 2.0 minimum or Drafting Placement Test 80%	
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)	
<b>DTDS 132 AutoCAD Advanced 3-D</b>	<b>4</b>
<b>Prerequisite:</b> DTDS 131 2.0 minimum	
This course builds on the material covered in DTDS 131. The student will focus on advanced AutoCAD commands and features, including tools for 3-D drafting and design, 3-D design visualization and program customization. Topics covered include constructing 3-D wireframe and surface modeling, solid modeling, customized toolbars, system variables, and much more. (F, Sp, Su)	



- DTDS 155 I-DEAS Parts Modeling** 4  
**Prerequisite:** DTDS 100 2.5 minimum or DTDS 101 2.5 minimum  
 This course teaches the student I-DEAS Master Series CAD software emphasizing important concepts of feature-based parametric solid modeling. Students will construct and edit 3-D parts, use drafting and solid modeling features, create sketches and primitives, use feature relationships, use reference geometry, use a 3-D and solid model library of parts, and construct complete 2-D drawings. (F, Sp, Su)
- DTDS 156 I-DEAS Assemblies Modeling** 4  
**Prerequisite:** DTDS 155 2.5 minimum  
 Students will learn how to use I-DEAS Master Series Assembly CAD software to create, edit, and constrain feature-based assembly models. Students will then be able to create assembly layout drawings from their solid models. (F, Sp)
- DTDS 180 Unigraphics I** 4  
**Prerequisite:** DTDS 100 2.0 minimum or DTDS 101 2.0 minimum or Drafting Placement Test 80%  
 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  
**Prerequisite:** DTDS 180 2.0 minimum and (DTDS 102 2.0 minimum or 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  
**Prerequisite:** DTDS 103 2.0 minimum and DTDS 181 2.0 minimum  
 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  
**Prerequisite:** DTDS 101 2.0 minimum and ((DTDS 131 2.5 minimum or DTDS 181 2.5 minimum) or Concurrently)  
 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  
**Prerequisite:** DTDS 101 2.0 minimum and ((DTDS 131 2.5 minimum or DTDS 181 2.5 minimum) or Concurrently)  
 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  
**Prerequisite:** Department 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 Mechanical Desktop** 4  
**Prerequisite:** DTDS 132 2.0 minimum  
 This course teaches the student how to generate 3-D parametric models, produce 2-D views and assemble parts while focusing on Autodesk Mechanical Desktop's designer and assembly modules. (F, Sp, Su)
- DTDS 280 Drafting Project Lab** 2-4  
**Prerequisite:** Department Approval  
 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** 2-4  
**Prerequisite:** Department Approval  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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)
- ECON 140 Current Economic Issues** 3  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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)
- ECON 201 Principles of Economics-Micro** 3  
**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 3  
 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  
**Prerequisite:** ECON 201 1.0 minimum or Concurrently and Reading Level 5 and Writing Level 4 and Math Level 3  
 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 U.S. Economic/Business History** 3  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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)

**EDUC - EDUCATION**

- EDUC 201 Teacher Education Practicum** 2  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 Beginning practical experience and training in the field for individual students. The student is placed with an educational institution. (F, Sp)
- EDUC 220 Introduction to Education** 3  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 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. (F, Sp, Su)

**ELCT - ELECTRONICS TECHNOLOGY**

- ELCT 100 Schematic Drawing** 1  
**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. (F, Sp, Su)
- ELCT 101 Analog Problems** 5  
**Prerequisite:** Reading Level 5 and Writing Level 2 and Math Level 4  
**Recommended:** High School Algebra  
 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)

<b>ELCT 109 DC Circuits</b>	3	<b>ELCT 180 Computer Test Equipment I</b>	3
<b>Prerequisite:</b> ELCT 101 1.0 minimum or Concurrently		<b>Prerequisite:</b> None	
A half-semester beginning DC circuit analysis course covering 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)		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)	
<b>ELCT 110 AC Circuits</b>	3	<b>ELCT 181 Computer Test Equipment II</b>	2
<b>Prerequisite:</b> (ELCT 101 1.0 minimum and ELCT 109 1.0 minimum) or Concurrently		<b>Prerequisite:</b> (ELCT 171 1.0 minimum or Concurrently) or (ELCT 131 1.0 minimum and ELCT 110 1.0 minimum)	
<b>Recommended:</b> ELCT 109 be taken first half of semester		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)	
A half-semester AC circuit analysis course covering complex numbers and trigonometry to analyze series and parallel RCL circuits. RC filter networks and series and parallel resonant circuits are also discussed. AC generators, oscilloscopes and frequency counters are used in laboratory experiments. (F, Sp, Su)		<b>ELCT 206 Project Lab</b>	1-3
<b>ELCT 112 Transistors</b>	6	<b>Prerequisite:</b> ELCT 112 1.0 minimum and Department Approval	
<b>Prerequisite:</b> ELCT 110 1.0 minimum		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. Instructor approval must be obtained prior to enrolling in this course. (F, Sp, Su)	
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 discussed from the analysis, design and troubleshooting standpoints. (F, Sp)		<b>ELCT 211 Linear Circuits I</b>	3
<b>ELCT 120 Programming Preparation</b>	2	<b>Prerequisite:</b> ELCT 112 1.0 minimum	
<b>Prerequisite:</b> None		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)	
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)		<b>ELCT 212 Linear Circuits II</b>	3
<b>ELCT 131 Digital Basics</b>	3	<b>Prerequisite:</b> ELCT 112 1.0 minimum	
<b>Prerequisite:</b> None		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)	
Introduces digital electronics microprocessor basics: Binary number system, basic gates, combination and sequential logic circuits, programming of a microprocessor using mnemonics and addressing modes. Laboratory work includes the analysis of digital circuits built on PC boards and the programming, debugging and interfacing of a MPU trainer to several IO devices. (F, Sp, Su)		<b>ELCT 231 Advanced Digital Electronics</b>	4
<b>ELCT 151 Computer Troubleshooting</b>	3	<b>Prerequisite:</b> ELCT 112 1.0 minimum and ELCT 131 1.0 minimum	
<b>Prerequisite:</b> ELCT 171 1.0 minimum or Concurrently		Deals with 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 lcs. (F)	
This is a troubleshooting and repair course intended for students in the computer repair certificate and computer technician associate degree programs. Course topics include basic troubleshooting techniques, unit and board swap computer troubleshooting, and computer preventive maintenance. (Sp)		<b>ELCT 232 Digital Commun and Networking</b>	4
<b>ELCT 160 Logic Problems Analysis</b>	3	<b>Prerequisite:</b> ELCT 131 1.0 minimum	
<b>Prerequisite:</b> None		Introduces serial (Asynchronous & Synchronous) and parallel data transfer standards and cabling: RS-232, RS-485, IEEE-488, SCSI, Centronics, modems, 10Base (2,5,T,F) and USB. Networking standards, protocols, medium construction and testing, monitoring and troubleshooting. Laboratory work includes constructing cables, installing, monitoring and troubleshooting a fault tolerant LAN around popular client server NOS-WNNT4.0 (Sp)	
<b>Recommended:</b> High School Algebra		<b>ELCT 242 Comp Intrfcng and Peripherals</b>	3
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, truth tables, Boolean algebra, binary, octal and hexadecimal base number systems. (F, Su)		<b>Prerequisite:</b> ELCT 231 1.0 minimum	
<b>ELCT 161 Soldering/Desoldering</b>	1	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)	
<b>Prerequisite:</b> None		<b>ELCT 251 Electronic Troubleshooting</b>	2
A basic soldering course. Topics include soldering electronic components to printed circuit boards 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)		<b>Prerequisite:</b> (ELCT 112 1.0 minimum or Concurrently) and ELCT 131 1.0 minimum	
<b>ELCT 170 Computer Repair Electronics I</b>	6	Introduces the principles of troubleshooting analog and digital circuits: analog circuits consisting of diodes, BJTs, FETs and digital circuits consisting of combination logic, decoders, multiplexers, counters, shift registers and display units. Laboratory work is based on computer-simulated troubleshooting exercises and troubleshooting digital circuits built on PC boards. (F)	
<b>Prerequisite:</b> None		<b>ELCT 261 Consumer Product Systems</b>	3
<b>Recommended:</b> ELCT 160 or Algebra		<b>Prerequisite:</b> ELCT 112 1.0 minimum or Concurrently	
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)		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)	
<b>ELCT 171 Computer Repair Electronics II</b>	6		
<b>Prerequisite:</b> ELCT 170 1.0 minimum			
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)			

<b>ELCT 271 Communications I</b>	<b>4</b>	<b>ELTE 131 Intro to Machine Control</b>	<b>4</b>
<b>Prerequisite:</b> ELCT 112 1.0 minimum This course includes a review of resonant circuits, LC filter networks, radio frequency amplifiers, oscillators, amplitude modulation transmitting and receiving circuits and systems. (F)		<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 110 2.0 minimum 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)	
<b>ELCT 272 Communications II</b>	<b>4</b>	<b>ELTE 141 National Electrical Code I</b>	<b>4</b>
<b>Prerequisite:</b> ELCT 271 1.0 minimum The student will learn frequency modulation transmitting and receiving circuits and systems, transmission lines, antennas and microwave devices. (Sp)		<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 110 2.0 minimum 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)	
<b>ELCT 290 Biomedical Internship</b>	<b>2</b>	<b>ELTE 142 National Electrical Code II</b>	<b>4</b>
<b>Prerequisite:</b> Department 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)		<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 141 2.0 minimum 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)	
<b>ELCT 291 Communications Internship</b>	<b>2</b>	<b>ELTE 143 National Electrical Code III</b>	<b>4</b>
<b>Prerequisite:</b> Department Approval This internship will allow the student to gain practical work experience in the communication/electronics field of study. (Sp)		<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 141 2.0 minimum or ELTE 142 2.0 minimum For individuals with a journeyman 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)	
<b>ELCT 292 Digital Electronics Internship</b>	<b>2</b>	<b>ELTE 145 Electrical Prints for Building</b>	<b>4</b>
<b>Prerequisite:</b> Department Approval This internship will allow the student to gain practical work experience in the digital electronics field of study. (F)		<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 110 2.0 minimum or ELTE 141 2.0 minimum 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)	
<b>ELTE - ELECTRICAL TECHNOLOGY</b>			
<b>ELTE 100 Electrical Safety Practices</b>	<b>1</b>	<b>ELTE 147 National Electric Code Changes</b>	<b>1</b>
<b>Prerequisite:</b> None This course covers basic electrical safety practices in the home, 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)		<b>Prerequisite:</b> None Covers the changes to the National Electric Code and state codes in the most recent code cycle. (F, Sp, Su)	
<b>ELTE 110 Practical Electricity</b>	<b>3</b>	<b>ELTE 150 Electric Motor Maintenance</b>	<b>2</b>
<b>Prerequisite:</b> ELTE 100 2.0 minimum or Concurrently and Reading Level 3 and Writing Level 2 and Math Level 3 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)		<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 110 2.0 minimum 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)	
<b>ELTE 112 Basic Wiring Installation</b>	<b>2</b>	<b>ELTE 232 Industrial Control Design</b>	<b>3</b>
<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 110 2.0 minimum 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)		<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 131 2.0 minimum 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)	
<b>ELTE 121 Analyzing Electric Circuits</b>	<b>5</b>	<b>ELTE 240 Electrical Estimating</b>	<b>3</b>
<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 110 2.0 minimum and (MATH 050 2.0 minimum or Math Level 4) 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)		<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 112 2.0 minimum and (ELTE 141 2.0 minimum or ELTE 142 2.0 minimum or ELTE 143 2.0 minimum or ELTE 145 2.0 minimum) 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 and evaluation techniques and specifications. Students should have wiring experience, practice in the use of NEC rules and electrical prints before enrolling. (F)	
<b>ELTE 122 Industrial Control Electronics</b>	<b>5</b>		
<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 121 2.0 minimum and INAU 100 2.0 minimum 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)			
<b>ELTE 123 Motors and Transformers</b>	<b>4</b>		
<b>Prerequisite:</b> None <b>Recommended:</b> ELTE 121 2.0 minimum 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 260 Intro/Programmable Controllers** 4  
**Prerequisite:** None  
**Recommended:** ELTE 131 2.0 minimum  
 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 and counters) and connecting external devices to Allen-Bradley, Modicon and Omron. (F, Sp)
- ELTE 261 Allen-Bradley PLC-5 Advanced** 6  
**Prerequisite:** None  
**Recommended:** ELTE 260 2.0 minimum  
 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** 1-4  
**Prerequisite:** ELTE 110 2.0 minimum and Department Approval  
 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)

**EMSA - EMERGENCY MEDICAL SERVICES**

- EMSA 100 First Aid and CPR** 2  
**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)
- EMSA 150 Basic EMT for Health Prof** 8.25  
**Prerequisite:** None  
 This course will prepare the student as an EMT. Lecture material to be covered includes airway management, patient assessment, CPR, soft tissue injuries, head, chest, and abdominal injuries, recognition and management of environmental and medical emergencies; verbal, written and radio communications, triage, emergency childbirth and pediatric emergencies and OSHA standards. Practical skills will present the proper use of equipment in the delivery of basic emergency care. Clinicals will be included. (F, Sp, Su)

**EMSB - EMERGENCY MEDICAL SERVICES SEMINARS**

- EMSB 101 CPR for Bystanders/Heartsaver** .25  
**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 Prof** .5  
**Prerequisite:** None  
 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  
**Prerequisite:** None  
 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  
**Prerequisite:** None  
 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  
**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 107 First Aid/CPR Sem/ Daycare Prov** .5  
**Prerequisite:** None  
 This seminar is intended for daycare providers to meet the requirements of the Department of Social Services to maintain Daycare Licensure. It will provide eight hours of instruction in basic first aid and infant/child CPR with foreign body airway obstruction. (Sp)
- EMSB 110 First Aid and CPR Seminar** .5  
**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** 4  
**Prerequisite:** None  
 This course will 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  
**Prerequisite:** Reading Level 5 and Writing Level 6  
**Co-requisite Course:** EMTA 102  
 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, Sp, Su)
- EMTA 102 Basic EMT II** 2  
**Prerequisite:** None  
**Co-requisite Course:** EMTA 101  
 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, Sp, Su)
- EMTA 103 Basic EMT III** 4  
**Prerequisite:** EMTA 101 3.0 minimum and EMTA 102 3.0 minimum  
**Co-requisite Courses:** EMTA 104 and EMTA 112  
 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  
**Prerequisite:** EMTA 101 3.0 minimum and EMTA 102 3.0 minimum  
**Co-requisite Courses:** EMTA 103 and EMTA 112  
 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  
**Prerequisite:** Department Approval  
 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, Sp)
- EMTA 108 Legal Issues in Emergency Med** 2  
**Prerequisite:** Department Approval  
 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)

<b>EMTA 112 Basic EMT Clinical</b>	2	<b>ENGL 201 Introduction to Poetry</b>	4
<b>Prerequisite:</b> EMTA 101 3.0 minimum and EMTA 102 3.0 minimum <b>Co-requisite Courses:</b> EMTA 103 and EMTA 104 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. (F, Sp, Su)		<b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6) <b>Recommended:</b> ENGL 122 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)	
<b>EMTA 114 Rescue/Extrication/Danger Situ</b>	3	<b>ENGL 202 Introduction to Drama</b>	4
<b>Prerequisite:</b> Department Approval 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)		<b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6) <b>Recommended:</b> ENGL 122 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)	
<b>EMTA 222 EMS Instructor Coordinator</b>	6	<b>ENGL 203 Introduction to Prose</b>	4
<b>Prerequisite:</b> Department Approval 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. (Su)		<b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6) <b>Recommended:</b> ENGL 122 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)	
<b>EMTA 223 Advanced EMS I: Critical Care</b>	8	<b>ENGL 211 World Literature I</b>	4
<b>Prerequisite:</b> Department 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)		<b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6) 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)	
<b>EMTA 224 Advanced EMS II: Para</b>	8	<b>ENGL 212 World Literature II</b>	4
<b>Prerequisite:</b> Department 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)		<b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6) 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)	
<b>EMTA 225 Medical Hazardous Material</b>	4	<b>ENGL 220 Science Fiction</b>	4
<b>Prerequisite:</b> Department 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)		<b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6) <b>Recommended:</b> ENGL 122 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)	
<b>EMTA 226 Emergency Medical Service Mgmt</b>	5	<b>ENGL 240 The Film as Art</b>	4
<b>Prerequisite:</b> Department Approval 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)		<b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6) <b>Recommended:</b> ENGL 122 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)	
<b>ENGL - ENGLISH</b>		<b>ENGL 245 Popular Culture and Mass Media</b>	4
<b>ENGL 122 Writing: Literature and Ideas</b>	4	<b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6) <b>Recommended:</b> ENGL 122 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)	
<b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 8) 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)			
<b>ENGL 132 Honors Writing: Lit and Ideas</b>	4		
<b>Prerequisite:</b> WRIT 121 3.5 minimum or WRIT 131 3.5 minimum 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 255 American Literature I** 4  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
**Recommended:** ENGL 122  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
**Recommended:** ENGL 122  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
**Recommended:** ENGL 122  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
**Recommended:** ENGL 122  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
**Recommended:** ENGL 122  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
**Recommended:** ENGL 122  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
**Recommended:** ENGL 122  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
**Recommended:** ENGL 122  
 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** 1-4  
**Prerequisite:** Department 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 098 Success Workshop** 5  
**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 105 Life Learning Portfolio** 1  
**Prerequisite:** Reading Level 5 and Writing Level 6 and Department Approval  
 This course provides the opportunity for students to create a portfolio to document learning acquired through work, volunteer, and/or life employment 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 152 Workshop: READ Success Skills** 1  
**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 Workshop: WRIT Success Skills** 1  
**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, enhances their understanding of writing as a tool for learning, and includes the study of writing for various disciplines. (Su)

**ENVR - ENVIRONMENTAL SCIENCE**

- ENVR 121 Environmental Rules and Regs** 3  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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. (Sp)
- ENVR 122 Enviro Sampl & Instrumentation** 4  
**Prerequisite:** CHEM 151 2.0 minimum and CHEM 161 2.0 minimum and Reading Level 5 and Writing Level 4 and Math Level 5  
 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. (F)
- ENVR 131 Indust Process & Pollut Preven** 3  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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. (Sp)

**ESLP - ENGLISH AS A SECOND LANGUAGE**

- ESLP 014 Integrated Skills I** 6  
**Prerequisite:** Placement Test  
 Designed for high beginning level non-native speakers of English who have basic literacy skills. Emphasis on reading and vocabulary skill-building activities designed to prepare students for future academic success. Integrated skills format allows reading, grammar, speaking/listening, and writing activities to be combined using themes. (F, Sp)

<p><b>ESLP 015 ESL Writing Skills I</b> 4  <b>Prerequisite:</b> Placement Test            Designed for high beginning level non-native speakers of English who want to improve their ability to write paragraphs. Students learn simple and progressive verb forms in the present, past and future tenses. A process approach to writing is used and students are introduced to basic word processing skills. (F, Sp)</p> <p><b>ESLP 016 Communication Skills I</b> 4  <b>Prerequisite:</b> Placement Test            Designed for high beginning level non-native speakers of English. Students build awareness of American English pronunciation and focus on troublesome pronunciation features; students practice speaking English and improve basic listening comprehension in a variety of contexts, including academic, social, and professional settings. (F, Sp)</p> <p><b>ESLP 024 Integrated Skills II</b> 6  <b>Prerequisite:</b> ESLP 011 2.0 minimum or ESLP 014 2.0 minimum or Placement Test            Low intermediate level integrated skills course for non-native speakers of English. Emphasis is on reading and vocabulary skill-building activities designed to prepare students for future academic success. An integrated skills format allows reading, grammar, speaking/listening, and writing activities to be combined using themes. (F, Sp)</p> <p><b>ESLP 025 ESL Writing Skills II</b> 4  <b>Prerequisite:</b> ESLP 012 2.0 minimum or ESLP 015 2.0 minimum or Placement Test            Designed for low intermediate level non-native speakers of English. Students progress from writing paragraphs to writing academic style essays and use basic word processing skills. Grammatical structures worked on include the simple and perfect verb tenses, sentence combining, and recognizing sentence fragments. A process approach to writing is used. (F, Sp)</p> <p><b>ESLP 026 Communication Skills II</b> 4  <b>Prerequisite:</b> ESLP 013 2.0 minimum or ESLP 016 2.0 minimum or Placement Test            Designed for low intermediate level non-native speakers of English. Instruction focuses on the features of American English pronunciation, as well as improving listening comprehension and oral communication through functional situations, such as role plays, discussions, and informal reports. (F, Sp)</p> <p><b>ESLP 034 Integrated Skills III</b> 6  <b>Prerequisite:</b> ESLP 021 2.0 minimum or ESLP 024 2.0 minimum or Placement Test            Designed for high intermediate level non-native speakers of English. Emphasis is on reading and vocabulary skill-building activities designed to prepare students for future academic success. An integrated skills format allows reading, grammar, speaking/listening, and writing activities to be combined using themes. (F, Sp)</p> <p><b>ESLP 035 ESL Writing Skills III</b> 4  <b>Prerequisite:</b> ESLP 022 2.0 minimum or ESLP 025 2.0 minimum or Placement Test            Designed for high intermediate level non-native speakers of English. Students write essays using a process approach to writing. Grammatical structures worked on include parts of speech, vocabulary usage, compound and complex sentences, and correct usage of all verb tenses, including perfect tenses. Students use word processing skills. (F, Sp)</p> <p><b>ESLP 036 Communication Skills III</b> 4  <b>Prerequisite:</b> ESLP 023 2.0 minimum or ESLP 026 2.0 minimum or Placement Test            Designed for high intermediate level non-native speakers of English. Instruction focuses on improving listening comprehension and oral communication skills through group discussions, oral presentations, and projects. Grammar instruction is integrated into the themes for each unit. (F, Sp)</p> <p><b>ESLP 101 Vocational Preparation</b> 4  <b>Prerequisite:</b> ESLP 022 2.0 minimum or ESLP 025 2.0 minimum or Placement Test            This course is designed for advanced level non-native speakers of English who wish to pursue a certificate program to 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)</p>	<p><b>ESLP 102 Comp for Bus and Tech Purposes</b> 4  <b>Prerequisite:</b> ESLP 032 2.0 minimum or ESLP 035 2.0 minimum or Placement Test            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, Su)</p> <p><b>ESLP 103 Focus on Pronunciation</b> 4  <b>Prerequisite:</b> ESLP 033 2.0 minimum or ESLP 036 2.0 minimum or Placement Test            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, Su)</p> <p><b>ESLP 110 Bridge to Academic Reading</b> 4  <b>Prerequisite:</b> ESLP 031 2.0 minimum or ESLP 034 2.0 minimum or Placement Test            Designed for low-advanced level non-native speakers of English needing to prepare for reading college-level texts. Emphasis on building teamwork skills, vocabulary, and developing reading strategies and skills to improve overall comprehension. A basic skill reading level 3 is granted upon successful completion of this course. (F, Sp)</p> <p><b>ESLP 113 Academic Listening/Notetaking</b> 4  <b>Prerequisite:</b> ESLP 033 2.0 minimum or ESLP 036 2.0 minimum or Placement Test            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)</p> <p><b>ESLP 114 Academic Reading Skills</b> 4  <b>Prerequisite:</b> ESLP 110 2.0 minimum or Reading Level 3            Designed to prepare advanced level non-native speakers of English for future academic success. Emphasis is on vocabulary building and developing reading strategies and skills, including critical reading for efficient processing of general academic texts. Basic skills reading level 5 is granted upon successful completion of this course. (F, Sp, Su)</p> <p><b>ESLP 115 Composition Academic Purposes</b> 4  <b>Prerequisite:</b> ESLP 032 2.0 minimum or ESLP 035 2.0 minimum or Writing Level 2            Designed to prepare advanced level non-native speakers of English for future academic success. Students use a process approach to writing to produce various types of essays using a variety of complex sentences and grammatical structures. Basic skills writing level of 4 is granted upon successful completion of this course. (F, Sp, Su)</p>
<b>ESLW - ENGLISH AS A SECOND LANGUAGE WORKSHOP</b>	
<p><b>ESLW 020 ESL Summer Workshop</b> 6  <b>Prerequisite:</b> Placement Test            This integrated 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. Students in this class will form cooperative learning groups to work on a variety of projects. (F, Sp, Su)</p> <p><b>ESLW 021 ESL Fall Workshop</b> 4  <b>Prerequisite:</b> Placement Test            Designed for low to high intermediate non-native speakers of English who wish to improve listening, speaking, reading and writing skills using themes presented in video episodes or readings. Language learning is encouraged through cooperative group activities, interviews, role plays, oral presentations, and projects. May be repeated once for credit. (F, Sp, Su)</p> <p><b>ESLW 022 ESL Spring Workshop</b> 4  <b>Prerequisite:</b> Placement Test            Continuation of ESLW 021. Designed for low to high intermediate non-native speakers of English who wish to improve listening, speaking, reading and writing skills using themes presented in video episodes or readings. Language learning is encouraged through cooperative group activities, interviews, role plays, oral presentations, and projects. (Sp)</p>	

**FILM - FILM PRODUCTION AND DIRECTION**

- FILM 118 Film Production I** 4  
**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)
- FILM 203 Topics in Film/Animation** 3  
**Prerequisite:** None  
 Provides students with basic photographic skills, an opportunity for intensive study in selected aspects of motion picture production, or multimedia production. (F, Sp, Su)
- FILM 226 Film Production II** 4  
**Prerequisite:** FILM 118 2.0 minimum or IMAG 118 2.0 minimum  
 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 script writing, storyboarding, production planning, photography, animation, editing, and sound track production. Emphasis on Avid non-linear editing techniques. (F, Sp)
- FILM 227 Film Production III** 4  
**Prerequisite:** FILM 118 2.0 minimum or IMAG 118 2.0 minimum  
 Hands-on production exercises help the student develop skills in script writing, 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)
- FILM 281 Motion Picture Internship** 3  
**Prerequisite:** (FILM 226 2.0 minimum or IMAG 226 2.0 minimum) and (FILM 227 2.0 minimum or IMAG 227 2.0 minimum)  
**Restriction:** Motion Picture Production and Motion Picture Direction Majors  
 An off-campus field study. Students will gain pre-career experience by working in a motion picture production environment under the supervision of a professional producer or technician. Regularly scheduled progress reports will be given and discussed with a supervising faculty member. Students work a minimum of 160 hours per semester. (F, Sp, Su)
- FILM 290 Motion Picture Portfolio** 4  
**Prerequisite:** (FILM 226 2.0 minimum or IMAG 226 2.0 minimum) and (FILM 227 2.0 minimum or IMAG 227 2.0 minimum)  
**Restriction:** Motion Picture Production and Motion Picture Direction Majors  
 The student will produce a motion picture, demonstrating technical and creative proficiency, under instructor supervision, suitable for presentation for the purpose of securing employment. This course is intended to be the capstone course in the Motion Picture Program. (F, Sp, Su)

**FIRE - FIRE SCIENCE**

- FIRE 100 Introduction to Fire Fighting** 3  
**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)
- FIRE 101 MI F.F.T.C. Basic Fire Lev I** 9  
**Prerequisite:** Admission to Fire Academy  
 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 MI F.F.T.C. Basic Fire Lev II** 4  
**Prerequisite:** FIRE 101 2.0 minimum or Concurrently  
 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

**Prerequisite:** None  
 This course identifies 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/Fire Ser** 4

**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/Hazardous Materials** 3

**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 Sys/Equipment** 4

**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 Fire Hydraulics/Pump Operation** 4

**Prerequisite:** MATH 050 2.0 minimum or Math Level 4  
 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

**Prerequisite:** None  
**Recommended:** FIRE 102 or Firefighter  
 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

**Prerequisite:** None  
**Recommended:** FIRE 101 or Firefighter  
 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/Fire Ser** 4

**Prerequisite:** None  
**Recommended:** FIRE 120 or Firefighter  
 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

**Prerequisite:** None  
**Recommended:** FIRE 150 or Firefighter  
 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)

**FLNG - FOREIGN LANGUAGE**

**FLNG 295 Ind Study in Foreign Language** 1-4

**Prerequisite:** Department Approval  
 Special research projects and/or individual readings in Chinese, French, German, Japanese or 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)



**FREN - FRENCH**

**FREN 115 Conversational French I** 3  
**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  
**Prerequisite:** None  
**Recommended:** FREN 115 or 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  
**Prerequisite:** Reading Level 5  
 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  
**Prerequisite:** FREN 121 1.5 minimum and Reading Level 5  
 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  
**Prerequisite:** FREN 122 1.5 minimum and Reading Level 5  
 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  
**Prerequisite:** FREN 201 1.5 minimum and Reading Level 5  
 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  
**Prerequisite:** Reading Level 5  
**Recommended:** WRIT 121  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 6  
**Recommended:** Word Software Experience  
 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 computer mapping techniques, land site analysis, and air-photo interpretation. (F, Sp, Su)

**GEOG 200 World Regional Geography** 4  
**Prerequisite:** Reading Level 5  
 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  
**Prerequisite:** Reading Level 5  
 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

**Prerequisite:** Reading Level 5  
 The study of the distribution of economic activities throughout the world. Emphasizes agriculture, resources, population, industry, urbanization, and trade. (Sp)

**GEOG 295 Independent Study in Geography** 1-4

**Prerequisite:** Department 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 210 Geology Field Studies** 1-3

**Prerequisite:** None  
 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 Physical Geology** 4

**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4  
 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 Historical Geology** 4

**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4  
 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

**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4  
 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. (F)

**GERO - GERONTOLOGY**

**GERO 100 Introduction to Human Aging** 3

**Prerequisite:** Reading Level 5 and Writing Level 4  
 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/Services for Aging** 3

**Prerequisite:** None  
**Recommended:** GERO 100  
 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 Age Process: Facts/Myths/Chngs** .25

**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 Pln for Older Adlts w/Dev Dis** .5  
**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 161 Issues of Aging: Sexuality** .25  
**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 Med & Alcohol Use/Older Adults** .5  
**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  
**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** .5  
**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: Recog & Treatment** .5  
**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 Tech: Care for Persons w/Demen** .75  
**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 Activ: Older Adlts w/Alzheim** .5  
**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-.5  
**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 203 Physical/Mental Health Aging** 3  
**Prerequisite:** GERO 100 2.5 minimum or Concurrently  
 Physical and mental health of older adults is examined from an applied perspective for human services providers. Topics include normal and pathological changes; family and social factors; skills and adaptations for maintaining good physical health; assessment; intervention and skills for helping older adults access appropriate treatment in the health care system. (F)
- GERO 282 Gerontology Practicum I** 4  
**Prerequisite:** SOWK 203 2.5 minimum and Reading Level 5 and Writing Level 6 and Department Approval  
**Recommended:** GERO 100 and GERO 101 and GERO 203 and HUSE 101 and Human Services Experience  
 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  
**Prerequisite:** GERO 282 2.5 minimum  
 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 INFORMATION SYSTEMS**
- GRET 203 Beginning MicroStation** 3  
**Prerequisite:** None  
**Recommended:** LAND 282 or Basic CAD Experience  
 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 Environ** 3  
**Prerequisite:** GRET 203 2.0 minimum  
 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 Geographic Info Sys** 3  
**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  
**Prerequisite:** GRET 204 1.0 minimum  
 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 GIS** 3  
**Prerequisite:** GRET 205 1.0 minimum and GRET 208 1.0 minimum  
 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 Global Positioning Systems** 3  
**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 Geomedia-Internet GIS** 3  
**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  
**Prerequisite:** GRET 203 2.0 minimum  
 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 220 Hydrological Systems** 3  
**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/Soil Systems in GIS** 3  
**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 Mgmt** 3  
**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 Cartography in GIS** 3  
**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 Remote Sens/AirPhoto Interpret** 3  
**Prerequisite:** None  
 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/Geographic Info Sys** 3  
**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/GPS Field Systems** 3  
**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  
**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  
**Prerequisite:** None  
**Recommended:** Computer Experience  
 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  
**Prerequisite:** GRET 255 2.0 minimum  
 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 Project Lab** 1-4  
**Prerequisite:** Department 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  
**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  
**Prerequisite:** None  
**Recommended:** GRMN 115 or 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  
**Prerequisite:** Reading Level 5  
 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  
**Prerequisite:** GRMN 121 1.5 minimum and Reading Level 5  
 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  
**Prerequisite:** GRMN 122 1.5 minimum and Reading Level 5  
 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  
**Prerequisite:** GRMN 201 1.5 minimum and Reading Level 5  
 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  
**Prerequisite:** Reading Level 5  
 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)

3	<p><b>HIST 210 Studies in American History</b> 4  <b>Prerequisite:</b> Reading Level 5                  Covers problems of research, writing, philosophy, and interpretation of history, involving a detailed examination of a particular area of American history. (Sp)</p>
1-4	<p><b>HIST 211 U.S. History to 1877</b> 4  <b>Prerequisite:</b> Reading Level 5 and Writing Level 6                  A history of the United States from colonial beginnings through reconstruction. (F, Sp, Su)</p>
a in and	<p><b>HIST 212 U.S. History: 1877 To Present</b> 4  <b>Prerequisite:</b> Reading Level 5 and Writing Level 6                  A history of the United States from the end of reconstruction to the present. (F, Sp, Su)</p>
3	<p><b>HIST 214 African History</b> 4  <b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)                  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)</p>
3	<p><b>HIST 220 Michigan History</b> 4  <b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)                  A survey of the political, economic, and social development of Michigan from pre-colonial times to the present. (F)</p>
4	<p><b>HIST 230 British History</b> 4  <b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)                  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)</p>
4	<p><b>HIST 240 Latin American History</b> 4  <b>Prerequisite:</b> Reading Level 5  <b>Recommended:</b> WRIT 121 or WRIT 131 2.0 minimum                  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)</p>
4	<p><b>HIST 250 History of Modern Asia</b> 4  <b>Prerequisite:</b> Reading Level 5  <b>Recommended:</b> WRIT 121 or WRIT 131 2.0 minimum                  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)</p>
4	<p><b>HIST 260 Conflict &amp; Revolu Southrn Africa</b> 4  <b>Prerequisite:</b> Reading Level 5  <b>Recommended:</b> WRIT 121 or WRIT 131                  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)</p>
4	<p><b>HIST 263 Seminar: Russia and the CIS</b> 3  <b>Prerequisite:</b> 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)</p>
4	<p><b>HIST 265 Sem: American Legal Tradition</b> 3  <b>Prerequisite:</b> 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)</p>

1-4	<p><b>HIST 295 Independent Study</b> 1-4  <b>Prerequisite:</b> Department 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)</p>
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**HMFS - HOTEL/MOTEL AND FOOD SERVICE OPERATIONS**

3	<p><b>HMFS 101 Intro Hospitality/Tourism</b> 3  <b>Prerequisite:</b> Reading Level 3 and Writing Level 4                  Career opportunities in various types of hotels, restaurants and tourism operations are discussed; includes trends and explains the importance of the various segments as they work together to provide quality guest service. (F, Sp, Su)</p>
3	<p><b>HMFS 110 Sanitation and Safety</b> 3  <b>Prerequisite:</b> None                  Safe food handling, prevention of food spoilage and transfer of bacteria, maintenance of equipment and facilities, and importance of good personal hygiene in the work place are discussed; HACCP explained. OSHA laws described and illustrated. Includes examinations for national and state sanitation. (F, Sp)</p>
4	<p><b>HMFS 131 Food and Beverage Management</b> 4  <b>Prerequisite:</b> HMFS 101 2.0 minimum or Concurrently  <b>Recommended:</b> HMFS 110 2.0 minimum                  Overview of food preparation with focus on management issues and quality. Includes laboratory activities to practice safe operation of equipment, to plan, prepare, serve and manage complete meals for public consumption. Cost controls, purchasing, and beverage management discussed. (F, Sp)</p>
4	<p><b>HMFS 132 Food Production</b> 4  <b>Prerequisite:</b> HMFS 110 2.0 minimum or Concurrently and HMFS 131 2.0 minimum  <b>Recommended:</b> Minimum 2.0 in HMFS 101 and HMFS 135                  Advanced food preparation procedures with guidelines on organization of food and beverage production. Food purchasing and proper storage prior to production is examined. Includes terminology, theory, planning, organization, productivity techniques, costing, purchasing, sales, service and management of meals for public consumption. (F, Sp)</p>
3	<p><b>HMFS 134 Nutrition and Healthy Eating</b> 3  <b>Prerequisite:</b> None                  Eating out sensibly discussed plus explanation of nutrients and their role in maintaining health. Examination of food patterns, weight control and maintaining a healthy lifestyle with reasonable exercise. Includes nutritional analysis of 24-hour food consumption. (F, Sp)</p>
3	<p><b>HMFS 135 Hospitality Purchasing</b> 3  <b>Prerequisite:</b> HMFS 101 2.0 minimum or Concurrently  <b>Recommended:</b> HMFS 131 2.0 minimum                  Responsibilities of a purchasing agent and role with vendors in an effective purchasing program are explained; focus on writing specifications, purchasing for all categories of foods and supplies, cutting test procedures and standard receiving practices. Emphasis on how to make effective managerial purchasing decisions. (F, Sp)</p>
4	<p><b>HMFS 137 Catering Management</b> 4  <b>Prerequisite:</b> None  <b>Recommended:</b> Minimum 2.0 in HMFS 110 and HMFS 132 and HMFS 135                  Sequential steps to successful catering are presented from determining client needs, planning of menus, purchasing, costing and pricing events establishing equipment requirements, examining both on and off-premise functions, recognizing sanitation concerns, and designing contractual agreements with clients. Lab preparation and presentation of a catered event. (F, Sp)</p>
3	<p><b>HMFS 190 Internship and Seminar</b> 3  <b>Prerequisite:</b> HMFS 101 2.0 minimum  <b>Recommended:</b> Minimum 2.0 in HMFS 131 and HMFS 204                  Hands-on experience in an operating foodservice facility, lodging property or travel operation that supplements and illustrates classroom discussions of principles, techniques and procedures commonly practiced in the industry. Development of professional portfolio included plus a minimum of 200 hours of approved paid work experience. (F, Sp)</p>

<b>HMFS 203 Hospitality Law</b> 3	<b>HMFS 252 Wines of America</b> 1
<b>Prerequisite:</b> HMFS 101 2.0 minimum	<b>Prerequisite:</b> Must be 21 Years of Age
<b>Recommended:</b> Minimum 2.0 in HMFS 131 and/or HMFS 206	A study of the wine making industry in America with emphasis on wines from California, New York, Michigan and Ohio. Comparative taste evaluations and discussion of food compatibility. (F, Sp)
Legal problems and issues commonly faced in hospitality operations including rights and responsibilities of innkeepers, restaurants, caterers, and other food establishments, guest relationships, guest property rights frauds, employment safety, tax and liquor laws. Current court cases discussed. (F, Sp)	
<b>HMFS 204 Hospitality HR Management</b> 3	<b>HMFS 253 Wines of France</b> 1
<b>Prerequisite:</b> None	<b>Prerequisite:</b> Must be 21 Years of Age and (HMFS 251 or HMFS 252)
<b>Recommended:</b> HMFS 101 and HMFS 170 and HMFS 203	Examine, in depth, the history and regional differences exhibited by the major wine producing areas of France - the world's leader and most famous wine producer. Through tasting, students will travel through the regions of Bordeaux, Burgundy, Champagne, Alsace, Rhone, and Loire River Valley. (Sp)
Supervisor's role as a leader, coach and personnel manager; topics include managing culturally diverse workers plus recruitment, selection, orientation, training, evaluating, and disciplining employees. Discussion on retaining employees, sexual harassment, and worker motivation. (F, Sp)	
<b>HMFS 205 Hospitality Management</b> 3	<b>HMFS 254 Mixology</b> 4
<b>Prerequisite:</b> (HMFS 101 2.0 minimum and HMFS 204 2.0 minimum) or Concurrently	<b>Prerequisite:</b> None
<b>Recommended:</b> HMFS 131 and HMFS 203	More than bartending; includes accuracy and efficiency in preparation of many mixed beverages that are explained and demonstrated; includes strategies for controlling over and under pouring, bar management and theft. Industry standards explained (glassware, garnishing and service) with emphasis on sanitation issues. Student preparation in laboratory setting. (F, Sp, Su)
A survey of management principles and practices in the hospitality industry. Topics include basic financial statements, operating ratios, planning, organizing, directing and controlling related to lodging and food service operations. (F, Sp)	
<b>HMFS 206 Rooms Division Management</b> 3	<b>HMFS 260 Gourmet Basic Cookery</b> 2
<b>Prerequisite:</b> HMFS 101 2.0 minimum or Concurrently	<b>Prerequisite:</b> None
Reservation and sale of hotel rooms, operation of front office, review of check-in and check-out procedures, credit card processing, property security, daily audit and the importance of keeping accurate records. Includes yield management and determining room rates, forecasting based on statistical analysis, posting accounts and budgeting. (F, Sp)	<b>Recommended:</b> HMFS 110
	Beginning basics of menu planning, recipe selection, purchasing of ingredients, correct preparation and service. Cost issues and sanitation concerns emphasized. Preparation and evaluation of meals included. (F, Sp, Su)
<b>HMFS 215 Hospitality Sales/Marketing</b> 3	<b>HMFS 261 Gourmet Italian Cookery</b> 2
<b>Prerequisite:</b> HMFS 101 2.0 minimum or Concurrently	<b>Prerequisite:</b> None
<b>Recommended:</b> Minimum 2.0 in (HMFS 131 and/or HMFS 206) and HMFS 170	<b>Recommended:</b> HMFS 110
Design and evaluation of sales promotions, strategic marketing plans and marketing alternatives; includes techniques for market analysis, needs assessment and creation of packages and joint ventures such as co-branding. Trends in branding and methods to evaluate marketing effectiveness will be discussed. Project included. (F, Sp)	Regional and national foods from Italy with specialty menus from each major region. Meal planning, food purchasing and food preparation included. Local community experts contribute their expertise to the class. Preparation and evaluation of meals included; opening and closing kitchen procedures practiced. (F, Sp)
<b>HMFS 229 Convention/Meeting Management</b> 3	<b>HMFS 263 Gourmet American Cookery</b> 2
<b>Prerequisite:</b> HMFS 101 2.0 minimum or Concurrently	<b>Prerequisite:</b> None
<b>Recommended:</b> Minimum 2.0 in (HMFS 131 and/or HMFS 206) and HMFS 170	<b>Recommended:</b> HMFS 110
Determining client needs, evaluating capability of facility and community resources and marketing for convention business is included. Methods of evaluating successful conventions and meetings are examined and the use of software programs to book events and maintain client records. (F)	Explore why the U.S. is considered "the Melting Pot" of the world. During this course, you will travel through 8 different regional cuisines. Sanitation, nutrition and personal hygiene are essential topics along with various kitchen safety practices. (F)
<b>HMFS 232 Food and Labor Cost Control</b> 3	<b>HMFS 264 Gourmet Barbecue Cookery</b> 2
<b>Prerequisite:</b> HMFS 131 2.0 minimum or Concurrently and (HMFS 207 2.0 minimum or ACCG 101 2.0 minimum) and Math Level 3	<b>Prerequisite:</b> None
<b>Recommended:</b> Minimum 2.0 in HMFS 204 and HMFS 205	<b>Recommended:</b> HMFS 110
Strategies for making a profit and controlling food, beverage and labor costs are examined. Includes discussion of quality versus cost issues and an analysis of records to detect problems. Includes examination of facility management strategies to reduce costs and save energy. Methods for increasing revenues are discussed and evaluated. (F, Sp)	Innovative approaches to preparing flavorful grilled foods; includes meats, vegetables, hors d'oeuvres, plus salads and desserts. Learn how to create memorable picnics! Preparation and evaluation of meals included; opening and closing kitchen procedures practiced. (F, Sp, Su)
<b>HMFS 240 Current Topics in Hospitality</b> 3	<b>HMFS 266 Gourmet Chinese Cookery</b> 2
<b>Prerequisite:</b> HMFS 131 2.0 minimum and HMFS 203 2.0 minimum and HMFS 205 2.0 minimum	<b>Prerequisite:</b> None
<b>Recommended:</b> Minimum 2.0 in HMFS 206 and HMFS 215	<b>Recommended:</b> HMFS 110
Examination of current trends, issues and topics affecting the hospitality industry. Each offering will change emphasis with possible topics such as Internet marketing, projected and pending legislation, casino and resort management, technological advancements, facilities management, leadership development, and industry globalization. (F, Sp)	Learn basic techniques in the preparation of popular favorites such as sweet and sour pork, chicken almond ding and egg rolls; emphasis on proper saute' methods and "red" cooking techniques. Preparation and evaluation of meals included for diverse taste, texture and aroma; opening and closing kitchen. (F, Sp)
<b>HMFS 251 Wine Appreciation</b> 1	<b>HMFS 268 Gourmet Middle Eastern Cookery</b> 2
<b>Prerequisite:</b> Must be 21 Years of Age	<b>Prerequisite:</b> None
Selection and storage of five basic wine types, how they are made and served; evaluation of wines based on appearance, bouquet and taste. Discussion on food compatibility with comparative taste evaluations. (F, Sp)	<b>Recommended:</b> HMFS 110
	Unique ingredients and preparation procedures from various Middle Eastern countries are examined and explained. Includes preparation of entrees, side dishes and desserts followed by detailed evaluations as to quality and customer acceptability. Preparation and evaluation of meals included; opening and closing kitchen procedures practiced. (F, Sp, Su)
	<b>HMFS 273 Gourmet Cajun Cookery</b> 2
	<b>Prerequisite:</b> None
	<b>Recommended:</b> HMFS 110
	Louisiana is home of Cajun and Creole cooking. Learn how to prepare a variety of recipes from this popular cuisine utilizing different herbs, spices and techniques. Preparation and evaluation of meals included; opening and closing kitchen procedures practiced. (Sp)

- HMFS 274 Gourmet Lean Cookery** 2  
**Prerequisite:** None  
**Recommended:** HMFS 110  
 Healthy ingredient alternatives examined to reduce the fat, salt and calories in preparation of a variety of favorite recipes. Includes discussion of food composition and making healthier food choices through improved purchasing decisions. Preparation and evaluation of meals included; opening and closing kitchen procedures practiced. (F, Sp, Su)
- HMFS 275 Bakery Products** 2  
**Prerequisite:** None  
**Recommended:** HMFS 110  
 Learn the roles of each baking ingredient, scaling, mixing and baking techniques to achieve high quality products. Production of breads, quick breads, pies, cakes, pastries and cookies made in a commercial bakery. Scratch and convenience lines examined and tested. (F, Sp)
- HMFS 276 Ice Carving Seminar** .5  
**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, one day course. (F, Sp)
- HMFS 280 Food Decorating Garnishes** 3  
**Prerequisite:** None  
**Recommended:** HMFS 110 and HMFS 132  
 Garnishing and presentation of various cold foods such as canapes, hors d'oeuvres and vegetable carvings plus the use of spices, sauces and dressings. Food sculpting included. Set-up of lunch reception included. Preparation and evaluation of meals included; opening and closing kitchen procedures practiced. (Sp)
- HMFS 281 Soups and Sauces** 3  
**Prerequisite:** None  
**Recommended:** HMFS 110 and HMFS 132  
 Compose several different types of stocks using raw materials. Topics discussed: seasonings in stock, glazes prepared from stocks, preparation of various soups, proper garnish of soups, and major classifications and uses of sauces. (Sp)

**HONR HONORS**

- HONR 151 Honors Colloquy I** 1  
**Prerequisite:** Honors Program Approval  
 Interdisciplinary forum for Honors Program members and other interested students. Includes presentations by experts in such fields as the arts, business, communication, education, humanities, government, mathematics, science, and the social sciences, followed by discussion. Topics concerning international issues, diversity, and technology are often featured. Students write essays reacting to each presentation. (F)
- HONR 152 Honors Colloquy II** 1  
**Prerequisite:** Honors Program Approval  
 Interdisciplinary forum for Honors Program members and other interested students. Includes presentations by experts in such fields as the arts, business, communication, education, humanities, government, mathematics, science, and the social sciences, followed by discussion. Topics concerning international issues, diversity, and technology are often featured. Students write three substantive research papers. (F)
- HONR 155 Service Learning Practicum** 1  
**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 Horticulture** 2  
**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 Intro Ornamental Horticulture** 2  
**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 103 Foliage and Flowering Plants** 2  
**Prerequisite:** None  
 This hands-on course will allow the student to work with various aspects of the growth and propagation of typical flowering and foliage plants. The student will grow a collection of plants and explore various horticultural practices with their own plant material in a laboratory setting. (F, Sp)
- HORT 105 Pest/Problem Ornamental Plants** 2  
**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  
**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  
**Prerequisite:** None  
**Recommended:** Basic Floral Design Experience  
 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  
**Prerequisite:** None  
**Recommended:** Basic Floral Design Experience  
 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, Pot Plant** 4  
**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/Nursery Op** 4  
**Prerequisite:** HORT 102 1.0 minimum  
 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/Environ** 3  
**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  
**Prerequisite:** HORT 235 1.0 minimum  
 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  
**Prerequisite:** HORT 102 1.0 minimum  
 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/Nursery Sales** 3  
**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 Horticulture Project Lab** 1-4  
**Prerequisite:** Department Approval  
 This project lab 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)

**HUMS - HUMANITIES**

**HUMS 120 Western Art and Music History** 4  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 An introduction to the masterpieces of art and music from preliterate 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)

**HUMS 160 Mythology** 4  
**Prerequisite:** Reading Level 5  
 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)

**HUMS 211 History of Art I** 4  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
 Surveys the history of painting, sculpture, and architecture of world civilizations in Africa, the Americas, Asia and Europe from preliterate 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)

**HUMS 212 History of Art II** 4  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
 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 225 Grt Lake Native Amer:Hist&Trad** 4  
**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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
 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 Sem:Ethical Issues in Medicine** 3  
**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** 1-4  
**Prerequisite:** Department 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** 3  
**Prerequisite:** Reading Level 3 and Writing Level 4  
 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/Human Serv** 2  
**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 Intro/Child Abuse and Neglect** 3  
**Prerequisite:** None  
 This course reviews the history and scope of child abuse and neglect, including socioeconomic and psychological factors. It 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)

**HUSE 112 Introduction/Substance Abuse** 3  
**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/Family Violence** 2  
**Prerequisite:** None  
 This course provides an overview of the historical, socioeconomic, cultural, and psychological factors associated with family violence emphasizing battered women. The resources available, intervention techniques, the role of law enforcement agencies, legislative bodies, and social service agencies are discussed. (F)

- HUSE 240 Substance Abuse: Spec Pop/Adol** 3  
**Prerequisite:** HUSE 112 2.5 minimum or Concurrently  
 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. (Sp)
- HUSE 241 Substance Abuse Prevention** 3  
**Prerequisite:** HUSE 112 2.5 minimum  
 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 Chemically Dependent Family** 3  
**Prerequisite:** None  
**Recommended:** HUSE 112  
 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 Sub Abuse:Treatment, Intrv** 3  
**Prerequisite:** HUSE 112 2.5 minimum  
 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** 4  
**Prerequisite:** SOWK 203 2.5 minimum and Reading Level 5 and Writing Level 6 and Department Approval  
**Recommended:** HUSE 101 and (SOCL 254 or SOCL 260) and Human Services Experience  
 This course combines classroom training with beginning field experience (10 hours per week) 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 networking are explored. (F)
- HUSE 284 Human Services Practicum II** 4  
**Prerequisite:** HUSE 282 2.5 minimum  
 This course provides classroom training on principles of human services delivery with advanced practical experience (10 hours per week) 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** 4  
**Prerequisite:** SOWK 203 2.5 minimum and Reading Level 5 and Writing Level 6 and Department Approval  
**Recommended:** HUSE 101 and HUSE 240 and HUSE 241 and HUSE 244  
 This course combines classroom training with beginning field placement (10 hours per week) 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 networking. (F)
- HUSE 288 Substance Abuse Practicum II** 4  
**Prerequisite:** HUSE 286 2.5 minimum  
 This course combines advanced field placement (10 hours per week) at a community agency specializing in substance abuse, with classroom instruction in concepts related to service delivery. Students identify systems and resources to link the systems with the people receiving services and learn how to mobilize the systems and the people. (Sp)

### HVAC HEATING, VENTILATING, AND AIR CONDITIONING

- HVAC 100 Fundamentals of HVAC** 3  
**Prerequisite:** None  
 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. Exercises in psychrometrics and an introduction to system design are also covered. (F, Sp, Su)

- HVAC 105 Sheet Metal Fabrication/Instal** 2  
**Prerequisite:** None  
 Designed to aid the installer in the skills and techniques for installation of residential heating and cooling systems. Topics include sheet metal layout, identification of sheet metal fittings and general furnace installation procedures. (F, Sp, Su)
- HVAC 110 Applied Electricity I** 2  
**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  
**Prerequisite:** HVAC 100 1.5 minimum and HVAC 110 1.5 minimum  
 The study of motors with an 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  
**Prerequisite:** HVAC 100 1.5 minimum and HVAC 110 1.5 minimum  
 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  
**Prerequisite:** HVAC 100 1.5 minimum and HVAC 110 1.5 minimum  
 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  
**Prerequisite:** HVAC 120 1.5 minimum and HVAC 130 1.5 minimum  
 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  
**Prerequisite:** HVAC 100 1.5 minimum and HVAC 110 1.5 minimum  
 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  
**Prerequisite:** HVAC 111 1.5 minimum and HVAC 120 1.5 minimum and HVAC 211 1.5 minimum  
 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  
**Prerequisite:** HVAC 220 1.5 minimum  
 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  
**Prerequisite:** HVAC 111 1.5 minimum and HVAC 130 1.5 minimum and HVAC 211 1.5 minimum  
 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  
**Prerequisite:** HVAC 230 1.5 minimum  
 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)



- HVAC 240 Refrigeration I** 4  
**Prerequisite:** HVAC 230 1.5 minimum or Concurrently  
 Domestic refrigeration as applied to refrigerators, freezers and de-humidifiers. Course content includes applications, operation and servicing of sealed systems, electrical and cabinet styles. (F)
- HVAC 241 Refrigeration II** 4  
**Prerequisite:** HVAC 240 1.5 minimum  
 Light commercial refrigeration to include low and medium temperature applications, as applied to ice machines, walk-ins, reach-ins and display cases. (Sp)
- HVAC 250 Pneumatic Control** 3  
**Prerequisite:** HVAC 230 1.5 minimum  
 Basic concepts of pneumatic controls for HVAC equipment in commercial structures and the adjustment and calibration of pneumatic equipment. (Sp)
- HVAC 251 Fund of Direct Digital Control** 2  
**Prerequisite:** HVAC 250 1.5 minimum  
 Fundamentals and principles of Direct Digital Controls will be covered. The major emphasis will be placed on computer based energy management systems to increase efficiency of HVAC/R commercial and industrial equipment. (F)

**IDMS - DIAGNOSTIC MEDICAL SONOGRAPHY**

- IDMS 200 Sonographic Introduction** 2  
**Prerequisite:** Admission to Diagnostic Medical Sonography Program  
**Co-requisite Courses:** IDMS 201 and IDMS 202 and IDMS 280  
 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  
**Prerequisite:** Admission to Diagnostic Medical Sonography Program  
**Co-requisite Courses:** IDMS 200 and IDMS 202 and IDMS 280  
 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  
**Prerequisite:** Admission to Diagnostic Medical Sonography Program  
**Co-requisite Courses:** IDMS 200 and IDMS 201 and IDMS 280  
 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 234 Sonographic Physics** 2  
**Prerequisite:** IDMS 200 2.5 minimum and IDMS 201 2.5 minimum and IDMS 202 2.5 minimum  
**Co-requisite Courses:** IDMS 265 and IDMS 266 and IDMS 281  
 The student will study the fundamental principles of acoustical physics, how sound is produced and manipulated, and how it reacts in various mediums. (Su)
- IDMS 245 Sonographic Instrumentation** 2  
**Prerequisite:** IDMS 234 2.5 minimum  
**Co-requisite Course:** IDMS 283  
 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. (F)
- IDMS 265 General Sonography II** 4  
**Prerequisite:** IDMS 201 2.5 minimum  
**Co-requisite Courses:** IDMS 234 and IDMS 266 and IDMS 281  
 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. (Sp)
- IDMS 266 OB/GYN Sonography II** 3  
**Prerequisite:** IDMS 202 2.5 minimum  
**Co-requisite Courses:** IDMS 234 and IDMS 265 and IDMS 281  
 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 Clinical Experience I** 5  
**Prerequisite:** Admission to Diagnostic Medical Sonography Program  
**Co-requisite Courses:** IDMS 200 and IDMS 201 and IDMS 202  
 First course in a four-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** 7  
**Prerequisite:** IDMS 280 2.5 minimum  
**Co-requisite Courses:** IDMS 234 and IDMS 265 and IDMS 266  
 Building on material presented in IDMS 280, this is the second course in a four-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  
**Prerequisite:** IDMS 234 2.5 minimum and IDMS 265 2.5 minimum and IDMS 266 2.5 minimum  
 Based on material presented in IDMS 281, this is the third course in a four-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)
- IDMS 283 Clinical Experience IV** 7  
**Prerequisite:** IDMS 282 2.5 minimum  
**Co-requisite Course:** IDMS 245  
 Building on material presented in IDMS 282, this is the final course in a four-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 complete didactic work. (F)

**IMAG - PHOTOGRAPHY TECHNOLOGY**

- IMAG 101 Basic Photog for Non-Majors** 2  
**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  
**Recommended:** IMAG 101  
 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 Intro to Photographic Tech I** 4  
**Prerequisite:** Reading Level 3 and Writing Level 2 and Math Level 3  
 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 for Imaging Tech** 3  
**Prerequisite:** (IMAG 101 2.0 minimum or IMAG 111 2.0 minimum) or Concurrently  
 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/Applications** 3  
**Prerequisite:** (IMAG 101 2.0 minimum or IMAG 111 2.0 minimum) or Concurrently  
 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)

<b>IMAG 114 Intro Photographic Color Tech</b>	<b>3</b>	<b>IMAG 205 Topics in Hybrid Imaging</b>	<b>3</b>
<b>Prerequisite:</b> IMAG 111 2.0 minimum and IMAG 112 2.0 minimum and IMAG 113 2.0 minimum and Reading Level 5 and Writing Level 2 and Math Level 3		<b>Prerequisite:</b> ARTS 171 2.0 minimum	
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)		Designed for intermediate and advanced students to enhance their competencies and explore the areas of emerging hybrid imaging tools and techniques. (F, Sp, Su)	
<b>IMAG 115 Color Directed Study</b>	<b>1</b>	<b>IMAG 206 End Technologies</b>	<b>3</b>
<b>Prerequisite:</b> IMAG 114 2.0 minimum or Concurrently		<b>Prerequisite:</b> IMAG 117 2.0 minimum	
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)		Designed for intermediate and advanced students to enhance their competencies and knowledge in the area of currently available image output technologies. (F, Sp, Su)	
<b>IMAG 117 Intro to Photographic Tech II</b>	<b>4</b>	<b>IMAG 207 Imaging Issues</b>	<b>3</b>
<b>Prerequisite:</b> IMAG 111 2.0 minimum		<b>Prerequisite:</b> IMAG 117 2.0 minimum or IMAG 118 2.0 minimum	
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)		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)	
<b>IMAG 119 Intermediate Lighting</b>	<b>4</b>	<b>IMAG 208 Input Processes</b>	<b>3</b>
<b>Prerequisite:</b> IMAG 113 2.0 minimum or IMAG 118 2.0 minimum		<b>Prerequisite:</b> IMAG 117 2.0 minimum	
An exploration of intermediate lighting theories, practices and techniques. This course emphasizes the use of natural light and electronic flash as applied to people, locations and advanced studio settings. (F, Sp, Su)		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)	
<b>IMAG 120 Photographic Technology Lab</b>	<b>3</b>	<b>IMAG 210 Intermediate Color Ap and Tech</b>	<b>3</b>
<b>Prerequisite:</b> IMAG 117 2.0 minimum		<b>Prerequisite:</b> IMAG 114 2.0 minimum and IMAG 117 2.0 minimum	
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)		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)	
<b>IMAG 121 Imaging Technology</b>	<b>2</b>	<b>IMAG 211 Advanced Color Appl and Tech</b>	<b>4</b>
<b>Prerequisite:</b> None		<b>Prerequisite:</b> IMAG 210 2.0 minimum (previously IMAG 222)	
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)		A continuation of IMAG 210 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)	
<b>IMAG 122 Imaging Technology Forum</b>	<b>1</b>	<b>IMAG 220 Intermed Still Imaging Tech</b>	<b>4</b>
<b>Prerequisite:</b> None		<b>Prerequisite:</b> IMAG 114 2.0 minimum and IMAG 117 2.0 minimum and (IMAG 210 2.0 minimum (previously IMAG 222) or Concurrently)	
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)		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)	
<b>IMAG 201 Topics Commercial Photography</b>	<b>3</b>	<b>IMAG 221 Advanced Still Imaging Tech</b>	<b>4</b>
<b>Prerequisite:</b> IMAG 113 2.0 minimum and IMAG 117 2.0 minimum		<b>Prerequisite:</b> IMAG 220 2.0 minimum and (IMAG 211 2.0 minimum (previously IMAG 223) or Concurrently)	
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)		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)	
<b>IMAG 202 Topics in Photo Communication</b>	<b>3</b>	<b>IMAG 224 Emerging Image Technologies I</b>	<b>2</b>
<b>Prerequisite:</b> IMAG 117 2.0 minimum		<b>Prerequisite:</b> IMAG 114 2.0 minimum and (IMAG 117 2.0 minimum or IMAG 118 2.0 minimum)	
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)		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 hand-on experiences. (F, Sp)	
<b>IMAG 204 Topics in Imaging Self-Express</b>	<b>3</b>	<b>IMAG 225 Emerging Image Technologies II</b>	<b>2</b>
<b>Prerequisite:</b> IMAG 117 2.0 minimum		<b>Prerequisite:</b> IMAG 224 2.0 minimum	
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)		An advanced-level study that further explores the effects of new technologies and processes on the areas of photography and imaging. (Sp)	
		<b>IMAG 228 Independent Study</b>	<b>3</b>
		<b>Prerequisite:</b> IMAG 117 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum) and Approved Proposal	
		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 229 Advanced Imaging Applications 1**

**Prerequisite:** IMAG 117 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum) and Approved Proposal  
 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 230 Imaging Technology Major I 3**

**Prerequisite:** (IMAG 221 2.0 minimum and IMAG 211 2.0 minimum (previously IMAG 223)) or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum)  
 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**

**Prerequisite:** IMAG 230 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum)  
 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**

**Prerequisite:** IMAG 117 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum) and Department Approval  
 Allows advanced students to work as an intern developing competencies in the technical, business, creative, and communicative aspects of photography, film making, or electronic imaging. Acceptable written application and internship agreement required prior to registration. (F, Sp, Su)

**IMAG 233 The Business of Photography 3**

**Prerequisite:** IMAG 114 2.0 minimum and IMAG 117 2.0 minimum  
 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/Degree Comp 3**

**Prerequisite:** (IMAG 211 2.0 minimum (previously IMAG 223) and IMAG 221 2.0 minimum) or Concurrently  
 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 Independent Study 3**

**Prerequisite:** IMAG 117 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum) and Approved Proposal  
 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**

**Prerequisite:** IMAG 117 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum) and Department Approval  
 Allows advanced students to work as interns developing competencies in the technical, business, creative, and communicative aspects of photography, film making, or electronic imaging. Acceptable written application and internship agreement required prior to registration. (F, Sp, Su)

**INAU - INDUSTRIAL AUTOMATION**

**INAU 100 Intro Industrial Automation 4**

**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 200 Applied Automation 4**

**Prerequisite:** ELTE 122 2.0 minimum  
 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 Liability Ins Prin 3**

**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**

**Prerequisite:** None  
 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**

**Prerequisite:** None  
 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 line coverage. (F, Sp)

**INSU 265 Principles Risk and Insurance 3**

**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 100 Interior Design Fundamentals 3**

**Prerequisite:** Reading Level 3 and Writing Level 2  
 Practical survey course for residential interior design and decoration. Topics include planning, selecting and arrangement of furnishings; scheduling and budgeting; and color schemes and identification of furniture styles as they relate to the selection and coordination of home furnishings and accessories. (F, Sp)

**INTR 106 Interior Graphic Standards 3**

**Prerequisite:** None  
**Recommended:** Math Level 4  
 Students will learn how to draw floor plans, interior elevations and axonometric drawings using manual drafting techniques. Topics include drafting equipment, media, reproduction methods, lines, symbols, lettering, orthographics and sketching. (F, Sp)

**INTR 110 Applied Color Design/Theory 3**

**Prerequisite:** None  
**Recommended:** Reading Level 3 and Writing Level 2  
 A studio course in basic design theory. Topics include two- and three-dimensional design fundamentals, elements and principles of design, color, creativity and problem solving as they relate to interior design. (F, Sp)

**INTR 132 Interior Illustration 3**

**Prerequisite:** None  
**Recommended:** INTR 106 2.0 minimum or Equivalent  
 This course is the study of three-dimensional visual and oral presentation techniques. Students will create perspective drawings and color renderings using a variety of media. (Sp)

**INTR 140 Interior Drafting/Detailing 3**

**Prerequisite:** None  
**Recommended:** INTR 106 2.0 minimum or 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)

4	<p><b>INTR 151 Computer-Aided Kitchen Design</b> 4</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> INTR 106 or ARCH 100 and Windows or Keyboarding            This course is an in-depth study of kitchen planning, design, and remodeling through computer software applications. Lecture/Lab. (F, Sp, Su)</p>	4	<p><b>INTR 240 Fundamentals of Lighting</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> INTR 106 2.0 minimum or ARCH 100 2.0 minimum or Equivalent            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, environmental systems, heating, cooling and solar passive. (F)</p>	3
d s.	<p><b>INTR 170 Intro to Interior Design</b> 4</p> <p><b>Prerequisite:</b> Reading Level 5 and Writing Level 4  <b>Recommended:</b> INTR 100 2.0 minimum or Concurrently or Equivalent            This course is an overview of the basic knowledge required for the education of the professional interior designer. Human needs are the focal point of solving problems of space planning and furniture arrangement. Students will use the elements and principles of design to evaluate function and aesthetics of interior spaces. (F, Sp)</p>	4	<p><b>INTR 244 3-D Visual Display Studio</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> INTR 110 and INTR 132 and INTR 170            Students will study interior design and lighting in three-dimensional spaces and apply the principles and element of design within an existing building context or create a new space such as kiosks. Students will communicate with their solutions using floor plans, elevations, reflected ceiling plans, color rendered perspectives and axonometrics. (F)</p>	3
3 e s.	<p><b>INTR 175 Interior Space Planning</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> INTR 100 2.0 minimum and INTR 106 2.0 minimum            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. (Sp)</p>	3	<p><b>INTR 246 Residential Interiors Studio</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> Minimum 2.0 in INTR 132 and INTR 175 and INTR 190 and INTR 240            This course examines the relationship of human needs to interior environmental design with emphasis on alternative housing design. (Sp)</p>	3
3 st ll -	<p><b>INTR 190 Interior/Materials/Equipment</b> 4</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> INTR 106 or ARCH 100 or Equivalent            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. (Sp)</p>	4	<p><b>INTR 248 Non-Residentl Interiors Studio</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> Minimum 2.0 in INTR 175 and INTR 240 and ARCH 122 and (INTR 261 Concurrently)            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)</p>	3
3 r- ll r-	<p><b>INTR 201 Cultural Diversity In Housing</b> 3</p> <p><b>Prerequisite:</b> Reading Level 5 and Writing Level 6            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)</p>	3	<p><b>INTR 252 Codes and Specifications</b> 2</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> INTR 248 2.0 minimum            This course is the study of practices and procedures of working drawings, interior materials, cost estimating, installation methods for furniture, cabinets and shop drawings, floor coverings, wall coverings, and window treatments. Emphasis on furniture, fixture and equipment selection and specifications. (Su)</p>	2
3 e k	<p><b>INTR 222 CADD for Interiors</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> INTR 140 and INTR 151 and CNCP 101            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, Sp)</p>	3	<p><b>INTR 254 Certification Review</b> 1</p> <p><b>Prerequisite:</b> None            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, Su)</p>	1
3 s- e	<p><b>INTR 225 CADD for Space Planning</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> INTR 222 or Equivalent            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)</p>	3	<p><b>INTR 256 Interior Professional Practice</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> Second Year Interior Design Students            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)</p>	3
3 c y- d	<p><b>INTR 230 World Decorative Arts</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> Reading Level 5 and Writing Level 4            This course is a survey of the decorative arts of the world including furniture, interior architecture, textiles, and accessories. Students will study designers, styles, materials and techniques and their influence upon the political, geographical, economic and religious cultures of Africa, Asia, Europe and the Americas. Period is from antiquity to seventeenth century. (F)</p>	3	<p><b>INTR 260 3-D CADD for Interiors</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> INTR 132 and INTR 222 or Equivalent            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. (F)</p>	3
3 ai y-	<p><b>INTR 231 Period Interiors</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> Reading Level 5 and Writing Level 4            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. (Sp)</p>	3	<p><b>INTR 261 Interiors Project Laboratory</b> 1-4</p> <p><b>Prerequisite:</b> Department Approval  <b>Restriction:</b> Interior Design Majors  <b>Recommended:</b> INTR 222            This course is a directed study of special projects not incorporated in regular course offerings. (F, Sp, Su)</p>	1-4
3 y- a	<p><b>INTR 232 Twentieth Century Interiors</b> 3</p> <p><b>Prerequisite:</b> None  <b>Recommended:</b> Reading Level 5 and Writing Level 4            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. (F, Sp)</p>	3	<p><b>INTR 263 Interior Design Internship</b> 1</p> <p><b>Prerequisite:</b> Department Approval  <b>Restriction:</b> Interior Design Majors  <b>Recommended:</b> INTR 256 2.0 minimum and GPA 2.5 and 30 credits completed in INTR            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. (F, Sp, Su)</p>	1
3 y- n				

**INTR 270 Interior Design Portfolio** 2  
**Prerequisite:** None  
**Restriction:** Interior Design Majors  
**Recommended:** INTR 132 and INTR 256 and INTR 263  
 The portfolio course is an opportunity for students to organize photographs, mat/frames, and display their visual works. At the completion of the course, the students will have developed a format for a portfolio. (Sp)

### IRXT - RADIOLOGIC TECHNOLOGY

**IRXT 100 Introduction to Imaging** 4  
**Prerequisite:** Admission to Radiologic Technology Program  
 This course surveys 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)

**IRXT 111 Radiographic Positioning I** 5  
**Prerequisite:** Admission to Radiologic Technology 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)

**IRXT 112 Radiographic Positioning II** 4  
**Prerequisite:** IRXT 111 2.5 minimum  
 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. (Sp)

**IRXT 113 Additional RAD Procedures** 1  
**Prerequisite:** IRXT 112 2.5 minimum  
 Special radiologic procedures are studied and some related imaging modalities surveyed. Procedures include neurologic, cardiovascular, arthrographic, mammographic, digital imaging, and tomographic studies. (Su)

**IRXT 114 Cross-Sectional Anatomy** 3  
**Prerequisite:** IRXT 113 2.5 minimum  
 Provides an overview of transverse, coronal, and sagittal sectional anatomy of the human body. Special emphasis is placed on a study of the head and brain, thorax, abdomen and pelvis. The shoulder, elbow, hip and knee are also examined. Correlations between cadaver cross-sections, CTs, MRIs and radiographs are explored. (Sp)

**IRXT 121 Radiographic Exposure I** 3  
**Prerequisite:** Admission to Radiologic Technology 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 are discussed. (Sp)

**IRXT 122 Radiographic Exposure II** 2  
**Prerequisite:** IRXT 121 2.5 minimum  
 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. (Su)

**IRXT 131 Radiologic Physics** 3  
**Prerequisite:** IRXT 122 2.5 minimum and MATH 112 2.5 minimum  
 Basic physical principles are related to the radiologic process. A study of basic electricity and the operation of the x-ray circuit are presented. Finally, advanced topics regarding the formation of radiation, protection of the X-ray tube, and X-ray attenuation are studied. (F)

**IRXT 132 Radiobiology and Protection** 2  
**Prerequisite:** IRXT 131 2.5 minimum  
 This course focuses on the rationale for good radiation hygiene and methods to protect the patient and technologist. Current theories regarding the physiological effects of radiation are explored. (Sp)

**IRXT 200 Intro/Radiologic Pathology** 2  
**Prerequisite:** None  
 Emphasizes how disease processes are diagnosed radiographically and the relationship of the radiographic appearance of the disease to its anatomic, physiological, 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)

**IRXT 202 Clinical Practice I** 5  
**Prerequisite:** IRXT 111 2.5 minimum  
 First in a two-semester sequence of clinical application in radiography. The course is programmed with specific performance activities. Credit is arranged for each individual semester with a ratio of one credit hour to three clinical clock hours. The ratio for lecture is consistent with the one-to-one ratio. (Sp)

**IRXT 204 Clinical Practice II-S** 3  
**Prerequisite:** IRXT 202 2.5 minimum  
 Second course in a two-semester sequence of clinical applications in radiography. The course is programmed with specific performance activities. Credit is arranged for each individual term with a ratio of one credit hour to three clinical clock hours. The ratio for lecture is consistent with the one-to-one ratio. (Su)

**IRXT 210 Radiology Career Management** 1  
**Prerequisite:** None  
 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. (F)

**IRXT 214 Comprehensive Experience I** 6  
**Prerequisite:** IRXT 204 2.5 minimum (previously IRXT 233) or IRXT 213 2.5 minimum  
 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 students progress. (F)

**IRXT 215 Comprehensive Experience II** 6  
**Prerequisite:** IRXT 214 2.5 minimum  
 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 students progress. (Sp)

**IRXT 219 Imaging Update** 1  
**Prerequisite:** IRXT 132 2.5 minimum  
 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. (Su)

**IRXT 236 Comprehensive Experience III-S** 4  
**Prerequisite:** IRXT 215 2.5 minimum  
 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 students progress. (Su)

### ISC1 - INTEGRATED SCIENCE

**ISC1 110 Science Discovery: A Process** 4  
**Prerequisite:** Reading Level 3 and Writing Level 2 and Math Level 3  
 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)

**ISC1 121 Integrated Sci for Education I** 4  
**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4  
 The first of two general science courses focusing on the fundamental behavior of matter and energy using a historical and environmental context. Science processes, methods, and reasoning skills are emphasized throughout. Recommended for education majors. (F, Sp)

**ISCI 122 Integrate Sci for Education II 4**

**Prerequisite:** ISCI 121 2.0 minimum and Reading Level 5  
The second of two general science courses focusing on the biological and ecological nature of our universe, using a historical and integrative approach. Science processes, methods, and reasoning skills are emphasized throughout. Recommended for education majors. (F, Sp)

**JAPN - JAPANESE****JAPN 115 Conversational Japanese I 3**

**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**

**Prerequisite:** None  
**Recommended:** JAPN 115 or 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**

**Prerequisite:** Reading Level 5  
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**

**Prerequisite:** JAPN 121 1.5 minimum and Reading Level 5  
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**

**Prerequisite:** JAPN 122 1.5 minimum and Reading Level 5  
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**

**Prerequisite:** JAPN 201 1.5 minimum and Reading Level 5  
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**

**Prerequisite:** None  
**Recommended:** Computer and/or Keyboarding Experience  
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**

**Prerequisite:** JRNL 151 2.0 minimum or WRIT 121 2.0 minimum or WRIT 131 2.0 minimum  
**Recommended:** Computer and/or Keyboarding Experience  
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 Intro to Labor Relations 3**

**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 Labor Negotiation/Contract Adm 3**

**Prerequisite:** None  
**Recommended:** LABR 200 or Related Work Experience  
This course covers key aspects of negotiating/applying collective bargaining agreements including: labor negotiations; contract administration; and grievance processing and arbitration. This hands-on course conveys basic knowledge, legal framework, and practical skills pertaining to negotiations and grievance adjudication. (F)

**LABR 203 Labor Law 3**

**Prerequisite:** None  
**Recommended:** LABR 200 or Related Work Experience  
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**

**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 Intro to Landscape Drafting 2**

**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 101 Landscape Special Topics .25**

**Prerequisite:** None  
The Landscape Special Topics series will feature topics related to the green industries. The lectures will allow students to sample and explore a wide variety of topics related to plant materials, landscape designs and construction principles. Topics will range from water gardens and bonsais to rose gardens and herbs. (F, Sp)

**LAND 103 Landscape Dsgn Workshop Series .25**

**Prerequisite:** None  
The Landscape Design Workshop Series will feature topics related to the green industries. The workshop format allows for hands-on participation on the particular topics area. Participants can explore topics from wreath making to terrarium construction. (F, Sp)

**LAND 120 Basics/Landscape Contracting 3**

**Prerequisite:** None  
This course will explore the field of landscape contracting and its relationship 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**

**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  
**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 Home Landscape Maintenance** 3  
**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)

**LAND 140 Evergreen and Deciduous Trees** 3  
**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)

**LAND 141 Flowering Trees, Shrubs, Vines** 3  
**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)

**LAND 142 Perennial/Annual Flower Plants** 3  
**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)

**LAND 145 Field Exper Landscape Arch** 3  
**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)

**LAND 150 Principles of Landscape Arch** 3  
**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)

**LAND 152 Landscape Graphics Comm-Begin** 3  
**Prerequisite:** LAND 150 2.0 minimum or 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)

**LAND 153 Landscape Graphics Comm-Adv** 3  
**Prerequisite:** LAND 152 1.0 minimum  
 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)

**LAND 160 Planting Design I** 3  
**Prerequisite:** (LAND 140 1.0 minimum and LAND 150 1.0 minimum) or Concurrently  
 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)

**LAND 161 Planting Design II** 3  
**Prerequisite:** LAND 160 1.0 minimum  
 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)

**LAND 163 Designing Ornamental Gardens** 3  
**Prerequisite:** LAND 141 1.0 minimum or Concurrently  
 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 164 Site Design** 3  
**Prerequisite:** LAND 150 2.0 minimum  
 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 170 Site Grading I** 3  
**Prerequisite:** LAND 150 2.0 minimum  
 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 171 Site Grading II** 3  
**Prerequisite:** LAND 170 2.0 minimum  
 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 172 Site Layout** 3  
**Prerequisite:** LAND 171 2.0 minimum or Concurrently  
 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 180 Landscape Ecology** 3  
**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 181 Landscape Restoration/Manage** 3  
**Prerequisite:** None  
**Recommended:** LAND 180  
 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 182 Wetland Delineation/Evaluation** 2  
**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 183 Planned Wetlands Eval/Restorat** 2  
**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 185 Arboriculture (Urban/Forestry) 3**  
**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 Manage 3**  
**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**  
**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 Construct Tech Begin 3**  
**Prerequisite:** None  
 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**  
**Prerequisite:** None  
 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 Res. Land Design 3**  
**Prerequisite:** LAND 100 2.0 minimum  
 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**  
**Prerequisite:** None  
 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**  
**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 integral part of this course. (F, Sp)

**LAND 250 Landscape Construction Methods 3**  
**Prerequisite:** LAND 150 2.0 minimum  
 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**  
**Prerequisite:** LAND 250 2.0 minimum  
 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 Spec 2**  
**Prerequisite:** LAND 164 2.0 minimum  
 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 281 CAD Basics in Landscape Design 1**  
**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 Draft/Dsgn Land Arch 3**  
**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**  
**Prerequisite:** LAND 282 2.0 minimum  
 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 Advanced LANDCADD 3**  
**Prerequisite:** LAND 283 2.0 minimum  
 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 Computer Landscape Animation 3**  
**Prerequisite:** LAND 282 2.0 minimum  
 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**  
**Prerequisite:** None  
**Recommended:** LAND 282  
 This computer course will cover how to use photo-imagery end 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 CAD 3**  
**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 Land Computer Design/Studio 3**  
**Prerequisite:** LAND 282 2.0 minimum  
 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 Project Lab 1-4**  
**Prerequisite:** Department Approval  
 This project lab 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**

<b>LEGL 115 Legal Assistant Career/Ethics</b>	<b>3</b>	<b>LEGL 218 Litigation Specialties</b>	<b>3</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6 and Department Approval 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)		<b>Prerequisite:</b> LEGL 211 1.0 minimum Covers several specialty areas of law, for example 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 legal instruments. (F, Su)	
<b>LEGL 120 Legal Research I</b>	<b>3</b>	<b>LEGL 219 Adv Busn Law for Acct Majors</b>	<b>4</b>
<b>Prerequisite:</b> LEGL 115 2.0 minimum <b>Recommended:</b> 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)		<b>Prerequisite:</b> LEGL 215 1.0 minimum <b>Recommended:</b> Accounting Background This self-paced course is intended for students majoring in accounting who have a goal of becoming a Certified Public Accountant (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)	
<b>LEGL 121 Legal Writing I</b>	<b>3</b>	<b>LEGL 220 Internat Legal Issues/Organiza</b>	<b>3</b>
<b>Prerequisite:</b> (WRIT 122 1.0 minimum or Writing Level 9) and LEGL 115 2.0 minimum and (LEGL 120 1.0 minimum or Concurrently) <b>Recommended:</b> LEGL 215 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)		<b>Prerequisite:</b> LEGL 215 1.0 minimum 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)	
<b>LEGL 160 Critical Thinking in Law</b>	<b>3</b>	<b>LEGL 221 Real Estate Transaction</b>	<b>3</b>
<b>Prerequisite:</b> 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)		<b>Prerequisite:</b> LEGL 115 2.0 minimum and LEGL 215 1.0 minimum 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)	
<b>LEGL 210 Litigation Procedures</b>	<b>4</b>	<b>LEGL 222 Probate Law and Procedure</b>	<b>3</b>
<b>Prerequisite:</b> LEGL 115 2.0 minimum <b>Recommended:</b> 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)		<b>Prerequisite:</b> LEGL 115 2.0 minimum and LEGL 215 1.0 minimum Probate process will be addressed in detail, from commencement of proceedings through closing the estate of a decedent. Other topics will include wills, trusts, and related topics. Emphasis is on the part played by the legal assistant in preparation of documents and other probate practice tasks. (Sp)	
<b>LEGL 211 Tort Law</b>	<b>2</b>	<b>LEGL 223 Domestic Relations</b>	<b>3</b>
<b>Prerequisite:</b> LEGL 115 2.0 minimum <b>Recommended:</b> 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)		<b>Prerequisite:</b> LEGL 115 2.0 minimum and LEGL 215 1.0 minimum 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)	
<b>LEGL 215 Busn Law I, Basic Principles</b>	<b>3</b>	<b>LEGL 224 Administrative Law</b>	<b>3</b>
<b>Prerequisite:</b> 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, via self-paced Computer Managed Learning (C.M.L.) or via the Virtual College (V.C.). (F, Sp, Su)		<b>Prerequisite:</b> LEGL 115 2.0 minimum and LEGL 215 1.0 minimum 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. (F)	
<b>LEGL 216 Busn Law II, Commercial Law</b>	<b>3</b>	<b>LEGL 225 Legal Research and Writing II</b>	<b>3</b>
<b>Prerequisite:</b> LEGL 215 1.0 minimum 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 self-paced Computer Managed Learning (C.M.L.). (F, Sp, Su)		<b>Prerequisite:</b> LEGL 120 1.0 minimum and LEGL 121 1.0 minimum Reviews principles of legal research, analysis, and writing. Introduces student to computer-assisted legal research (LEXIS and Westlaw). 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)	
<b>LEGL 217 Busn Law III, Busn Organiza</b>	<b>3</b>	<b>LEGL 226 Legal Interview/Investigation</b>	<b>3</b>
<b>Prerequisite:</b> LEGL 215 1.0 minimum 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 self-paced Computer Managed Learning (C.M.L.). (F, Sp)		<b>Prerequisite:</b> LEGL 115 2.0 minimum and LEGL 215 1.0 minimum 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. (Sp)	
		<b>LEGL 227 Bankruptcy and Collections</b>	<b>3</b>
		<b>Prerequisite:</b> LEGL 115 2.0 minimum and LEGL 215 1.0 minimum 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 Tech for Legal Assist** 3  
**Prerequisite:** LEGL 120 1.0 minimum  
**Recommended:** Windows 95 and 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, Sp, Su)

**LEGL 280 Legal Assistant Internship** 3  
**Prerequisite:** Department 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  
**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  
**Prerequisite:** None  
**Recommended:** MATH 050 or Math Level 4  
 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  
**Prerequisite:** None  
**Recommended:** MATH 050 or Math Level 4  
 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  
**Prerequisite:** MACH 105 2.0 minimum  
 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  
**Prerequisite:** MACH 105 2.0 minimum  
**Recommended:** 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  
**Prerequisite:** MACH 110 2.5 minimum and MACH 111 2.5 minimum  
 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. (Sp)

**MACH 120 Effect Use Machinery Handbook** 4  
**Prerequisite:** None  
**Recommended:** MATH 114 or TECH 101  
 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  
**Prerequisite:** None  
**Recommended:** MACH 110 and MACH 111  
 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. (Sp)

**MACH 135 Metallurgy and Heat Treat** 4  
**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  
**Prerequisite:** None  
**Recommended:** MACH 110 and MACH 111  
 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 194 Machine Tool Tech Project Lab** 4  
**Prerequisite:** Department Approval  
**Recommended:** MACH 110 2.5 minimum or MACH 111 2.5 minimum  
 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 Prin Electric Discharge Mach** 4  
**Prerequisite:** None  
**Recommended:** MACH 105 and MACH 111 and CNC 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)

**MACH 212 Compound Angles** 4  
**Prerequisite:** MATH 114 2.0 minimum  
**Recommended:** MATH 115  
 This course combines solid trigonometry, enabling students to solve problems involving angles in three-dimensional space in industrial applications. Emphasis on applications of actual tooling setups for complex machining operations is used to make the course relate to real life situations. (Sp)

### MASG - MASSAGE THERAPY

**MASG 270 Massage Therapy-Beginning** 2  
**Prerequisite:** None  
**Recommended:** ANAT 145 2.5 minimum  
 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  
**Prerequisite:** MASG 270 2.5 minimum  
 This course builds upon the information and techniques learned in 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** 2  
**Prerequisite:** ANAT 145 2.5 minimum  
 This course will provide the massage therapy student with an in-depth view of the areas of anatomy which are specific to massage, primarily within the musculoskeletal and nervous systems. (F, Sp)

**MASG 274 Massage Laboratory** 2  
**Prerequisite:** MASG 271 2.5 minimum or 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. (F, Sp)

**MASG 275 Touch for Health** 1  
**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  
**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  
**Prerequisite:** MASG 277 2.5 minimum  
 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/Masg** 2  
**Prerequisite:** MASG 270 2.5 minimum  
 This course introduces students to aspects of business and marketing in the field of massage and body work. Emphasis is placed on development of a professional and personal business sense using planning and persistence, client-practitioner relationships, ethics, research, marketing strategy, goal-setting, motivation, and professional legalities. (F, Sp)

**MASG 280 Clin Approach Therap Massage** 3  
**Prerequisite:** MASG 271 2.5 minimum and MASG 273 2.5 minimum  
 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  
**Prerequisite:** MASG 280 2.5 minimum or Concurrently  
 The student will learn various massage techniques and related therapies that are specifically beneficial to the athlete. Applications for pre-, inter-, and post-athletic events and athletic training massage will be emphasized. (F, Sp)

**MATH - MATHEMATICS**

**MATH 001 Math Minus Anxiety Workshop** .5  
**Prerequisite:** None  
 A workshop for adults who feel insecure about doing mathematics and need help and encouragement to succeed in math. The workshop uses technology and diverse real world applications to improve problem solving techniques and math study skills and reduce math anxiety. Students at any math level may enroll. (F, Sp)

**MATH 050 Math-Principles and Practices** 4  
**Prerequisite:** (MATH 030 2.0 minimum or MATH 033 2.0 minimum or Math Level 3) and Reading Level 3 and Writing Level 2  
 This course reviews mathematical operations involving fractions and decimals. Topics include percents, ratios, proportions, U.S. and metric measurements, integers, statistical graphs, Pythagorean theorem, perimeter, area, and volume. It also introduces algebraic concepts using expressions and equations. Problem solving, estimation, and reasoning skills are taught. The calculator and real-life applications are integrated throughout the course. (F, Sp, Su)

**MATH 103 Introductory Algebra, Part A** 2  
**Prerequisite:** (MATH 050 2.0 minimum or Math Level 4) and Reading Level 5 and Writing Level 2  
 Graphing calculator required. This course is the first half of MATH 107. Topics include properties of real numbers and exponents, variable expressions, solving linear equations, polynomial operations, ratio and proportion, graphing, solving systems of equations, and inequalities. Graphing calculator, diverse, real-life applications, and geometry are integrated throughout the course. (F, Sp, Su)

**MATH 104 Introductory Algebra, Part B** 2  
**Prerequisite:** (MATH 103 2.0 minimum or MATH 103 Proficiency Test) and Reading Level 5 and Writing Level 2  
 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, diverse, real-life applications, and geometry are integrated throughout the course. (F, Sp, Su)

**MATH 107 Introductory Algebra** 4  
**Prerequisite:** (MATH 050 2.0 minimum or Math Level 4) and Reading Level 5 and Writing Level 2  
 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, rational expressions and equations, ratio and proportion, radicals, and inequalities. Graphing calculator, diverse, real-life applications, and geometry are integrated throughout the course. (F, Sp, Su)

**MATH 112 Intermediate Algebra** 4  
**Prerequisite:** (MATH 104 2.0 minimum or MATH 107 2.0 minimum within 2 years or Math Level 5) and Reading Level 5 and Writing Level 4  
 Graphing calculator required. This is an extension of beginning algebra, using the graphing calculator, with emphasis on graphing and diverse, real-life 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, interpreting data and matrices. (F, Sp, Su)

**MATH 114 Technical Math I** 4  
**Prerequisite:** (MATH 050 2.0 minimum or Math Level 4) and Reading Level 3  
 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)

**MATH 115 Technical Math II** 4  
**Prerequisite:** MATH 114 2.0 minimum and Reading Level 5  
 A continuation of MATH 114. Topics include: congruent and similar triangles; polygons; circles with angles, chords, and tangents; applications 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)

**MATH 117 Math for Business** 4  
**Prerequisite:** (MATH 104 2.0 minimum or MATH 107 2.0 minimum or Math Level 5) and Reading Level 5 and Writing Level 4  
 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)

**MATH 121 College Algebra I** 4  
**Prerequisite:** (MATH 112 2.0 minimum or Math Level 6) and Reading Level 5 and Writing Level 4  
 This course provides the foundation in college algebra essential for all subsequent mathematics courses. (After completing MATH 121, students may take STAT 170, MATH 122, 12B, 130, 141 and 201.) Topics include polynomial, rational, radical, exponential, and logarithmic functions; solving equations/inequalities algebraically and graphically; and mathematical modeling/regression in problem solving. (F, Sp, Su)

**MATH 122 College Algebra II and Trig** 3  
**Prerequisite:** (MATH 121 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 4  
 Second in two-course sequence, following MATH 121. Topics include right triangle trigonometry, trigonometric functions, graphs, identities and equations, inverse trig functions, laws of sines/cosines, binomial theorem, systems of linear equations, vectors, polar coordinates, sequences, series, permutations, combinations. Degree credit may not be earned in both MATH 121-122 and MATH 126. (F, Sp, Su)

<b>MATH 126 College Algebra and Trig</b>	5
<b>Prerequisite:</b> (MATH 112 3.5 minimum or Math Level 7) and Reading Level 5 and Writing Level 4	
Intensive course covering the same material as MATH 121-122. Topics include algebraic and transcendental functions, solving equations/inequalities algebraically and graphically, mathematical modeling, trigonometric identities, laws of sines/cosines, binomial theorem, vectors, polar coordinates, sequences, series, permutations and combinations. Degree credit may not be earned in both MATH 126 and MATH 121-122. (F, Sp)	
<b>MATH 128 Mathematics: A Practical Survey</b>	3
<b>Prerequisite:</b> (Math 121 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 4	
This course is a survey of mathematical topics for students majoring in fields outside the technical sciences. The student is introduced to practical topics and their historical significance. Topics include data gathering, analysis and interpretation; finance; growth and decay models; optimization models; and geometry as art. (F, Sp, Su)	
<b>MATH 130 Finite Mathematics</b>	3
<b>Prerequisite:</b> (MATH 121 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 4	
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. (Sp)	
<b>MATH 141 Calculus with Applications</b>	3
<b>Prerequisite:</b> (MATH 121 2.0 minimum or MATH 126 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 4	
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)	
<b>MATH 151 Calculus I</b>	4
<b>Prerequisite:</b> (MATH 122 2.0 minimum or MATH 126 2.0 minimum or Math Level 9) and Reading Level 5 and Writing Level 4	
The first course in a three semester calculus sequence. Topics include limits, continuity, derivatives of algebraic, trigonometric, exponential and logarithmic functions, linear approximation, integration and the fundamental theorems of calculus. Applications of the calculus to both physical and geometric problems are emphasized. (F, Sp, Su)	
<b>MATH 152 Calculus II</b>	4
<b>Prerequisite:</b> MATH 151 2.0 minimum and Reading Level 5 and Writing Level 4	
The second course in a three-semester calculus sequence. Topics include techniques and applications of integration, L'Hôpital's rule, derivatives of inverse trigonometric functions, improper integrals, sequences and infinite series, power series representation of functions, conic sections, and polar coordinates. (F, Sp, Su)	
<b>MATH 201 Math for Liberal Arts I</b>	3
<b>Prerequisite:</b> (MATH 121 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 6	
Topics help students understand what mathematics is. They include analysis/interpretation of data, real numbers, bases other than 10, polygons, golden figures, tiling, and applications of functions. A strong historical theme is present throughout. Students are involved in concept development as well as finding answers. Intended primarily for prospective elementary teachers. (F)	
<b>MATH 202 Math for Liberal Arts II</b>	3
<b>Prerequisite:</b> MATH 201 2.0 minimum and Reading Level 5 and Writing Level 6	
Topics help students understand what mathematics is. They include number theory, logic, calculus, mathematical games, graph theory, trigonometry, and algorithmic reasoning. A strong historical theme is present throughout. Students are involved in concept development as well as in finding answers. Intended primarily for prospective elementary teachers. (Sp)	
<b>MATH 253 Calculus III</b>	4
<b>Prerequisite:</b> MATH 152 2.0 minimum and Reading Level 5 and Writing Level 4	
The last course in a three-semester calculus sequence. Multivariable calculus and vector analysis are studied. Topics include vector algebra, curves and surfaces in 3-space, vector valued functions, partial derivatives, multiple integrals, and line integrals. Applications of all these topics are presented. (F, Sp, Su)	

<b>MATH 254 Intro: Differential Equations</b>	3
<b>Prerequisite:</b> MATH 253 2.0 minimum and Reading Level 5 and Writing Level 4	
An introduction to the basic methods for solving ordinary differential equations. Topics include the methods of undetermined coefficients, variation of parameters, series, Laplace transforms, and numerical methods. Applications are emphasized. (F, Sp, Su)	
<b>MATH 260 Linear Algebra</b>	3
<b>Prerequisite:</b> MATH 253 2.0 minimum and Reading Level 5 and Writing Level 4	
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)	
<b>MATH 281 Honors Math Seminar</b>	1
<b>Prerequisite:</b> MATH 151 2.0 minimum and Department 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. May be taken up to two semesters for credit. (Sp)	
<b>MATH 295 Independ Study in Mathematics</b>	1-4
<b>Prerequisite:</b> Department 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)	

**MEDA - MEDICAL ASSISTANT**

<b>MEDA 100 MA Administrative/Communicat</b>	3
<b>Prerequisite:</b> Admission to Medical Assistant Program	
<b>Co-requisite Courses:</b> MEDA 131 and MEDA 141	
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, account posting, and basic banking functions. Also provides students with an understanding of interpersonal skills. (F)	
<b>MEDA 131 Clinical Skills I</b>	3
<b>Prerequisite:</b> Admission to Medical Assistant Program	
<b>Co-requisite Courses:</b> MEDA 100 and MEDA 141	
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)	
<b>MEDA 132 Clinical Skills II</b>	3
<b>Prerequisite:</b> AHCC 112 2.5 minimum and CHSE 123 2.5 minimum (previously CHSE 111) and CHSE 122 2.5 minimum and MEDA 100 2.5 minimum and MEDA 131 2.5 minimum	
<b>Co-requisite Course:</b> MEDA 142	
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)	
<b>MEDA 141 Basic Medical Laboratory Proc</b>	2
<b>Prerequisite:</b> Admission to Medical Assistant Program	
<b>Co-requisite Courses:</b> MEDA 100 and MEDA 131	
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)	
<b>MEDA 142 Adv Medical Laboratory Proc</b>	2
<b>Prerequisite:</b> AHCC 112 2.5 minimum and CHSE 123 2.5 minimum (previously CHSE 111) and CHSE 122 2.5 minimum and MEDA 100 2.5 minimum and MEDA 131 2.5 minimum and MEDA 141 2.5 minimum	
<b>Co-requisite Course:</b> MEDA 132	
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  
**Prerequisite:** AHCC 110 2.5 minimum and MEDA 132 2.5 minimum and MEDA 142 2.5 minimum and OADM 207 2.5 minimum  
**Co-requisite Course:** MEDA 182  
 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  
**Prerequisite:** AHCC 110 2.5 minimum and MEDA 132 2.5 minimum and MEDA 142 2.5 minimum and OADM 207 2.5 minimum  
**Co-requisite Course:** MEDA 181  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 5  
 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. (Sp)

**MFGM - MANUFACTURING MAINTENANCE**

**MFGM 101 Industrial Hydraulics** 4  
**Prerequisite:** None  
 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)

**MFGM 102 Industrial Pneumatics** 3  
**Prerequisite:** None  
 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  
**Prerequisite:** None  
 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  
**Prerequisite:** MFGM 110 2.0 minimum  
 Advanced theory and practice of machine tool repair including preventive maintenance. The theory and repair of pumps and pneumatic tools will be covered. (F, Sp)

**MFGM 120 Industrial Presses** 4  
**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  
**Prerequisite:** None  
 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. 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 Train** .5  
**Prerequisite:** None  
 Students will learn the basic safety guidelines and basic operational procedures of industrial fork trucks. The instruction will combine lecture, written materials and hands-on operation of a fork truck. (F, Sp, Su)

**MGMT - MANAGEMENT**

**MGMT 150 Managing Customer Relations** 3  
**Prerequisite:** None  
 This course is designed to help customer service workers and managers explore the dynamics of customer service and customer relations. The course includes strategies for providing for customers needs, behavioral skills and knowledge for effective customer service, verbal and non-verbal skills for effective customer communication, and techniques for measuring success. Focus is on the dynamics of building successful relationships. (F)

**MGMT 200 Creative Thinking for Business** 3  
**Prerequisite:** None  
**Recommended:** Have Taken at Least Two or More BUSN, MGMT or Business Experience  
 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  
**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  
**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)

**MGMT 225 Principles of Management** 3  
**Prerequisite:** None  
 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. Covers 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)

**MGMT 227 Training/Development for Busn** 3  
**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)

**MGMT 228 Organizational Behavior** 3  
**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)

**MGMT 229 Compensation Management** 3  
**Prerequisite:** MGMT 224 1.0 minimum  
**Recommended:** LABR 204  
 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)

**MGMT 231 Team Development** 3  
**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)

**MGMT 234 Diversity in the Workplace** 3  
**Prerequisite:** Reading Level 5  
 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 235 Independent Study/Management** 1-3  
**Prerequisite:** Department Approval  
 Students design and implement special research projects to apply personal and professional experience to academic area of interest, linking theory with practice. Students meet with coordinator and work independently towards completion of project report. (F, Sp, Su)

**MGMT 237 Managing/Continual Improvement** 3  
**Prerequisite:** None  
 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 239 Time and Stress Management** 3  
**Prerequisite:** None  
 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 240 How Manager Make Things Happen** 2  
**Prerequisite:** None  
 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 241 How Successful Women Manage** 1  
**Prerequisite:** None  
 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. (F, Sp, Su)

**MGMT 242 Mgrs Guide/Working with People** 1  
**Prerequisite:** None  
 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. (F, Sp, Su)

**MGMT 243 How to Delegate Effectively** 1  
**Prerequisite:** None  
 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. (F, Sp, Su)

**MGMT 244 Supervisory Management** 2  
**Prerequisite:** None  
 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 245 Leadership Skills for Managers** 1  
**Prerequisite:** None  
 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 246 Fundamental Mod Personnel Mgmt** 1  
**Prerequisite:** None  
 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)

**MGMT 247 Be a Successful Project Mgr** 1  
**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)

**MGMT 248 Team Building** 1  
**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)

**MGMT 249 Dealing with Difficult People** 1  
**Prerequisite:** None  
 Discover how seasoned managers cope with difficult personalities in the workplace. This course covers effective communication and 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 Fundament Fin/Acct/Non-Fin Mgr** 2  
**Prerequisite:** None  
 Provides the manager with an understanding of finance. This course 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)

**MGMT 251 Communication Skills for Mgrs** 1  
**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. (F, Sp, Su)

**MGMT 252 Deliver a Winning Presentation** 1  
**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. (F, Sp, Su)

**MGMT 253 How to Write Winning Reports** 1  
**Prerequisite:** None  
 This course helps students develop a more concise, straight forward writing style. It will help the student express ideas more clearly in memos, letters, and reports. (F, Sp, Su)

**MGMT 254 How to Write a Business Plan** 2  
**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. (F, Sp, Su)

**MGMT 256 Strategic Plan/Entrepren Busn** 1  
**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)

**MGMT 257 Using Math as a Business Tool** 1  
**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)

**MGMT 258 Strategic Résumés** 1  
**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)

**MGMT 260 How to Analyze the Competition** 2  
**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)

**MGMT 261 Psychology of Selling/Winning** 1  
**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 what they should do in order to sell successfully. (F, Sp, Su)

**MGMT 262 Keep Satisfied Customers** 1  
**Prerequisite:** None  
 This course is designed to help simplify the task of keeping customers satisfied. The ultimate goal of this course is to help improve students' abilities to communicate effectively with customers. (F, Sp, Su)

**MGMT 263 Successful Marketing/Serv Org** 1  
**Prerequisite:** None  
 Marketing concepts long associated with manufactured goods are now 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. (F, Sp, Su)

**MGMT 264 How to Write a Marketing Plan** 2  
**Prerequisite:** None  
 This course is designed for future or current 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, service department, company, or organization. (F, Sp, Su)

**MGMT 265 WWW Skills: Busn/Personal Dev** 1  
**Prerequisite:** None  
 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 be introduced to web page creation. The course is designed for interactive WWW learning or reading. (F, Sp, Su)

**MGMT 266 Enter International Markets** 2  
**Prerequisite:** None  
 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 268 Organizing Your Workspace** 1  
**Prerequisite:** None  
 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 270 Time Management** 1  
**Prerequisite:** None  
 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 and balance techniques, and ways to reduce stress through changes in lifestyle. (F, Sp, Su)

**MGMT 271 Managing/Resolving Conflict** 1  
**Prerequisite:** None  
 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. (F, Sp, Su)

**MGMT 272 Success Through Assertiveness** 1  
**Prerequisite:** None  
 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. (F, Sp, Su)

**MGMT 273 Assess Prsnal Interactn Skills** 1  
**Prerequisite:** None  
 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  
**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. The course is designed for anyone. (F, Sp, Su)

**MGMT 275 How to Build Memory Skills** 1  
**Prerequisite:** None  
 This course is designed to help the student 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. (F, Sp, Su)

**MGMT 276 How to Improve Writing Skills** 1  
**Prerequisite:** None  
 This course helps students strengthen their skills in key communication areas by knowing how to properly use words and phrases associated with business. (F, Sp, Su)

**MGMT 277 Speed Learning** 1  
**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. (F, Sp, Su)

**MGMT 278 Creative Fund-Raising** 2  
**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 resources, 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 279 Learn APA Write Style for Bus** 1  
**Prerequisite:** None  
 This course offers a self-paced, hands-on opportunity to learn the rules and style of the Publication Manual of the American Psychological Association. Practice is emphasized, not memorization, allowing the student to use APA as a skill or tool for improving business report writing skills. (F, Sp, Su)

**MGMT 280 Management Internship** 3  
**Prerequisite:** Department Approval  
**Recommended:** Have Completed a Minimum of 30 Credits  
 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  
**Prerequisite:** None  
**Recommended:** Have Taken Previous MGMT Courses, and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience  
 Provides an overview of the changing roles of leadership within an organization. A review of historical perspectives in managerial leadership lays a foundation for exploration of the emerging roles and functions of leadership in today's changing environments. Theories and skills are applied to a variety of organizational settings. (F)

**MGMT 304 Organizational Development** 3  
**Prerequisite:** None  
**Recommended:** Have Taken Previous MGMT Courses, and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience  
 Based on the assumption that all managers must recognize, plan for, and manage organizational change, this course examines the process of improving organization 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 Adv Mgmt Communication Skills** 3  
**Prerequisite:** None  
**Recommended:** Have Taken Previous MGMT Courses, and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience  
 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  
**Prerequisite:** None  
**Recommended:** Have Taken Previous MGMT Courses, and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience  
 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  
**Prerequisite:** None  
**Recommended:** Have Taken Previous MGMT Courses, and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience  
 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 Mgmt Skills** 3  
**Prerequisite:** None  
**Recommended:** Have Taken Previous MGMT Courses, and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience  
 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  
**Prerequisite:** None  
**Recommended:** Have Taken Previous MGMT Courses, and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience  
 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 Mgmt Styles/Corp Strategies** 3  
**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  
**Prerequisite:** None  
**Recommended:** Have Taken Previous MGMT Courses, and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience  
 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/Policy** 3  
**Prerequisite:** (MGMT 225 1.0 minimum or MGMT 300 1.0 minimum) and Any MGMT Course Between MGMT 304 - 346 (Inclusive) 1.0 minimum  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 6 and Math Level 4  
**Recommended:** Biology and Chemistry  
 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  
**Prerequisite:** MICR 203 2.0 minimum or Concurrently and Reading Level 5  
 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 Leadership: Military Profession** 1  
**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 Leadership: Wilderness Survival** 1  
**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: The Military Leader** 1  
**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 Intro to Land Navigation/Tactics** 1  
**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  
**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 Mktg/Manage Your Profess Image** 3  
**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  
**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  
**Prerequisite:** Department Approval  
**Recommended:** Have Completed a Minimum of 30 Credits  
 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 Comput Field Sales Internship** 3  
**Prerequisite:** Department Approval  
**Recommended:** Have Completed a Minimum of 30 Credits  
 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  
**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  
**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  
**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  
**Prerequisite:** None  
**Recommended:** BUSN 118  
 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  
**Prerequisite:** MKTG 200 1.0 minimum  
**Recommended:** MKTG 204 and Second Year Student  
 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

**Prerequisite:** MKTG 200 1.0 minimum  
 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 210 Marketing on the Internet** 2

**Prerequisite:** None  
**Recommended:** MKTG 200 and Basic Understanding of Computers and Their Use on the Internet

This course will explore the impact of information technology on the practice of marketing. Course content focuses on the internet, its culture and procedures from a marketing perspective, and will include using the internet for customer contact and customer service. This class uses extensive hands-on activities. (F, Sp)

**MKTG 221 Consumer Behavior** 2

**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** 1-3

**Prerequisite:** Department 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 of work per credit is required. (F, Sp, Su)

**MKTG 235 Marketing Internship** 3

**Prerequisite:** Department Approval  
**Recommended:** Have Completed a Minimum of 30 Credits  
 Practical work experience in an approved business setting. Minimum of 160 hours work required. (F, Sp, Su)

**MTEC - MEDIA TECHNOLOGY****MTEC 110 Intro Broadcast/Elec Media** 4

**Prerequisite:** Reading Level 5 and Writing Level 6  
 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

**Prerequisite:** Reading Level 5 and Writing Level 6  
**Recommended:** Basic Computer Skills  
 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

**Prerequisite:** MTEC 120 2.0 minimum  
**Recommended:** Basic Computer Skills and MTEC 220  
 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

**Prerequisite:** MTEC 120 2.0 minimum  
 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

**Prerequisite:** Reading Level 5 and Writing Level 6  
 Survey of the radio broadcast industry including careers, qualifications, responsibilities, and station operation. Introduces basic studio production and on-air presentations. (F, Sp, Su)

<b>MTEC 150 TV Production I</b>	4	<b>MTEC 240 Script/Copywriting for Media</b>	3
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6 <b>Recommended:</b> Basic Computer Skills 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)		<b>Prerequisite:</b> MTEC 110 2.0 minimum and WRIT 121 2.0 minimum <b>Recommended:</b> Basic Computer Skills 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)	
<b>MTEC 152 Video Production Techniques</b>	3	<b>MTEC 241 Radio News Reporting</b>	3
<b>Prerequisite:</b> MTEC 150 2.0 minimum and (MTEC 120 2.0 minimum or Concurrently) and Reading Level 5 and Writing Level 6 Video Production Techniques is designed as an introductory experience to the process of single camera video production. This course will also provide the student with an introductory experience in linear videotape editing. Class sessions will contain instructional and performance exercises which are practical applications of the course content. (F, Sp)		<b>Prerequisite:</b> MTEC 130 2.0 minimum and WRIT 121 2.0 minimum <b>Recommended:</b> Basic Computer Skills 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)	
<b>MTEC 153 Video Post-Production Technqs</b>	3	<b>MTEC 242 Radio Sales and Marketing</b>	3
<b>Prerequisite:</b> MTEC 150 2.0 minimum and (MTEC 152 2.0 minimum or Concurrently) and Reading Level 5 and Writing Level 6 Video Post-Production Techniques is designed to provide the student with an extensive experience in both linear and non-linear post-production technologies. Learning activities within and outside the classroom are designed to provide a solid technical and creative foundation in the procedures used in the creation of video programming. (F, Sp)		<b>Prerequisite:</b> MTEC 110 2.0 minimum 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)	
<b>MTEC 220 Audio Production II</b>	4	<b>MTEC 243 Ethics/Social Impact of Media</b>	3
<b>Prerequisite:</b> MTEC 120 2.0 minimum <b>Recommended:</b> Basic Computer Skills 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)		<b>Prerequisite:</b> MTEC 110 2.0 minimum and WRIT 121 2.0 minimum <b>Recommended:</b> Basic Computer Skills 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)	
<b>MTEC 221 Audio Recording II</b>	4	<b>MTEC 250 TV Production II</b>	4
<b>Prerequisite:</b> MTEC 121 2.5 minimum <b>Recommended:</b> Basic Computer Skills 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)		<b>Prerequisite:</b> MTEC 150 2.0 minimum <b>Recommended:</b> Basic Computer Skills and MTEC 151 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)	
<b>MTEC 223 Sound Reinforcement Practicum</b>	2	<b>MTEC 251 Advanced Field Production</b>	4
<b>Prerequisite:</b> MTEC 122 2.5 minimum and Department Approval 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 bands that play in Riverfront Park on the Fourth of July. (Su)		<b>Prerequisite:</b> MTEC 151 2.0 minimum or (MTEC 152 2.0 minimum and MTEC 153 2.0 minimum) or IMAG 118 2.0 minimum and Reading Level 5 and Writing Level 6 <b>Recommended:</b> Basic Computer Skills 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)	
<b>MTEC 230 Radio Production II</b>	4	<b>MTEC 252 Lighting for Television/Video</b>	3
<b>Prerequisite:</b> MTEC 130 2.0 minimum <b>Recommended:</b> Basic Computer Skills Presentation of advanced studio and remote-production techniques. Emphasis on writing, producing, and performing for commercials, news, and sports programs. (F, Sp)		<b>Prerequisite:</b> (MTEC 150 2.0 minimum or THEA 111 2.0 minimum or IMAG 118 2.0 minimum) and Reading Level 5 and Writing Level 6 <b>Recommended:</b> MTEC 151 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)	
<b>MTEC 231 Radio Programming and Promo</b>	3	<b>MTEC 254 Electronic Presentat Graphics</b>	3
<b>Prerequisite:</b> MTEC 130 2.0 minimum <b>Recommended:</b> Basic Computer Skills 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)		<b>Prerequisite:</b> MTEC 150 2.0 minimum <b>Recommended:</b> Basic Computer Skills 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)	
<b>MTEC 232 Radio Workshop</b>	2	<b>MTEC 255 Video Workshop</b>	2
<b>Prerequisite:</b> MTEC 130 2.0 minimum and Department Approval <b>Recommended:</b> Basic Public Speaking Skills or SPCH 120 An opportunity for practical experience through access to the campus radio facility. Students work in a variety of station staff positions. (F, Sp, Su)		<b>Prerequisite:</b> MTEC 151 2.0 minimum and Department Approval <b>Recommended:</b> Basic Computer Skills 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 resume materials. (F, Sp, Su)	

<b>MTEC 290 Guided Independent Study</b>	1-4	<b>MUSC 103 Men's Ensemble</b>	1
<b>Prerequisite:</b> MTEC 110 2.0 minimum and MTEC 120 2.0 minimum and MTEC 130 2.0 minimum and MTEC 150 2.0 minimum and Department Approval		<b>Prerequisite:</b> None	
<b>Restriction:</b> Media Technology Majors		<b>Recommended:</b> Music Reading Skills	
<b>Recommended:</b> 75% of the way through Media Technology Program		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)	
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)			
<b>MTEC 295 Media Practicum</b>	3	<b>MUSC 105 Private Lesson I</b>	1
<b>Prerequisite:</b> MTEC 110 2.0 minimum and MTEC 120 2.0 minimum and MTEC 130 2.0 minimum and MTEC 150 2.0 minimum and Department Approval		<b>Prerequisite:</b> None	
<b>Restriction:</b> Media Technology Majors		<b>Restriction:</b> Music, Dance and Theatre Majors	
<b>Recommended:</b> 75% of the way through Media Technology Program		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)	
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)			
<b>MTEC 296 Media Internship</b>	3	<b>MUSC 106 Private Lesson II</b>	2
<b>Prerequisite:</b> MTEC 110 2.0 minimum and MTEC 120 2.0 minimum and MTEC 130 2.0 minimum and MTEC 150 2.0 minimum and Department Approval		<b>Prerequisite:</b> None	
<b>Restriction:</b> Media Technology Majors		<b>Restriction:</b> Music, Dance and Theatre Majors	
<b>Recommended:</b> 75% of the way through Media Technology Program		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)	
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)			
<b>MTEC 298 Special Projects</b>	1-4	<b>MUSC 108 Concert Choir</b>	1
<b>Prerequisite:</b> MTEC 110 2.0 minimum and MTEC 120 2.0 minimum and MTEC 130 2.0 minimum and MTEC 150 2.0 minimum and Department Approval		<b>Prerequisite:</b> None	
<b>Restriction:</b> Media Technology Majors		<b>Recommended:</b> Music Reading Skills	
<b>Recommended:</b> 75% of the way through Media Technology Program		A 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 toward a degree. (F, Sp)	
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)			
<b>MUSC - MUSIC</b>		<b>MUSC 119 Lansing Concert Band</b>	1
<b>MUSC 100 Summer Chorus</b>	5	<b>Prerequisite:</b> Instrumental Audition - Lansing Concert Band	
<b>Prerequisite:</b> None		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 attend live performances of the band. May be taken up to six semesters for credit. (F, Sp, Su)	
<b>Recommended:</b> Music Reading Skills			
An ensemble of 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)		<b>MUSC 121 Percussion Ensemble</b>	1
<b>MUSC 101 Lanswingers Vocal Ensemble</b>	1	<b>Prerequisite:</b> Instrumental Audition - Percussion	
<b>Prerequisite:</b> Vocal Audition - Lanswingers		<b>Recommended:</b> Music Reading Skills	
<b>Recommended:</b> Music Reading Skills		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)	
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)			
<b>MUSC 102 Women's Chorus</b>	1	<b>MUSC 123 Jazz Ensemble</b>	1
<b>Prerequisite:</b> None		<b>Prerequisite:</b> Jazz Ensemble Audition	
<b>Recommended:</b> Music Reading Skills		<b>Recommended:</b> Music Reading Skills	
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)		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)	
<b>MUSC 138 Class Piano Major I</b>	2	<b>MUSC 139 Class Piano Major II</b>	2
<b>Prerequisite:</b> Reading Level 5 and Writing Level 4		<b>Prerequisite:</b> MUSC 138 2.0 minimum and Reading Level 5 and Writing Level 4	
<b>Restriction:</b> Music Majors		<b>Restriction:</b> Music Majors	
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)		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)	
<b>MUSC 143 Beginning Piano I - Summer</b>	.5		
<b>Prerequisite:</b> 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)			

<b>MUSC 144 Beginning Piano I</b> 2	<b>MUSC 169 Intro to Musicianship II</b> 2
<b>Prerequisite:</b> Reading Level 3 and Writing Level 2 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)	<b>Prerequisite:</b> MUSC 168 2.0 minimum or Music Theory Placement Test 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)
<b>MUSC 145 Beginning Piano II</b> 2	<b>MUSC 179 Class Voice Major I</b> 1
<b>Prerequisite:</b> MUSC 144 2.0 minimum and Reading Level 3 and Writing Level 2 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)	<b>Prerequisite:</b> WRIT 121 2.0 minimum or (Reading Level 5 and Writing Level 6) <b>Restriction:</b> Music Majors 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)
<b>MUSC 154 Class Voice Commercial I-Summr</b> 1	<b>MUSC 180 Class Voice Major II</b> 1
<b>Prerequisite:</b> 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)	<b>Prerequisite:</b> MUSC 179 2.0 minimum and (WRIT 121 2.0 minimum or Reading Level 5 and Writing Level 6) <b>Restriction:</b> Music Majors 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)
<b>MUSC 155 Class Voice Commercial I</b> 2	<b>MUSC 181 Class Voice I - Summer</b> .5
<b>Prerequisite:</b> 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)	<b>Prerequisite:</b> 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)
<b>MUSC 156 Class Voice Commercial II</b> 2	<b>MUSC 182 Class Voice I</b> 1
<b>Prerequisite:</b> MUSC 155 2.0 minimum 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)	<b>Prerequisite:</b> 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)
<b>MUSC 157 Applied Lesson I</b> 2	<b>MUSC 183 Class Voice II</b> 1
<b>Prerequisite:</b> Music Major Audition <b>Restriction:</b> Music Majors 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)	<b>Prerequisite:</b> MUSC 182 2.0 minimum 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)
<b>MUSC 158 Applied Lesson II</b> 2	<b>MUSC 187 Class Guitar - Summer</b> 1
<b>Prerequisite:</b> MUSC 157 2.0 minimum or Music Major Audition <b>Restriction:</b> Music Majors 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)	<b>Prerequisite:</b> 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. (Su)
<b>MUSC 163 Aural Skills I</b> 1	<b>MUSC 188 Class Guitar</b> 2
<b>Prerequisite:</b> None This course allows students to develop their aural capacity through exercises in beginning melodic and rhythmic dictation. The ability to sing melodies on sight through the use of solfeggio will also be developed. This is the first of two courses in freshman aural skills. (F)	<b>Prerequisite:</b> 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)
<b>MUSC 164 Aural Skills II</b> 1	<b>MUSC 193 Basic Musicianship I</b> 3
<b>Prerequisite:</b> MUSC 163 2.0 minimum This course allows students to develop their aural skills through intermediate exercises in melodic and rhythmic dictation. The ability to sight sing melodies through the use of solfeggio continue to be developed. This course is the second in a sequence of two freshman music major requirements. (F)	<b>Prerequisite:</b> MUSC 168 2.0 minimum and Reading Level 5 <b>Co-requisite Course:</b> MUSC 163 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. It serves as a freshman requirement for a four-year college music degree. (F)
<b>MUSC 168 Intro to Musicianship I</b> 2	<b>MUSC 194 Basic Musicianship II</b> 3
<b>Prerequisite:</b> 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)	<b>Prerequisite:</b> MUSC 193 2.0 minimum and Reading Level 5 <b>Co-requisite Course:</b> MUSC 164 This course presents intermediate music theory principles including diatonic and chromatic harmony, four-part writing, counterpoint, basic music forms, and analysis. This course is second in a sequence of two. It serves as a freshman requirement for a four-year college music degree. (Sp)

<b>MUSC 199 Music Appreciation</b>	<b>2</b>	<b>MUSC 247 History of Rock and Roll</b>	<b>2</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 4 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)		<b>Prerequisite:</b> Reading Level 5 Survey of the origins, elements, developments, and reflections of Rock and Roll from its roots in the 1920s to the present. Major trends and artists are considered in stylistic, social, commercial, and global perspectives. Informed listening and comparative analyses reveal complex issues continuously redefining Rock music and its cultural legacy. (Sp)	
<b>MUSC 200 Music Fund for Elemen Teachers</b>	<b>3</b>	<b>MUSC 253 Business of Music</b>	<b>3</b>
<b>Prerequisite:</b> None <b>Recommended:</b> Music Reading Skills This course addresses the cognitive and performance music skills necessary for early childhood, elementary and special education majors. Successful teaching methods for singing and focused listening will be presented along with classroom performance on the piano and recorder. MUSC 200 may be taken as an elective. (F, Sp)		<b>Prerequisite:</b> None 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)	
<b>MUSC 219 Introduction to Music Therapy</b>	<b>3</b>	<b>MUSC 254 Band Management</b>	<b>2</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 4 An overview of the history, philosophy, and methodologies and practices of Music Therapy and the use of music in therapeutic aims of restoring, maintaining and improving both mental and physical health. Exploration and assessment of various clinical techniques and the disorders/patient populations they address. Off-campus field experiences required. (F, Sp)		<b>Prerequisite:</b> None 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)	
<b>MUSC 230 Directed Independent Study</b>	<b>1–2</b>	<b>MUSC 257 Applied Lesson III</b>	<b>2</b>
<b>Prerequisite:</b> Department Approval <b>Restriction:</b> Music Majors 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)		<b>Prerequisite:</b> MUSC 158 2.0 minimum or Music Major Audition <b>Restriction:</b> Music Majors 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)	
<b>MUSC 232 Music Seminar</b>	<b>1</b>	<b>MUSC 258 Applied Lesson IV</b>	<b>2</b>
<b>Prerequisite:</b> Department 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)		<b>Prerequisite:</b> MUSC 257 2.0 minimum or Music Major Audition <b>Restriction:</b> Music Majors 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)	
<b>MUSC 233 Music Seminar</b>	<b>2</b>	<b>MUSC 263 Aural Skills III</b>	<b>1</b>
<b>Prerequisite:</b> Department 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)		<b>Prerequisite:</b> MUSC 164 2.0 minimum This course is a continuation of the first year of aural skills training. The student will proceed to more advanced training in sight-singing and ear-training. This course is the first in a sequence of two sophomore level aural skills courses. (F)	
<b>MUSC 240 World Music History I</b>	<b>4</b>	<b>MUSC 264 Aural Skills IV</b>	<b>1</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6 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)		<b>Prerequisite:</b> MUSC 263 2.0 minimum Advanced training in aural skills will continue as this course is the second in a sequence of two sophomore aural skills courses. Melodic and harmonic dictation involving chromaticism and modulation will be studied, as well as more advanced sight-singing exercises. (Sp)	
<b>MUSC 241 World Music History II</b>	<b>4</b>	<b>MUSC 270 Rock Guitar I</b>	<b>1</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6 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)		<b>Prerequisite:</b> None 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)	
<b>MUSC 242 American Musical Theatre</b>	<b>2</b>	<b>MUSC 276 Lyric Writing</b>	<b>2</b>
<b>Prerequisite:</b> Reading Level 5 and Writing Level 4 Survey of the stylistic trends and developments in American Musical Theatre from its roots to the present with attention to musical, literary and dramatic forms. Stylistic, cultural and social perspectives of the repertory are explored through informed listening, multi-media lecture presentations, live performances and an active-learning environment. (F, Sp)		<b>Prerequisite:</b> Reading Level 5 and Writing Level 4 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)	
<b>MUSC 246 History of Blues and Jazz</b>	<b>2</b>	<b>MUSC 280 Private Songwriting</b>	<b>1</b>
<b>Prerequisite:</b> Reading Level 5 An overview of the emergence, development and relevance of two of America's most genuine musical artforms. Stylistic, cultural, and sociological investigations of such musics provide a mirror to the ever-changing popular American soundscape. Informed listening introduces: major creator/performers, genres, expressions, and reflections of an increasingly global and technological musical world. (Sp)		<b>Prerequisite:</b> Music Major Audition <b>Restriction:</b> Music Majors 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)	

**MUSC 293 Advanced Musicianship I** 3**Prerequisite:** MUSC 194 2.0 minimum and Reading Level 5**Co-requisite Course:** MUSC 263

This course is a continuation of elements of music theory acquired in MUSC 193 and 194. Students will learn advanced elements of harmony such as modulation, Phrygian II chords, augmented sixth chords, and chromatic voice leading techniques. Basic principles of musical form will be introduced. Students are required to attend live performances. (F)

**MUSC 294 Advanced Musicianship II** 3**Prerequisite:** MUSC 293 2.0 minimum and Reading Level 5**Co-requisite Course:** MUSC 264

MUSC 294 concerns the study of major classical forms including: variation, sonata, rondo, and concerto forms. Counterpoint, 19th Century harmony, jazz, set theory, and twelve-tone theory will be studied. This is the second of two sophomore level music theory courses. Students are required to attend live performances. (Sp)

**MUSC 297 Synthesizers & Computer Music** 2**Prerequisite:** None**Recommended:** Music Reading Skills

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)

**NURS - NURSING****NURS 150 Fundamentals in Nursing Care** 9**Prerequisite:** Admission to Nursing Program and Reading Level 5 and Writing Level 6

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)

**NURS 160 Acute Nursing Care** 6**Prerequisite:** NURS 150 2.5 minimum and NURS 200 2.5 minimum and PHGY 202 2.5 minimum and (PSYC 205 2.5 minimum or Concurrently)**Co-requisite Course:** NURS 165

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 are presented. Clinical in acute care hospital systems. (F, Sp)

**NURS 165 Maternity Nursing Care** 5**Prerequisite:** NURS 150 2.5 minimum and NURS 200 2.5 minimum and PHGY 202 2.5 minimum and (PSYC 205 2.5 minimum or Concurrently)**Co-requisite Course:** NURS 160

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 200 Pharmacology** 3**Prerequisite:** PHGY 202 2.0 minimum or Concurrently

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, Su)

**NURS 210 LPN-RN Transition** 2**Prerequisite:** Department Approval and Reading Level 5 and Writing Level 6**Recommended:** Current Work Experience and Current BCLS and OSHA

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 Mental Health Nursing Care** 5**Prerequisite:** NURS 160 2.5 minimum and NURS 165 2.5 minimum and PSYC 205 2.5 minimum**Co-requisite Course:** NURS 265

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 Pediatric Nursing Care** 5**Prerequisite:** NURS 160 2.5 minimum and NURS 165 2.5 minimum and PSYC 205 2.5 minimum**Co-requisite Course:** NURS 260

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 Advanced Chronic Nursing Care** 4**Prerequisite:** MICR 203 2.5 minimum and NURS 260 2.5 minimum and NURS 265 2.5 minimum**Co-requisite Courses:** NURS 285 and NURS 290**Recommended:** 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 Advanced Acute Nursing Care** 4**Prerequisite:** MICR 203 2.5 minimum and NURS 260 2.5 minimum and NURS 265 2.5 minimum**Co-requisite Courses:** NURS 280 and NURS 290

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 Leadership in Nursing Care** 3**Prerequisite:** MICR 203 2.5 minimum and NURS 260 2.5 minimum and NURS 265 2.5 minimum**Co-requisite Courses:** NURS 280 and NURS 285

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**Prerequisite:** None**Recommended:** WRIT 114 or Proficiency in English Grammar and Mechanics

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**Prerequisite:** None**Recommended:** (CABS 105 or CABS 113) and 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 150 Cert Pro Secretar (CPS) Rvw I** 3**Prerequisite:** None**Recommended:** Experience as Professional Secretary

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 Cert Pro Sec (CPS) Rvw II** 3**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 Work Place** 3**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**Prerequisite:** Reading Level 3

This course provides a medical language foundation that students need for jobs in the healthcare industry. Emphasis includes spelling, definition structure, and concepts of medical terminology using a body-systems approach. Anatomy, physiology, pathology, and diagnostic terms are presented within a framework of infant-to-seniors health care. (F, Sd)

**OADM 198 Health Information Management** 3**Prerequisite:** None**Recommended:** OADM 197 or Equivalent

This course is a study of the diverse settings of health information management. Topics include coding and classification, computerized information systems in health care, quality assurance and utilization management, risk management and legal issues. Developments in telemedicine, health informatics, and other new trends will be introduced. (Sd)

**OADM 200 Critical Thinking** 3**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, Sd)

**OADM 203 Professional Office Procedures** 2**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. (F, Sd)

**OADM 206 Legal Vocabulary and Form Prep** 3**Prerequisite:** None**Recommended:** Word Processing Experience

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. (Sd)

**OADM 207 Medical Transcription** 3**Prerequisite:** None**Recommended:** (OADM 197 or CHSE 121) and (ANAT 145 or ANAT 151) and Typing Experience

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)

**OADM 215 Records and Info Management I** 3**Prerequisite:** None

Presents an overview of records management and how control over documents is maintained at each stage of the records cycle from creation to disposition; complete coverage of all records methods and indexing rules for alphabetic, subject, geographic, and numeric; selection of proper equipment; computer applications modules using various database applications; procedures for control of an automated records technology in a systems environment. (F, Sd, Su)

**OADM 216 Records and Info Management II** 4**Prerequisite:** None**Recommended:** OADM 215

This course provides an in-depth study including the essentials of establishing and/or evaluating an existing records management program from preparing an inventory, developing a retention schedule, developing a disaster recovery plan for records to long term archival storage for electronic as well as paper media; managing, analyzing, designing paper and electronic forms; micrographic and optical disk systems in use; emphasis is placed on use of records management software and database management. (Sd)

**OADM 220 Administrative Office Mgmt** 4**Prerequisite:** Reading Level 3 and Writing Level 4

This course emphasizes the principles of office management for an ever-changing, culturally diverse staff. Topics deal with managing and controlling administrative services in a workplace including office functions, job analysis, ergonomic planning, designing, installing, and evaluating improvements in office systems. (F, Sd)

**OADM 222 Advanced Medical Transcription** 4**Prerequisite:** OADM 207 2.0 minimum

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. (Sd)

**OADM 240 Office Internship** 3**Prerequisite:** None**Recommended:** See Internship Coordinator Before Registering

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, Sd, Su)

**OADM 275 Cultural Differences in Busn** 3**Prerequisite:** Reading Level 5 and Writing Level 4

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, Sd)

**PARA - PARAMEDIC****PARA 221 Paramedic Medical Trauma I** 4**Prerequisite:** Admission to Paramedic Program and Reading Level 5 and Writing Level 6 and Math Level 3

**Co-requisite Courses:** PARA 231 and PARA 241 and PARA 251 and PARA 261  
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)

**PARA 222 Paramedic Medical Trauma II** 4**Prerequisite:** PARA 221 3.0 minimum**Co-requisite Courses:** PARA 232 and PARA 242 and PARA 252 and PARA 262 and PARA 263

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)

**PARA 231 Paramedic Cardiology I** 2**Prerequisite:** Admission to Paramedic Program

**Co-requisite Courses:** PARA 221 and PARA 241 and PARA 251 and PARA 261  
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)

**PARA 232 Paramedic Cardiology II** 2  
**Prerequisite:** PARA 231 3.0 minimum  
**Co-requisite Courses:** PARA 222 and PARA 242 and PARA 252 and PARA 262 and PARA 263  
 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)

**PARA 241 Paramedic Pharmacology I** 2  
**Prerequisite:** Admission to Paramedic Program  
**Co-requisite Courses:** PARA 221 and PARA 231 and PARA 251 and PARA 261  
 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)

**PARA 242 Paramedic Pharmacology II** 2  
**Prerequisite:** PARA 241 3.0 minimum  
**Co-requisite Courses:** PARA 222 and PARA 232 and PARA 252 and PARA 262 and PARA 263  
 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)

**PARA 251 Paramedic Skills I** 2  
**Prerequisite:** Admission to Paramedic Program  
**Co-requisite Courses:** PARA 221 and PARA 231 and PARA 241 and PARA 261  
 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)

**PARA 252 Paramedic Skills II** 2  
**Prerequisite:** PARA 251 3.0 minimum  
**Co-requisite Courses:** PARA 222 and PARA 232 and PARA 242 and PARA 262 and PARA 263  
 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)

**PARA 261 Paramedic Clinical I** 3  
**Prerequisite:** Admission to Paramedic Program  
**Co-requisite Courses:** PARA 221 and PARA 231 and PARA 241 and PARA 251  
 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; Psych unit simulations on-campus; and designated EMS agencies under licensed paramedics. (F)

**PARA 262 Paramedic Clinical II** 4  
**Prerequisite:** PARA 261 3.0 minimum  
**Co-requisite Courses:** PARA 222 and PARA 232 and PARA 242 and PARA 252 and PARA 263  
 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)

**PARA 263 Paramedic Internship** 3  
**Prerequisite:** PARA 221 3.0 minimum and PARA 231 3.0 minimum and PARA 241 3.0 minimum and PARA 251 3.0 minimum and PARA 261 3.0 minimum  
**Co-requisite Courses:** PARA 222 and PARA 232 and PARA 242 and PARA 252 and PARA 262  
 This course provides field internship with paramedic agency and testing for certification in Advanced Cardiac Life Support. (Sp)

**PFAQ - PHYSICAL FITNESS: AQUATICS**

**PFAQ 100 Swimming: Primary Skills** 1  
**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  
**Prerequisite:** None  
**Recommended:** 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 104 Swimming/Training** 1  
**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  
**Prerequisite:** None  
**Recommended:** PFAQ 104  
 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  
**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  
**Prerequisite:** None  
 This course utilizes stationary water exercises and water games to improve cardiovascular fitness and flexibility. No swimming skills required. (F, Sp, Su)

**PFAQ 110 Hydro-Fit Exercise I** 1  
**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  
**Prerequisite:** None  
**Recommended:** 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  
**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 114 Parent/Infant Water Adjustment** .5  
**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)

**PFAQ 115 Parent/Toddler Water Adjustmnt** .5  
**Prerequisite:** None  
**Recommended:** 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)

**PFAQ 116 Parent/Child Swim** .5  
**Prerequisite:** None  
**Recommended:** 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 instructor's approval. (F, Sp)



**PFAQ 118 Arthritis Aquatics** 1  
**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. Arthritis Foundation approved program. (F, Sp)

**PFAQ 119 Scuba Certification Class** 1  
**Prerequisite:** PFAQ 112 2.0 minimum or PFAF 112 2.0 minimum  
 This course is designed to allow students who have completed scuba 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  
**Prerequisite:** None  
 This course is designed to introduce the student to basic skills and theories in foil fencing. Course emphasis is placed on basic skills such as advance, retreat, lunge, disengage, coupé, one-two doublé, riposte, counter parry and riposte, and advance-lunge. Group instruction is used. (F, Sp, Su)

**PFCW 101 Fencing: Intermediate** 1  
**Prerequisite:** PFCW 100 2.0 minimum  
 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 103 Judo: Beginning** 1  
**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  
**Prerequisite:** None  
**Recommended:** 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  
**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  
**Prerequisite:** None  
**Recommended:** PFCW 105  
 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  
**Prerequisite:** None  
**Recommended:** PFCW 105 or PFCW 106  
 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  
**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 their own with emphasis on weight reduction, muscle strengthening, and body building. (F, Sp, Su)

**PFCW 109 Body Building: Introduction** 1  
**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  
**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  
**Prerequisite:** None  
**Recommended:** PFCW 108 or PFCW 110  
 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. (Sp, Su)

#### PFDA - PHYSICAL FITNESS: DANCE COURSES

**PFDA 142 Ballroom Swing I** 1  
**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 147 Latin Ballroom I** 1  
**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  
**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  
**Prerequisite:** None  
**Recommended:** 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 158 Line Dancing** 1  
**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)

#### PFFT - PHYSICAL FITNESS: FITNESS COURSES

**PFFT 100 Total Fitness A** 2  
**Prerequisite:** None  
 This course is a comprehensive fitness course with a view toward the whole person. Students will be given a fitness assessment including aerobic capacity and strength. Students will develop an exercise plan tailored to their individual needs, with the guidance and supervision of their instructor. (F, Sp, Su)

**PFFT 101 Total Fitness B** 2  
**Prerequisite:** None  
 This course views the whole person's fitness needs. Students will be given a fitness assessment, including aerobic capacity, body composition, flexibility, and strength. Students will receive a computer-generated exercise plan tailored to individual needs. Nutritional aspects of health will be discussed. (F, Sp, Su)

**PFFT 102 Total Fitness C** 2  
**Prerequisite:** None  
 This course is a comprehensive fitness course with a view of the whole person. Students will be given a fitness assessment, including aerobic capacity, body composition, circuit-training, and strength. Students will receive a computer-generated exercise plan tailored to individual needs. Nutritional aspects of health will be discussed as well as stress reduction techniques. (F, Sp, Su)

<b>PFHT 103 Total Fitness D</b>	<b>2</b>
<b>Prerequisite:</b> None	
This course involves students in planning a fitness regimen. Students will be given a fitness assessment, including aerobic capacity, body composition, flexibility, and strength. Students will receive a computer-generated exercise plan tailored to individual needs. Nutritional aspects of health and stress reduction techniques will be discussed as part of daily lifestyles. (F, Sp, Su)	
<b>PFHT 105 Aerobic Walking</b>	<b>2</b>
<b>Prerequisite:</b> 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)	
<b>PFHT 107 Jogging: Beginning</b>	<b>1</b>
<b>Prerequisite:</b> 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)	
<b>PFHT 111 Aerobic Boxing</b>	<b>.5</b>
<b>Prerequisite:</b> None	
This course will teach the art of self-defense while improving your aerobic and anaerobic capacity. (F, Sp, Su)	
<b>PFHT 112 Body Flexibility</b>	<b>1</b>
<b>Prerequisite:</b> None	
This course is designed to increase body flexibility by learning proper stretching techniques and applying these techniques to increase range of motion and muscle flexibility. (F, Sp, Su)	
<b>PFHT 113 Tone and Stretch</b>	<b>1</b>
<b>Prerequisite:</b> None	
This course combines calisthenics and stretching. Students will use floor exercises to tone muscles and increase flexibility. Proper stretching techniques will be emphasized. Students will examine which muscle groups are being worked. (F, Sp, Su)	
<b>PFHT 114 Advanced Circuit Training</b>	<b>2</b>
<b>Prerequisite:</b> None	
<b>Co-requisite Courses:</b> CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268	
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)	
<b>PFHT 120 Aerobic Exercise</b>	<b>2</b>
<b>Prerequisite:</b> 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)	
<b>PFHT 122 Step Aerobics</b>	<b>2</b>
<b>Prerequisite:</b> 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)	
<b>PFHT 136 Dance Exercise</b>	<b>1</b>
<b>Prerequisite:</b> 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**

<b>PFHC 151 Cardiac Rehab Exercise</b>	<b>3</b>
<b>Prerequisite:</b> Department 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**

<b>PFHW 100 Health and Wellness Seminar</b>	<b>.5-2</b>
<b>Prerequisite:</b> None	
This course introduces the student to eight hours of various topics related to health awareness, wellness, and/or prevention. (F, Sp, Su)	
<b>PFHW 105 Med Alternatives/HiIt &amp; Wins</b>	<b>2</b>
<b>Prerequisite:</b> 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)	
<b>PFHW 109 Emergency Services Fitness I</b>	<b>1</b>
<b>Prerequisite:</b> None	
<b>Restriction:</b> Emergency Medical Services, Paramedic or Fire Science 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, Su)	
<b>PFHW 110 Emergency Services Fitness II</b>	<b>1</b>
<b>Prerequisite:</b> None	
<b>Restriction:</b> Emergency Medical Services, Paramedic or Fire Science 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)	
<b>PFHW 111 Emergency Services Fitness III</b>	<b>1</b>
<b>Prerequisite:</b> None	
<b>Restriction:</b> Emergency Medical Services, Paramedic or Fire Science 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)	
<b>PFHW 112 Emergency Services Fitness IV</b>	<b>1</b>
<b>Prerequisite:</b> None	
<b>Restriction:</b> Emergency Medical Services, Paramedic or Fire Science 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)	
<b>PFHW 123 Human Nutrition</b>	<b>3</b>
<b>Prerequisite:</b> Reading Level 5	
<b>Recommended:</b> Biology	
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, Su)	
<b>PFHW 161 Self-Awareness: Key to Winess</b>	<b>2</b>
<b>Prerequisite:</b> None	
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)	
<b>PFHW 163 Healthy Lifestyles</b>	<b>2</b>
<b>Prerequisite:</b> None	
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)	
<b>PFHW 169 Fit for Life Exercise</b>	<b>1</b>
<b>Prerequisite:</b> None	
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)	
<b>PFHW 181 Stress Management</b>	<b>1</b>
<b>Prerequisite:</b> None	
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 261 Adult Lifestyles Exercise** 2  
**Prerequisite:** Current Fitness Evaluation and Department Approval  
 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)

**PFIS - PHYSICAL FITNESS: INDIVIDUAL SPORT/INTEREST**

**PFIS 100 Bowling: Beginning** 1  
**Prerequisite:** None  
 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)

**PFIS 102 Bowling: Advanced** 1  
**Prerequisite:** None  
**Recommended:** PFIS 100 or PFIS 101  
 This course is an extensive review of skills introduced at the beginning and intermediate levels. Students develop strategies in lane reading. (F, Sp, Su)

**PFIS 103 Golf: Beginning** 1  
**Prerequisite:** None  
 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)

**PFIS 105 Golf: Intermediate** 1  
**Prerequisite:** None  
**Recommended:** PFIS 103  
 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  
**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)

**PFIS 109 Pool: Intermediate** 1  
**Prerequisite:** None  
**Recommended:** PFIS 108  
 This course reviews the fundamentals of stance, grip, bridge, aim, and stroke. Skill improvement and concentration techniques are stressed. (F, Sp)

**PFIS 111 Table Tennis: Beginning** 1  
**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  
**Prerequisite:** None  
**Recommended:** PFIS 111  
 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  
**Prerequisite:** None  
**Recommended:** 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  
**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  
**Prerequisite:** None  
**Recommended:** PFIS 115  
 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 119 Bicycling Camping/Touring** 1  
**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  
**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. (F, Sp, Su)

**PFIS 121 Tai Chi II** 1  
**Prerequisite:** None  
**Recommended:** 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  
**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  
**Prerequisite:** None  
**Recommended:** PFIS 122  
 This course presents the 6th KYU forms through the 3rd KYU techniques. This course examines the philosophical underpinnings of Aikido. (F, Sp, Su)

**PFIS 124 Yoga: Beginning** 1  
**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  
**Prerequisite:** None  
**Recommended:** PFIS 124  
 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  
**Prerequisite:** None  
 This course teaches modified and adaptive yogic breathing and stretching exercises to enhance the body's mobility of the movement-handicapped person. Feldenkeis 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 131 Seminar: Special Subjects** .5-3  
**Prerequisite:** None  
 Seminars are designed to meet specific community needs. (F, Sp, Su)

**PFIS 134 Theory and Practice of Yoga** 2  
**Prerequisite:** None  
**Recommended:** PFIS 124  
 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 139 Therapeutic Touch and Yoga 3****Prerequisite:** None**Recommended:** PFIS 134

This course will combine the theories and practices of yoga and Therapeutic Touch (TT). Each class will provide practice in the Theory of Energy as it applies to the individual learner and as an agent of healing. Balanced with TT will be physical postures, breathing and relevant research and theory. (F, Sp)

**PFIS 145 Parent/Child Tumbling I .25****Prerequisite:** None

This course introduces basic tumbling skills to work toward greater motor skill development through tumbling, stretching, balancing skills, and controlled movement. This class is designed for ages 3-4 years. (F, Sp)

**PFIS 146 Parent/Child Tumbling II .25****Prerequisite:** None**Recommended:** 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. This class is designed for children ages 5 years and up or for those who have completed Parent/Child Tumbling I. (F, Sp)

**PFIS 147 Basketball Fitness Training 2****Prerequisite:** None

This course is not a traditional basketball class. Participants will be in a workout class that will have an emphasis on conditioning using basketball drills and basketballs. Class activities will include running, continuous movement, shooting, defensive slides, and dribbling. (F, Sp)

**PFIS 201 Independent Study .5-4****Prerequisite:** None

This course is a directed research project in the area of physical education, recreation, or athletics. (F, Sp, Su)

**PFKN - PHYSICAL FITNESS: KINESIOLOGY****PFKN 170 Foundations of Kinesiology 2****Prerequisite:** Reading Level 5 and Writing Level 6

This is an introductory professional course in Kinesiology, which examines the multiple aspects of physical education and Kinesiology as a discipline, major, and profession. Sub-disciplines and career options in the field, along with historical perspectives and current issues in physical education, will also be discussed. (F, Sp)

**PFKN 260 Growth and Motor Behavior 3****Prerequisite:** Reading Level 5 and Writing Level 6

This is a fundamental course which investigates the relationship between biological maturation and physical growth as it relates to motor performance and motor skills learning. The course will also cover fundamentals of motor learning, stages of skill acquisition, physical fitness, and motor abilities of children and youth. (F, Sp)

**PFOA - PHYSICAL FITNESS: OUTDOOR ACTIVITY****PFOA 105 Angling: Beginning 1****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****Prerequisite:** None

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 Sem: Wilderness Survival Tech 3****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****Prerequisite:** None

This course introduces 77 kinds of edible wild plants and their toxic look-a-likes 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)

**PFPR - PHYSICAL FITNESS: PROFESSIONAL COURSES****PFPR 103 Athletic Training I 2****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****Prerequisite:** PFPR 103 2.0 minimum or PEAA 103 2.0 minimum

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****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 Inst Trning & Cert 3****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 110 Coaching Basketball 2****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****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****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****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****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****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****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 102 Basketball: Advanced** 1  
**Prerequisite:** None  
**Recommended:** PFTS 100  
 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  
**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)
- PFTS 105 Competitive Volleyball** 1  
**Prerequisite:** None  
**Recommended:** PFTS 103  
 Students in this advanced class will improve the following basic individual skills: forearm passing, setting, serving, spiking, and blocking. Team strategies and player positioning will be taught in detail. (F, Sp)
- PFTS 107 Indoor Soccer** 1  
**Prerequisite:** None  
 This course is designed to introduce students to the basics of indoor soccer. Passing and shooting drills are emphasized along with team play. Modifications to soccer rules are used to accommodate indoor soccer rules. (F, Sp, Su)

**PHGY - PHYSIOLOGY**

- PHGY 202 Human Physiology** 4  
**Prerequisite:** ANAT 201 2.0 minimum and Reading Level 5 and Writing Level 6  
**Recommended:** Chemistry and BIOL 121  
 The physiology, regulation, and biochemistry of the various organ systems in the human body are 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 Intro: Logic & Critical Think** 4  
**Prerequisite:** Reading Level 5  
 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  
**Prerequisite:** Reading Level 5  
 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  
**Prerequisite:** Reading Level 5  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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** 1-4  
**Prerequisite:** Department 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  
**Prerequisite:** Reading Level 1 and Writing Level 1  
 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  
**Prerequisite:** Math Level 4  
 This course includes the basic principles of force, work, rate, resistance, energy and power as applied to the four energy systems: these are mechanical (linear and rotational), fluid (liquid and gases), electrical and thermal systems. These four systems are developed by utilizing unifying concepts through mathematical expressions. (F, Sp)
- PHYS 201 Introductory Physics I** 4  
**Prerequisite:** (MATH 122 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 6  
 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  
**Prerequisite:** PHYS 201 2.0 minimum and Math Level 8  
 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)
- PHYS 215 Physics I: Mechanics** 5  
**Prerequisite:** MATH 152 2.0 minimum or Concurrently and Reading Level 5  
 First in a two-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 Phys II: Electrom/Wave/Optic** 5  
**Prerequisite:** PHYS 215 2.0 minimum and MATH 152 2.0 minimum  
 Second in a two-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)

**PHYS 225 Physics I Laboratory** 1  
**Prerequisite:** (PHYS 201 2.0 minimum or Concurrently) or (PHYS 215 2.0 minimum or Concurrently) and Reading Level 5  
**Recommended:** Experience with MS Excel or Equivalent Spreadsheet Software 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  
**Prerequisite:** (PHYS 202 2.0 minimum or Concurrently) or (PHYS 216 2.0 minimum or Concurrently) and PHYS 225 2.0 minimum  
**Recommended:** Experience with MS Excel or Equivalent Spreadsheet Software 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)

**POLS - POLITICAL SCIENCE**

**POLS 120 American Political System** 4  
**Prerequisite:** Reading Level 5  
 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  
**Prerequisite:** Reading Level 5  
 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  
**Prerequisite:** None  
 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  
**Prerequisite:** None  
 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  
**Prerequisite:** Reading Level 5  
 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 Amer Pol Parties/Interest Grps** 3  
**Prerequisite:** Reading Level 5  
 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  
**Prerequisite:** Reading Level 5  
 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, Sp, Su)

**POLS 270 International Relations** 3  
**Prerequisite:** Reading Level 5  
 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 Indep Study in Political Sci** 1-4  
**Prerequisite:** Department 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 Psych of Death:Prep for Living** 3  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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, intelligence, development, learning, personality, abnormality, therapy, and social behavior. (F, Sp, Su)

**PSYC 202 Psychology of Personality** 3  
**Prerequisite:** PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4  
 A survey of the leading theories of personality and personality development. Topics include Freudian/psychodynamic, trait, behavioral, humanistic, and Yoga/Buddhist theories, assessment of personality, and major personality theorists. (F, Sp, Su)

**PSYC 203 Social Psychology** 3  
**Prerequisite:** (PSYC 200 1.0 minimum or SOCL 120 1.0 minimum) and Reading Level 5 and Writing Level 4  
 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, Sp)

**PSYC 204 Educational Psychology** 3  
**Prerequisite:** PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4  
 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 of odd years)

**PSYC 205 Human Growth and Development** 3  
**Prerequisite:** PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4  
 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  
**Prerequisite:** PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4  
 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. (F)

**PSYC 210 Brain and Behavior** 3  
**Prerequisite:** (PSYC 200 1.0 minimum or BIOL 121 1.0 minimum or BIOL 127 1.0 minimum) and Reading Level 5 and Writing Level 4  
 Brain and Behavior integrates psychology and biology, emphasizing how the nervous system controls behavior. The course provides an examination of the structure and function of the nervous system and the neurobiological bases of mental illness, drug abuse, movement, sleep, memory, feeding and drinking, sensory processing, and neurological disorders. (Sp)

**PSYC 221 Child Psychology** 3  
**Prerequisite:** PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4  
 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)

**PSYC 222 Adolescent Psychology** 3  
**Prerequisite:** PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 An exploration of psychological aspects of human sexuality, including research methods, response, identity, development, attraction and intimacy, communication, orientation, attitudes, diseases, and disorders. (F)

**PSYC 250 Abnormal Psychology** 3  
**Prerequisite:** PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4  
 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, Su)

**PSYC 295 Independ Study in Psychology** 1-4  
**Prerequisite:** Department 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)

**PVAA - PROPERTY VALUATION AND ASSESSMENT ADMINISTRATION**

**PVAA 286 Applied Appraisal Concepts I** 1  
**Prerequisite:** None  
**Recommended:** Level 1 State Certification  
 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  
**Prerequisite:** None  
**Recommended:** Level 1 State Certification  
 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  
**Prerequisite:** None  
**Recommended:** Level 1 State Certification  
 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  
**Prerequisite:** None  
**Recommended:** Level 1 State Certification  
 Advanced study of the appraisal concepts utilized in the appraisal of income-producing properties. (Sp)

**QUAL - QUALITY ASSURANCE**

**QUAL 100 Intro Quality Assurance** 4  
**Prerequisite:** None  
 This course examines the evolution and leaders of total quality management and introduces the concept of continuous improvement of processes, products and services. Practical techniques and methods for evaluating and improving quality and the organizational requirements for managing quality are included. (F, Sp)

**QUAL 103 Probability/Stats Qual Assur** 4  
**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. Computer applications are included. (F, Sp)

**QUAL 104 Process Control Charting** 3  
**Prerequisite:** QUAL 103 1.5 minimum  
 This course examines the theory, selection, application and interpretation of variable and attribute control charts, including charts for small runs, target control charts and multiple characteristic control charts. Application of control charts include both manufacturing and service examples. (Sp)

**QUAL 107 Problem-Solving Techniques** 3  
**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  
**Prerequisite:** QUAL 103 1.5 minimum  
 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 Intro Statistical Process Cont** 3  
**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/Customer Satis** 3  
**Prerequisite:** None  
 Students strengthen abilities to discover, design and deliver service to customers at levels representing high perceived quality and value and successful competitive positioning for business. Includes foundation concepts of quality, customer service, business operations and planning, customer and market segmentation, customer expectations, service delivery, service quality and business effectiveness evaluation. (F)

**QUAL 135 Measure/Gage Geom Tolerances** 3  
**Prerequisite:** QUAL 115 1.0 minimum  
**Recommended:** Knowledge and Prior Usage of Measuring Equipment  
 This course is designed to develop skills in people who inspect end products using geometric tolerances. Students are expected to already understand how to use and care for standard measuring equipment. Inspection methods for geometric symbols start with sample drawings, selection of appropriate equipment and step-by-step instructions for measuring the part. (Sp, Su)

**QUAL 200 Quality Improvement Teams** 4  
**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 Systems Management** 4  
**Prerequisite:** None  
**Recommended:** QUAL 100 or Work Experience in Quality  
 This course focuses on developing, managing and implementing quality assurance systems. Course material and assignments are designed to develop student skills in intracompany, supplier and customer quality relationships including quality planning, quality manual procedure and job instruction development, communication, training and preparation for quality certification programs and continuous improvement. (Sp)

<b>QUAL 205 Cost of Quality</b>	3
<b>Prerequisite:</b> None	
<b>Recommended:</b> Previous Course Work in Quality	
This course introduces the student to definition and philosophy related to the calculation of quality costs through typical accounting methods to common quality practices. Basic financial concepts, benefits and problems related to cost data collection and analysis, trend analysis, planning and reducing costs are included. (Sp)	
<b>QUAL 209 Reliability</b>	3
<b>Prerequisite:</b> QUAL 103 1.5 minimum	
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. (F)	
<b>QUAL 212 Applied Stats/Qual Assur</b>	4
<b>Prerequisite:</b> QUAL 103 1.5 minimum	
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)	
<b>QUAL 215 Experimental Design in QA</b>	4
<b>Prerequisite:</b> QUAL 212 1.5 minimum	
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)	
<b>QUAL 224 Supervisory Skills for Quality</b>	3
<b>Prerequisite:</b> None	
<b>Recommended:</b> Work Experience or Previous Quality Courses	
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)	
<b>QUAL 239 Qual Plan/Project Management</b>	4
<b>Prerequisite:</b> None	
<b>Recommended:</b> Work Experience or Previous Quality Courses	
This course develops skills for planning quality processes, products and service, and managing projects. Development of quality control plans, FMEAs, OFD, Gantt charts and other tools for project management, and the planning and managing of projects are included. (Sp)	
<b>QUAL 242 Quality Auditing</b>	3
<b>Prerequisite:</b> None	
<b>Recommended:</b> Understanding of ISO9000 or QS9000	
This course is designed to develop quality auditing skills starting with required quality standards to plan quality audits, evaluate quality system documentation and practices and write audit reports. (F, Sp)	
<b>QUAL 251 Current Qual Assur Topics</b>	1
<b>Prerequisite:</b> QUAL 100 1.0 minimum	
A study of specific topics affecting quality assurance practices. This course is designed to expose students to the latest theories and practices in the areas of customer requirements, problem solving, quality management, measurement and statistics. Course format will include lectures, discussion, demonstration and hands-on experiences. (F, Sp, Su)	
<b>QUAL 252 Current QA Topics II</b>	2
<b>Prerequisite:</b> QUAL 100 1.0 minimum	
A study of specific topics affecting quality assurance practices. This course is designed to expose students to the latest theories and practices in the areas of customer requirements, problem solving, quality management, measurement and statistics. Course format will include lectures, discussion, demonstration and hands-on experiences. (F, Sp, Su)	

**READ - READING**

<b>READ 100 Reading Clinic IA</b>	4
<b>Prerequisite:</b> Reading Level 1 and Writing Level 1	
A four credit course designed to teach fundamental reading skills. Provides small group and one-to-one instruction to improve reading skills and confidence. For students whose reading skills range from pre-literate to basic literacy. (May repeat for credit three times.) (F, Sp, Su)	

<b>READ 101 Reading Clinic IIA</b>	4
<b>Prerequisite:</b> Reading Level 1 and Writing Level 1	
A four credit course designed to teach fundamental reading skills. Provides small group and one-to-one instruction to improve reading skills and confidence. For students whose reading skills range from pre-literate to basic literacy. (May repeat for credit three times.) (F, Sp, Su)	
<b>READ 104 Reading Skills IA</b>	4
<b>Prerequisite:</b> Reading Level 1 and Writing Level 1	
A four credit course designed to teach fundamental reading skills. Provides small group and one-to-one instruction to improve reading skills and confidence. For students whose reading skills range from pre-literate to basic literacy. (May repeat for credit three times.) (F, Sp, Su)	
<b>READ 105 Reading Skills IIA</b>	4
<b>Prerequisite:</b> Reading Level 1 and Writing Level 1	
A four credit course designed to teach fundamental reading skills. Provides small group and one-to-one instruction to improve reading skills and confidence. For students whose reading skills range from pre-literate to basic literacy. (May repeat for credit three times.) (F, Sp, Su)	
<b>READ 108 Individualized Reading A</b>	4
<b>Prerequisite:</b> Reading Level 3 and Writing Level 2	
A four credit course 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. (May repeat for credit three times.) (F, Sp, Su)	
<b>READ 109 Individualized Reading B</b>	3
<b>Prerequisite:</b> Reading Level 3 and Writing Level 2	
A three credit course 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. (May repeat for credit three times.) (F, Sp, Su)	
<b>READ 111 Reading: Essential Strategies</b>	4
<b>Prerequisite:</b> Reading Level 3 and Writing Level 1	
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, vocabulary development, improving comprehension, drawing conclusions from implied meaning, and application of techniques to insure academic survival. (F, Sp, Su)	
<b>READ 114 Reading Skills</b>	4
<b>Prerequisite:</b> Reading Level 3 and Writing Level 2	
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)	
<b>READ 116 Reading Comprehension</b>	4
<b>Prerequisite:</b> Reading Level 3 and Writing Level 4	
Designed to extend beyond reading comprehension at the literal level, develop inferential ability and recognition of structure and expository patterns in reading and increase reading rate for greater reading efficiency. Additionally, attention is given to vocabulary improvement, multiple purposes of reading, importance of flexibility in reading, and increased concentration. (F, Sp, Su)	
<b>READ 165 Critical Reading</b>	2
<b>Prerequisite:</b> Reading Level 5 and Writing Level 4	
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)	
<b>READ 175 Speed Reading - Adv Vocabulary</b>	2
<b>Prerequisite:</b> Reading Level 5 and Writing Level 4	
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  
**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  
**Prerequisite:** None  
**Recommended:** REAL 271 or REAL 274  
 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  
**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  
**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  
**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  
**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  
**Prerequisite:** None  
**Recommended:** REAL 271 or REAL 274  
 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)

**RELG - RELIGION**

- RELG 211 World Religions I** 4  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 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)

**SCIN - SCIENCE TECHNOLOGY INTERNSHIP**

- SCIN 287 Internship in Science Technolo** 4  
**Prerequisite:** CHEM 151 2.0 minimum and CHEM 161 2.0 minimum and Department Approval  
 This course provides on-the-job training for an applied degree in science technology. Placement is made at an approved training site to earn credits for satisfactory work performance. This internship may be a paid or unpaid work experience. Students will apply knowledge and skills learned in academic courses to real world situations. (F, Sp, Su)

**SCIS - SCIENCE SEMINARS**

- SCIS 297 Independent Study in Science** 1-4  
**Prerequisite:** Department 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  
**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 118 Stretching Your Dollars** 2  
**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  
**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  
**Prerequisite:** None  
 Career Bridge enhances a smooth transition to college course work by 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)

<b>SDEV 124 Techniques of Study</b> 2	<b>SDEV 156 I'm OK/You're OK</b> 2
<b>Prerequisite:</b> None	<b>Prerequisite:</b> 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, notetaking, reading and memory strategies, library use, and taking exams. A valuable aid for beginning and advanced students. (F, Sp, Su)	This course shows the basic concepts related to transactional analysis 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)
<b>SDEV 125 Career Planning</b> 2	<b>SDEV 157 Single Parenting</b> 2
<b>Prerequisite:</b> None	<b>Prerequisite:</b> 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)	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)
<b>SDEV 126 Self-Defeating Behavior</b> 2	<b>SDEV 169 Women as Winners</b> 1
<b>Prerequisite:</b> None	<b>Prerequisite:</b> None
The goal of this course is to learn how self-defeating behaviors begin and are maintained, and how they can be eliminated. 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)	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)
<b>SDEV 128 Career Research</b> 1	<b>SDEV 171 Rational Living</b> 2
<b>Prerequisite:</b> None	<b>Prerequisite:</b> 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)	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)
<b>SDEV 130 Job Search Skills</b> 1	<b>SDEV 173 Breaking the Codependency Trap</b> 2
<b>Prerequisite:</b> None	<b>Prerequisite:</b> 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)	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)
<b>SDEV 142 Assertiveness I</b> 2	<b>SDEV 190 Success Group</b> 1
<b>Prerequisite:</b> None	<b>Prerequisite:</b> None
This course teaches assertiveness. Assertiveness is behavior where a person expresses her or his opinions, feelings, beliefs, wants, personal rights, and values in a way that respects the rights of others. Techniques covered teach participants to identify and practice exercising interpersonal rights and assertive skills. (F, Sp, Su)	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)
<b>SDEV 145 Organizing Time</b> 2	<b>SDEV 192 Counseling for College Success</b> 2
<b>Prerequisite:</b> None	<b>Prerequisite:</b> 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)	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)
<b>SDEV 150 Divorce Adjustment</b> 1	<b>SDEV 195 Building Healthy Relationships</b> 2
<b>Prerequisite:</b> None	<b>Prerequisite:</b> 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)	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)
<b>SDEV 151 Divorce: Problem and Solutions</b> 1	<b>SDEV 202 Learn a New Way to Think</b> 2
<b>Prerequisite:</b> None	<b>Prerequisite:</b> None
This course provides an introduction to strength-based solutions in resolving problems with divorce and separation. Topics include: Circuit, Probate and Family Courts; general knowledge of the family law system; resources available to families, and best strategies for positive family outcomes when parents live apart. This is not a law course. (F, Sp, Su)	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)
<b>SDEV 153 Men's Discussion Group</b> 1	<b>SDEV 204 Self-Defense and Women I</b> 1
<b>Prerequisite:</b> None	<b>Prerequisite:</b> 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)	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)
	<b>SDEV 205 Self-Defense and Women II</b> 1
	<b>Prerequisite:</b> SDEV 204 or Concurrently
	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 225 Parenting in the Millennium** 2  
**Prerequisite:** None  
 This course will help parents move from "unconscious" to "conscious" parenting, changing from a parental domination to a relationship-centered model. The influence of childhood on parenting style, impact of communication in child-rearing, and understanding the power of the child/parent relationship are included. (F, Sp)
- SDEV 237 Black Women's Awareness** 1  
**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** 2  
**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  
**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  
**Prerequisite:** None  
 Designed for both single men and single women, this course will 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  
**Prerequisite:** Reading Level 3 and Writing Level 4  
 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  
**Prerequisite:** None  
**Recommended:** SIGN 160 2.0 minimum or Concurrently  
 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)
- SIGN 162 American Sign Language II** 3  
**Prerequisite:** None  
**Recommended:** SIGN 161 2.0 minimum  
 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)
- SIGN 163 American Sign Language III** 3  
**Prerequisite:** None  
**Recommended:** SIGN 162 2.0 minimum  
 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)
- SIGN 164 American Sign Language IV** 3  
**Prerequisite:** SIGN 163 2.0 minimum  
 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)

- SIGN 166 Fingerspelling** 2  
**Prerequisite:** None  
**Recommended:** SIGN 162 2.0 minimum or Concurrently  
 Provides the student with concentrated instruction and practice in both expressive and receptive fingerspelling skills. (F, Sp, Su)
- SIGN 167 Beginning Sign to Voice** 3  
**Prerequisite:** None  
**Recommended:** SIGN 162 2.0 minimum  
 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)
- SIGN 168 Expressive Manual Commun** 2  
**Prerequisite:** SIGN 162 2.0 minimum  
 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)
- SIGN 170 Creative Arts Signing** 2  
**Prerequisite:** SIGN 162 2.0 minimum  
 This class explores uses, considerations, and techniques for signing elements of the creative arts including poetry, storytelling, and song. (Su)
- SIGN 176 Advanced Fingerspelling** 2  
**Prerequisite:** SIGN 166 2.0 minimum  
 Provides the student with advanced concentrated instruction and practice in both expressive and receptive fingerspelling skills. (F, Sp, Su)
- SIGN 250 Deaf Culture and History** 3  
**Prerequisite:** SIGN 163 2.0 minimum  
 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)
- SIGN 260 Linguistic Principles of ASL** 3  
**Prerequisite:** SIGN 163 2.0 minimum  
 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)
- SIGN 261 Principles of Interpreting** 3  
**Prerequisite:** ITP Screening  
 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)
- SIGN 262 Mock Quality Assurance (QA)** 3  
**Prerequisite:** SIGN 261 2.5 minimum  
 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 263 Intermediate Sign to Voice** 3  
**Prerequisite:** SIGN 164 2.5 minimum  
 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 264 Advanced Sign to Voice** 3  
**Prerequisite:** SIGN 263 2.5 minimum  
 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 265 Adv Interpreting/Transliteration** 3  
**Prerequisite:** SIGN 262 2.5 minimum  
 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 267 Sign Internship I** 3  
**Prerequisite:** SIGN 261 2.5 minimum  
 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 268 Sign Internship II** 3  
**Prerequisite:** SIGN 267 2.5 minimum  
 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 295 Indepen Study/Sign Language** 1-3  
**Prerequisite:** None  
**Recommended:** SIGN 261 2.0 minimum  
 Individual projects in sign language or interpreting. Students will spend at least two hours a week for each credit in independent study. (F, Sp, Su)

**SOCL - SOCIOLOGY**

- SOCL 120 Introduction to Sociology** 4  
**Prerequisite:** Reading Level 5  
 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)
- SOCL 185 Intro to African-American Study** 3  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 A survey of culture and social structure of people of African descent and their role in the making of the US society. Theories and concepts pertinent to understanding the development and dynamics of contemporary African-American experience will be explored. Topics include slavery, multiculturalism, civil rights movement and affirmative action. (Sp)
- SOCL 196 Japan Adventure Orientation** 1  
**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. (Sp)
- SOCL 254 Marriage and Family** 3  
**Prerequisite:** (SOCL 120 1.0 minimum or PSYC 200 1.0 minimum) and Reading Level 5 and Writing Level 6  
 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, Sp)
- SOCL 255 Contemporary Social Problems** 3  
**Prerequisite:** SOCL 120 1.0 minimum and Reading Level 5 and Writing Level 6  
 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. (F, Sp)
- SOCL 260 Minority Groups** 3  
**Prerequisite:** SOCL 120 1.0 minimum and Reading Level 5 and Writing Level 6  
 An introduction to the culture and contemporary life styles 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, Sp)

- SOCL 295 Independent Study in Sociology** 1-4  
**Prerequisite:** Department 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  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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, Sp, Su)
- SOWK 203 Social Work Interviewing** 3  
**Prerequisite:** HUSE 100 2.5 minimum or SOWK 101 2.0 minimum  
 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. (F, Sp)
- SOWK 205 Social Welfare** 3  
**Prerequisite:** SOWK 101 2.0 minimum or HUSE 100 2.5 minimum  
 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)

**SPAN - SPANISH**

- SPAN 115 Conversational Spanish I** 3  
**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  
**Prerequisite:** None  
**Recommended:** SPAN 115 or 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  
**Prerequisite:** Reading Level 5  
 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  
**Prerequisite:** SPAN 121 1.5 minimum and Reading Level 5  
 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  
**Prerequisite:** SPAN 122 1.5 minimum and Reading Level 5  
 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  
**Prerequisite:** SPAN 201 1.5 minimum and Reading Level 5  
 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)

**SPCH - SPEECH COMMUNICATION**

**SPCH 110 Oral Communic in the Workplace** 3  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 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  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 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 Fundamental of Public Speaking** 3  
**Prerequisite:** Reading Level 5 and Writing Level 4  
 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  
**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  
**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 Communicstion** 3  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 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  
**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** 1-4  
**Prerequisite:** Department 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 150 Spelling: College Prep** 1  
**Prerequisite:** Reading Level 3 and Writing Level 4  
**Recommended:** PHON 108  
 This eight week course focuses on spelling rules and functions suited to various disciplines within the college and workplace. (F)

**SPEL 165 Business Spelling** 2  
**Prerequisite:** Reading Level 3 and Writing Level 2  
 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  
**Prerequisite:** (MATH 121 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 4  
**Recommended:** Knowledge of Windows Software  
 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 Intro to Probability and Stats** 4  
**Prerequisite:** (MATH 122 2.0 minimum or MATH 126 2.0 minimum or MATH 130 2.0 minimum or MATH 141 2.0 minimum) and Reading Level 5 and Writing Level 4  
**Recommended:** Knowledge of Windows Software  
 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)

**STEC - STAGE TECHNOLOGY**

**STEC 100 Intro to Stage Tech Industry** 2  
**Prerequisite:** Department 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)

**STEC 120 Stage Lighting and Electricity** 3  
**Prerequisite:** None  
 Beginning studies in basic electricity and lighting as they relate to the stage. Students will learn fundamentals of electricity, metering, dimming circuits, physics of light and optics, instrumentation, reading of a plot, and various schedules. The student will then apply them in a theater setting. (F)

**STEC 130 Audio/Visual Technology** 3  
**Prerequisite:** None  
 An introduction to audio/visual equipment, principles and practices used in the stage technology industry with an emphasis on convention and trade show settings. Sound amplification, lighting control systems, simple video camera operation, and various projection devices will be included. (Sp)

**STEC 140 Theatrical Make-Up/Wardrobe** 3  
**Prerequisite:** None  
 Provides students with a working knowledge of basic principles of makeup application, wardrobe maintenance and procedures in a production environment. Prepares students to provide basic makeup and wardrobe services for live performing arts, including the theatrical play and dance productions, musicals and operas. An enrichment resource for community theater and schools. (F)

**SURG - SURGICAL TECHNOLOGY**

- SURG 100 Fundamental Surgical Tech** 3  
**Prerequisite:** Admission to Surgical Technology Program  
**Co-requisite Courses:** SURG 101 and SURG 121 and SURG 122  
 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  
**Prerequisite:** Admission to Surgical Technology Program  
**Co-requisite Courses:** SURG 100 and SURG 121 and SURG 122  
 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  
**Prerequisite:** ANAT 145 2.5 minimum  
 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  
**Prerequisite:** AHCC 106 2.5 minimum and AHCC 110 2.5 minimum and SURG 100 2.5 minimum and SURG 101 2.5 minimum and SURG 103 2.5 minimum and SURG 122 2.5 minimum  
**Co-requisite Courses:** SURG 123 and SURG 124  
 Lectures will present indications for surgery, patient preparation, special equipment and supplies, purpose and expected outcome, and possible complications. (Sp)
- SURG 121 Applied Surg Techniques I** 1  
**Prerequisite:** Admission to Surgical Technology Program  
**Co-requisite Courses:** SURG 100 and SURG 101  
 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 Surg Techniques II** 3  
**Prerequisite:** SURG 121 2.5 minimum or Concurrently  
**Co-requisite Courses:** SURG 100 and SURG 101  
 Clinical session at hospital. Students' first experience of application of theory and clinical skills in actual surgical procedures. (F)
- SURG 123 Applied Surg Techniques III** 5  
**Prerequisite:** SURG 122 2.5 minimum  
**Co-requisite Courses:** SURG 104  
 Clinical session at hospital. Continued application of theory and clinical skills in advanced surgical procedures. (Sp)
- SURG 124 Applied Surg Techniques IV** 2  
**Prerequisite:** SURG 123 2.5 minimum or Concurrently  
**Co-requisite Course:** SURG 104  
 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 Driver Training I** 3  
**Prerequisite:** Department Approval and Department of Transportation Physical  
 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 Driver Training II** 3  
**Prerequisite:** Department Approval and Department of Transportation Physical  
 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 Driver Training III** 3  
**Prerequisite:** Department Approval and Department of Transportation Physical  
 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 164 Boat Building** 2  
**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)

**THEA - THEATER**

- THEA 091 Study Per Ws: Ply Per HS Stdn'ts** 5  
**Prerequisite:** None  
 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 110 Introduction to Theatre** 3  
**Prerequisite:** Reading Level 5  
 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 Basic Stagecraft** 2  
**Prerequisite:** Department Approval  
**Recommended:** Knowledge of Basic Math and Measurement  
 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 Scene Design I** 3  
**Prerequisite:** THEA 111 2.0 minimum or Concurrently  
 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  
**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  
**Prerequisite:** Theatre Studio Interview  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 141 and THEA 171  
 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  
**Prerequisite:** THEA 131 2.0 minimum  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 142 and THEA 172  
 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  
**Prerequisite:** Theatre Studio Interview  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 131 and THEA 171  
 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  
**Prerequisite:** THEA 141 2.0 minimum  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 132 and THEA 172.  
 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  
**Prerequisite:** Theatre Studio Interview  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 131 and THEA 141  
 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  
**Prerequisite:** THEA 171 2.0 minimum  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 132 and THEA 142  
 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  
**Prerequisite:** THEA 142 2.0 minimum  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 233 and THEA 251 and THEA 261  
 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** 4  
**Prerequisite:** Reading Level 5 and Writing Level 6  
**Recommended:** THEA 110  
 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 223 Directed Study** 1-3  
**Prerequisite:** Department 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** 1-4  
**Prerequisite:** Department Approval  
 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  
**Prerequisite:** THEA 132 2.0 minimum  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 181 and THEA 251 and THEA 261  
 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  
**Prerequisite:** Studio Theatre Performance 4 Audition  
 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  
**Prerequisite:** THEA 233 2.0 minimum  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 241 and THEA 271 and THEA 281  
 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** 1-2  
**Prerequisite:** Department 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 Company** 2  
**Prerequisite:** Theatre Application Process  
 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  
**Prerequisite:** THEA 142 2.0 minimum  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 235 and THEA 271 and THEA 281  
 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  
**Prerequisite:** THEA 142 2.0 minimum  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 181 and THEA 233 and THEA 261  
 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  
**Prerequisite:** THEA 142 2.0 minimum  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 181 and THEA 233 and THEA 251  
 Course will cover strategies developing student's physical endurance, reflect, flexibility, and grace. Students will learn the human inner experience in the sphere of human silence. Students may explore movement to music, mime, and/or dance styles and techniques from world cultures. For second-year theatre majors. (F)
- THEA 271 Dramatic Form and Function III** 3  
**Prerequisite:** THEA 172 2.0 minimum  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 235 and THEA 241 and THEA 281  
 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  
**Prerequisite:** THEA 181 2.0 minimum  
**Restriction:** Theatre Majors  
**Co-requisite Courses:** THEA 235 and THEA 241 and THEA 271  
 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  
**Prerequisite:** THEA 142 2.0 minimum  
**Restriction:** Theatre Majors  
 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  
**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  
**Prerequisite:** Theatre Acting Styles Audition  
 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**

**Prerequisite:** Theatre Acting Styles Performance Audition  
Students choose to rehearse and perform an in-class presentation of skills developed in THEA 295. Usually offered in eight-week format. (Sp)

**TRVL - TRAVEL AND TOURISM****TRVL 100 Travel Agency Operations 3**

**Prerequisite:** Reading Level 3  
Gain a working knowledge of the reference materials used in the travel industry, as well as industry terminology and overall travel agency operations. (F, Sp, Su)

**TRVL 125 Destinations I 3**

**Prerequisite:** None  
Examine geography fundamentals as they affect tourism. Emphasis is on travel destinations in North, Central, and South Americas with specific information relative to client appeal. (F, Sp)

**TRVL 130 Destinations II 3**

**Prerequisite:** None  
Examine geography fundamentals as they affect tourism. Emphasis is on travel destinations in Europe, Africa, and the Middle East with specific information relative to client appeal. (F, Sp)

**TRVL 131 Destinations III 3**

**Prerequisite:** None  
Examine geography fundamentals as they affect tourism. Emphasis is on travel destinations in Asia and the Far East (including the Philippines, Japan, Australia, New Zealand and Oceania) relative to client appeal. (F, Sp)

**TRVL 135 Airline/Airport Operations 3**

**Prerequisite:** None  
Introduction to the responsibilities of airline and airport personnel, as well as the functions of an airport and airline carriers. Discussion includes ticket counter operations, the gate area, cargo handling and loading, aircraft weight, and the principles of aeronautics. (F)

**TRVL 140 Airline Computer Reservation I 3**

**Prerequisite:** None  
**Recommended:** TRVL 100 and Typing 30 wpm  
The first of a three-course sequence utilizing the American Airlines SABRE reservation system. Hands-on application in the Travel Computer Lab gives students the skills required for creating airline computer reservation as well as airfare and fare rules. (F, Sp, Su)

**TRVL 145 Intro Cruise Sales/Ground Tran 3**

**Prerequisite:** None  
An exposure to, and understanding of, the reference materials used to sell cruises, railroads, car rentals, and motor coach travel for domestic and international destinations. (Sp)

**TRVL 146 Seminar at Sea 2**

**Prerequisite:** None  
An exciting opportunity to explore cruising first hand. Included in the cruise are ship tours, cruise activities, shore excursions, and inspections of pier/dock facilities. (F)

**TRVL 170 Owning/Managing Trvl Agency 3**

**Prerequisite:** None  
**Recommended:** 2.0 minimum in TRVL 100 and TRVL 140  
Learn how to open or acquire a travel agency. Includes an examination of co-ops, consortiums, and franchise options, as well as an overview for managing daily operations. (F)

**TRVL 180 Flight Attendant 3**

**Prerequisite:** None  
**Recommended:** TRVL 135 2.0 minimum  
A career as a flight attendant is examined including the duties and responsibilities surrounding passenger service, crew scheduling, aircraft equipment, and the airline interview process. (Sp)

**TRVL 190 Internship and Seminar 3**

**Prerequisite:** HMFS 101 2.0 minimum  
**Recommended:** Minimum 2.0 in TRVL 100 or TRVL 135 or or TRVL 210  
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)

**TRVL 200 Sales/Mktg for Travel/Tourism 3**

**Prerequisite:** None  
**Recommended:** HMFS 101 2.0 minimum  
Understand marketing strategies by identifying client needs, product, price, and promotion. Develop professional sales skills, as well as examine and develop advertising pieces. (F, Sp)

**TRVL 210 Group Travel/Escorting Ops 4**

**Prerequisite:** None  
**Recommended:** Minimum 2.0 in HMFS 101 and TRVL 145  
Learn how to organize and escort both domestic and international group tours. Includes procedures for locating the group, assembling and marketing the tour package, and effectively conducting the tour. (F, Sp)

**TRVL 230 Travel/Tourism Law 3**

**Prerequisite:** HMFS 101 2.0 minimum  
**Recommended:** Minimum 2.0 in TRVL 100 or TRVL 135 or TRVL 210  
Become aware of the responsibilities and rights which the law imposes on the travel industry. Includes current topics and pending laws and discussion of the consequences that result in violating the law for different segments of industry. (F, Sp)

**TRVL 250 Airline Comptr Reservation II 3**

**Prerequisite:** TRVL 140 2.0 minimum  
The second of a three course series utilizing the SABRE system which progresses to in-depth fare research and application, as well as fare rules, and hotel/car reservations for domestic and international travel. (F, Sp)

**TRVL 260 Travel Agency Accounting 2**

**Prerequisite:** None  
**Recommended:** TRVL 100 2.0 minimum  
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 265 Fundamentals of Bus Travel 3**

**Prerequisite:** TRVL 250 2.0 minimum  
**Recommended:** Minimum 2.0 in HMFS 101 and TRVL 145 and TRVL 210 and TRVL 230  
Learn how to manage the many issues surrounding business/corporate travel. Special requests, international reservations, fare rulings and routings, currency exchange, internet research, and frequent flyer program management for business/corporate travelers, as well as the customs, cultures, and protocol in international travel are emphasized. In addition, extended use of the Sabre computer reservation system is utilized. (F, Sp)

**VCBL - VOCABULARY IMPROVEMENT****VCBL 150 Vocabulary: College Prep 1**

**Prerequisite:** Reading Level 3 and Writing Level 4  
**Recommended:** PHON 108  
This eight-week course focuses on the acquisition of vocabulary appropriate to the various disciplines within the college and workplace. (F, Sp)

**VCBL 160 Vocab/Spelling: College Prep 2**

**Prerequisite:** Reading Level 3 and Writing Level 4  
**Recommended:** PHON 108  
Focuses on advanced skills as follows: pronunciation, spelling, and usage of words with the intended goal of mastery which will assure a college or professional vocabulary level. (F, Sp)



**WELD - WELDING TECHNOLOGY**

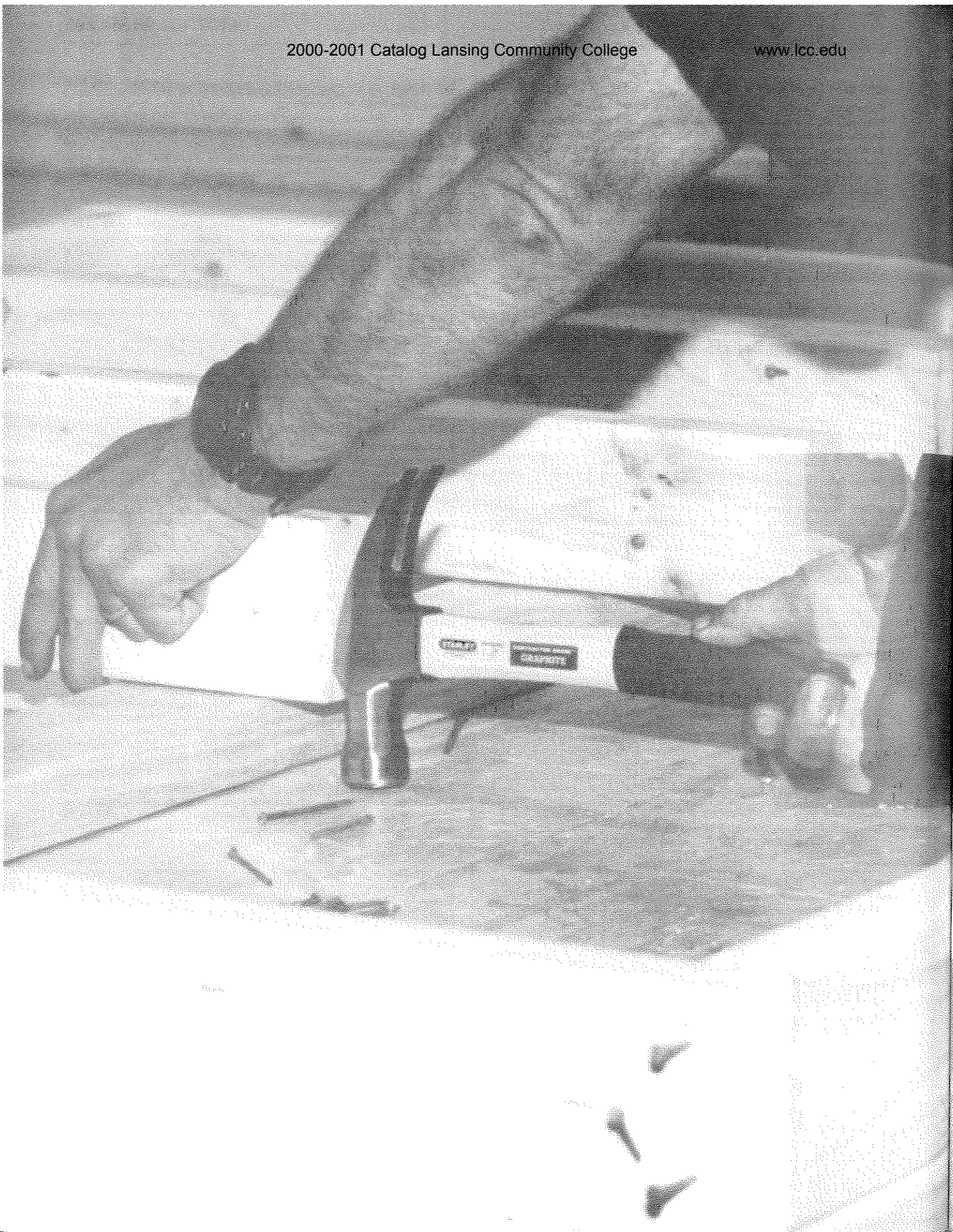
- WELD 100 Combination Welding** 4  
**Prerequisite:** None  
 This is a beginning theory and practice course which will introduce the safe operations and applications of oxyacetylene welding, cutting, brazing and shielded metal arc welding. Practice will consist of these methods of joining steel in the horizontal, flat and vertical positions. Destructive testing will also be provided. (F, Sp, Su)
- WELD 101 Advanced ARC Welding** 4  
**Prerequisite:** WELD 100 1.5 minimum  
 Students will develop the skills necessary to produce quality multiple pass fillet 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  
**Prerequisite:** WELD 100 1.5 minimum  
 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  
**Prerequisite:** WELD 100 1.5 minimum  
 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 Struct Fabrication/Inspection** 4  
**Prerequisite:** WELD 101 1.5 minimum  
 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 Struct Blueprint Reading Weld** 2  
**Prerequisite:** MATH 050 1.0 minimum or Math Level 4  
 Blueprint and welding symbols are the universal language of the welding industry. This course is 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 130 Bridge Building Past/Present** 3  
**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4  
 An introduction to the design, fabrication and history of truss bridges. Students learn methods of historic bridge construction that are also relevant to modern industry. This course surveys the history of technology and engineering related to metal truss bridges with a steel bridge contest as a capstone project. (F)
- WELD 191 Welding Project Lab** 1-4  
**Prerequisite:** Department Approval  
 An opportunity for students to expand upon 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/her welding skills. Actual projects must be discussed and agreed upon by both the instructor and the student. (Sp)
- WELD 201 Tool and Die Welding** 4  
**Prerequisite:** WELD 101 1.5 minimum and WELD 111 1.5 minimum  
 Theory and practice methods involved in welding various alloyed metals, preheating and postheating of metals, recognition of materials, alloying elements and their effects. The proper usage of air, oil and water hardening steels will also be covered. (F, Sp)
- WELD 205 Pipe Welding** 4  
**Prerequisite:** WELD 101 1.5 minimum  
 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  
**Prerequisite:** Department 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 101 Writing Laboratory I** 1  
**Prerequisite:** Reading Level 1 and Writing Level 1 and Department Approval  
 One-credit course designed to teach fundamental writing skills and improve confidence. Provides small-group and one-to-one instruction. Department approval required. (May repeat for credit three times.) (F, Sp, Su)
- WRIT 102 Writing Laboratory II** 2  
**Prerequisite:** Reading Level 1 and Writing Level 1 and Department Approval  
 Two-credit courses designed to teach fundamental writing skills and improve confidence. Provides small-group and one-to-one instruction. Department approval required. (May repeat for credit three times.) (F, Sp, Su)
- WRIT 103 Writing Laboratory III** 3  
**Prerequisite:** Reading Level 1 and Writing Level 1  
 Three-credit course designed to teach fundamental writing skills and improve confidence. Provides small-group and one-to-one instruction. (May repeat for credit three times.) (F, Sp, Su)
- WRIT 104 Writing Laboratory IV** 4  
**Prerequisite:** Reading Level 1 and Writing Level 1  
 Four-credit course designed to teach fundamental writing skills and improve confidence. Provides small-group and one-to-one instruction. (May repeat for credit three times.) (F, Sp, Su)
- WRIT 110 Confidence in Writing** 4  
**Prerequisite:** Reading Level 3 and Writing Level 2  
**Recommended:** Minimal Typing Skills Desirable  
 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 of 2.5 will have a writing skill level of 4. (F, Sp, Su)
- WRIT 114 Business English** 3  
**Prerequisite:** Reading Level 3 and Writing Level 4  
 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  
**Prerequisite:** Reading Level 3 and Writing Level 4  
**Recommended:** Minimal Typing Skills Desirable  
 Designed to help students improve their writing in preparation for transfer-level academic courses. Students who earn exit competency of 2.5 will have a writing skill level of 6. (F, Sp, Su)
- WRIT 118 Personal Writing** 3  
**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  
**Prerequisite:** Reading Level 5 and Writing Level 6  
 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)

<b>WRIT 121 Composition I</b>	4	<b>WRIT 250 Issues in Teaching Writing</b>	2
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6		<b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 8)	
The study and practice of expository and argumentative discourse to help students write more effectively. Emphasizes writing process, critical thinking, content development, organization, and style. Students will select their best work for their portfolio, which will be externally assessed. Some sections use computers. Others are offered over Internet or interactive television. (F, Sp, Su)		The study and application of current scholarship relevant to philosophy and practice of a college writing center. Emphasizes study of writing process, composition theory and its application in the writing center, daily practices in writing center work, and development of skills necessary to provide effective writing assistance. (Sp)	
<b>WRIT 122 Composition II</b>	4	<b>WRIT 262 Prose Style</b>	3
<b>Prerequisite:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 8)		<b>Prerequisite:</b> None	
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 computer classrooms. Others are offered over the Internet or interactive television. (F, Sp, Su)		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)	
<b>WRIT 124 Technical Writing</b>	3	<b>WRIT 269 Reviewing the Arts</b>	3
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6		<b>Prerequisite:</b> None	
<b>Recommended:</b> Computer and/or Keyboarding Experience		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)	
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)		<b>WRIT 281 Writing for Publication</b>	3
<b>WRIT 127 Business Writing</b>	3	<b>Prerequisite:</b> None	
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6		<b>Recommended:</b> WRIT 121 2.0 minimum or WRIT 131 2.0 minimum	
<b>Recommended:</b> Computer and/or Keyboarding Experience		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)	
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, resumes, and collaborative oral reports. (F, Sp, Su)		<b>WRIT 282 Forum for Authors</b>	3
<b>WRIT 128 Business Report Writing</b>	3	<b>Prerequisite:</b> WRIT 281 2.0 minimum	
<b>Prerequisite:</b> Reading Level 5 and Writing Level 6		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)	
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)		<b>WRIT 285 Creative Writing I</b>	3
<b>WRIT 131 Honors Composition I</b>	4	<b>Prerequisite:</b> None	
<b>Prerequisite:</b> Reading Level 5 and Writing Level 7		<b>Recommended:</b> WRIT 121	
The study and practice of expository and argumentative discourse to help students write more effectively. Emphasizes writing process, critical thinking, content development, organization, and style. Students will select their best work for their portfolio, which will be externally assessed. Some sections use computers. Others are offered over Internet or interactive television. (F, Sp)		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)	
<b>WRIT 132 Honors Composition II</b>	4	<b>WRIT 286 Creative Writing II</b>	3
<b>Prerequisite:</b> WRIT 121 3.5 minimum or WRIT 131 3.5 minimum		<b>Prerequisite:</b> WRIT 281 2.0 minimum or WRIT 285 2.0 minimum	
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 computer classrooms. Others are offered over the Internet or interactive television. (F, Sp)		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)	
<b>WRIT 195 Writing User Documentation</b>	3	<b>WRIT 287 Writing Workshop</b>	3
<b>Prerequisite:</b> None		<b>Prerequisite:</b> Department 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)		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)	
		<b>WRIT 295 Independent Study in Writ</b>	1-4
		<b>Prerequisite:</b> Department Approval	
		Individual projects in writing or journalism. Students will spend at least two hours a week for each credit in independent study. (F, Sp, Su)	



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# Special Courses

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  
**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  
**Prerequisite:** Department Approval  
**Restriction:** Civil Technology Majors  
 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  
**Prerequisite:** Department Approval  
**Restriction:** Civil Technology Majors  
 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)
- HMFS 170 Menu Management and Design** 3  
**Prerequisite:** HMFS 131 2.0 minimum  
**Recommended:** Minimum 2.0 in HMFS 101 and HMFS 135  
 Design a menu using accurate descriptive terms, calculation of selling prices, layouts recommended, selection of fonts and colors. Includes analysis of menus including accuracy (truth in menu), the menu as a marketing tool, and current trends. Semester project included. (F)
- HMFS 177 Intro Hotel and Food Serv Ops** 1  
**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  
**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  
**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  
**Prerequisite:** None  
 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  
**Prerequisite:** None  
 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  
**Prerequisite:** WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)  
 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)

- POLS 280 Politics & Government of Japan** 3  
**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)
- RDGR 101 Personal Reading I** 1  
**Prerequisite:** Reading Level 1 and Writing Level 1  
 One-credit laboratory course may be taken concurrently with other reading courses to provide extra instruction and practice. One-to-one instruction. (May repeat for credit three times.) (F, Sp, Su)
- RDGR 102 Personal Reading II** 2  
**Prerequisite:** Reading Level 1 and Writing Level 1  
 Two-credit laboratory course may be taken concurrently with other reading courses to provide extra instruction and practice. One-to-one instruction. (May repeat for credit three times.) (F, Sp, Su)
- RDGR 103 Personal Reading III** 3  
**Prerequisite:** Reading Level 1 and Writing Level 1  
 Three-credit laboratory course may be taken concurrently with other reading courses to provide extra instruction and practice. One-to-one instruction. (May repeat for credit three times.) (F, Sp, Su)
- SDEV 110 Leadership Development I** 3  
**Prerequisite:** None  
 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 change-makers, leading with goals, time management, and situational leadership. (F)
- SDEV 111 Leadership Development II** 2  
**Prerequisite:** SDEV 110 2.0 minimum  
 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  
**Prerequisite:** SDEV 111 2.0 minimum  
 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  
**Prerequisite:** SDEV 112 2.0 minimum  
 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)
- SOCL 280 Intro to Japanese Culture** 3  
**Prerequisite:** None  
 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)
- WRTR 101 Writing Practice I** 1  
**Prerequisite:** Reading Level 1 and Writing Level 1 and Department Approval  
 May be taken concurrently with other writing courses to provide extra individualized instruction and practice. (May repeat for credit three times.) (F, Sp, Su)
- WRTR 102 Writing Practice II** 2  
**Prerequisite:** Reading Level 1 and Writing Level 1 and Department Approval  
 May be taken concurrently with other writing courses to provide extra individualized instruction and practice. (May repeat for credit three times.) (F, Sp, Su)

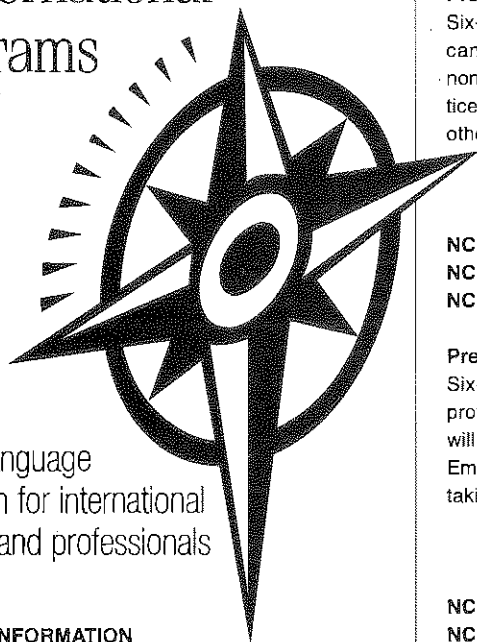
**WRTR 103 Writing Practice III****3**

**Prerequisite:** Reading Level 1 and Writing Level 1 and Department Approval  
May be taken concurrently with other writing courses to provide extra individualized instruction and practice. (May repeat for credit three times.) (F, Sp, Su)

**WRTR 104 Writing Practice IV****4**

**Prerequisite:** Reading Level 1 and Writing Level 1 and Department Approval  
May be taken concurrently with other writing courses to provide extra individualized instruction and practice. (May repeat for credit three times.) (F, Sp, Su)

# The English Language & Culture Center of International Programs



Intensive  
English language  
instruction for international  
students and professionals

## GENERAL INFORMATION

The English Language and Culture Center (ELCC) provides intensive English language instruction primarily to international students who need to improve their English skills before beginning college-level academic course work. The Center also provides customized English language and American culture instruction to groups that need specialized programs for professional or other activities. The ELCC is located in the International Programs Office, and its courses are non-credit. The ELCC issues I-20 forms to international students.

## COURSES

The ELCC offers the following courses at 6 different levels:

- COURSES: Grammar, Speaking/Listening, Reading and Writing
- LEVELS: High Beginning; Intermediate I and II; and Advanced I, II, and III.
- INSTRUCTIONAL HOURS: 6 hours/week
- SESSION LENGTH: 8 weeks

TOEFL preparation courses (3 hours/week) are also offered in each session.

## TUITION & FEES

Contact the ELCC office at (517) 483-1006.

## APPLICATION & INFORMATION

To apply or obtain more information, call the ELCC office at (517) 483-1006 or call LCC's toll-free line at 1-800-644-4LCC and ask to be connected to the ELCC. Or check our web site at: <http://www.lansing.cc.mi.us/executive/intlprog/elcc/index/htm>

## COURSE DESCRIPTIONS

NCEL 111	High Beginning Speaking/ Listening	non-credit
NCEL 112, 113	Intermediate Speaking/ Listening I and II	non-credit
NCEL 114, 115, 116	Advanced Speaking/ Listening I, II, and III	non-credit

**Prerequisite:** Placement test or pass the immediately preceding course  
Six-session sequence in speaking and listening English. Designed to provide American English Language instruction through listening and speaking exercises for non-native students who wish to pursue college level course work. Students will practice the production of target sound, discussing various topics, note-taking, and various other tasks to develop oral and listening skills.

NCEL 121	High Beginning Reading	non-credit
NCEL 122, 123	Intermediate Reading I and II	non-credit
NCEL 124, 125, 126	Advanced Reading I, II, and III	non-credit

**Prerequisite:** Placement test or pass the immediately preceding course  
Six-session sequence in reading English. Designed to develop increased reading proficiency for non-native students who wish to pursue college level courses. Students will read various materials which they may encounter during their academic studies. Emphasizes vocabulary building, gaining reading speed, summarizing main ideas, note-taking, and various reading strategies.

NCEL 131	High Beginning Writing	non-credit
NCEL 132, 133	Intermediate Writing I and II	non-credit
NCEL 134, 135, 136	Advanced Writing I, II, and III	non-credit

**Prerequisite:** Placement test or pass the immediately preceding course  
Six-session sequence in English writing. Designed to help non-native students improve their writing skills in preparation for college courses. Emphasizes process-oriented writing, including brainstorming, outlining, drafting, and revising. Students will work on writing well-developed and cohesive paragraphs and essays, as well as learning various rhetorical styles.

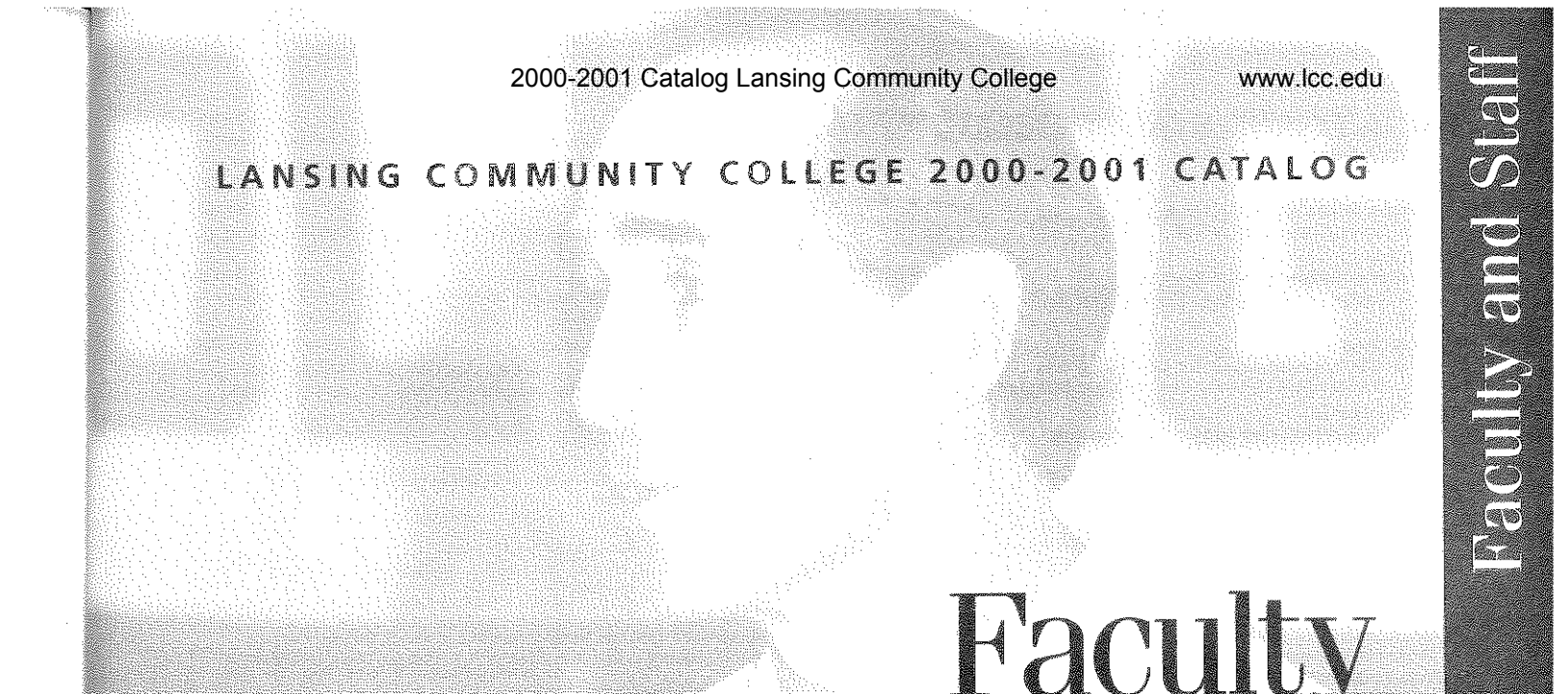
NCEL 141	High Beginning Grammar	non-credit
NCEL 142, 143	Intermediate Grammar I and II	non-credit
NCEL 144, 145, 146	Advanced Grammar I, II, and III	non-credit

**Prerequisite:** Placement test or pass the immediately preceding course  
Six-session sequence in standard American English grammar. Designed to help students increase their proficiency in writing, reading, and speaking and listening. Emphasizes grammatical structures in various contexts, including verb structures, articles, logical connectors, comparatives and conditionals. Attention will be given to grammatical forms and their appropriate use.

NCEL 151	TOEFL Preparation	non-credit
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**Prerequisite:** Intermediate Grammar II  
Two-session sequence in TOEFL preparation. Designed to prepare students for the computer-based TOEFL test. Will help students become familiar with particular computer-based TOEFL tests, including the grammar, vocabulary, and listening comprehension materials frequently encountered in these tests. Students also become familiar with the TOEFL writing (TWE) format.

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# Faculty



# and Staff

Faculty and Staff



**FACULTY AND STAFF DIRECTORY**

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- ALFARO, Rogelio R.**  
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LANSING COMMUNITY COLLEGE 2000-2001 CATALOG



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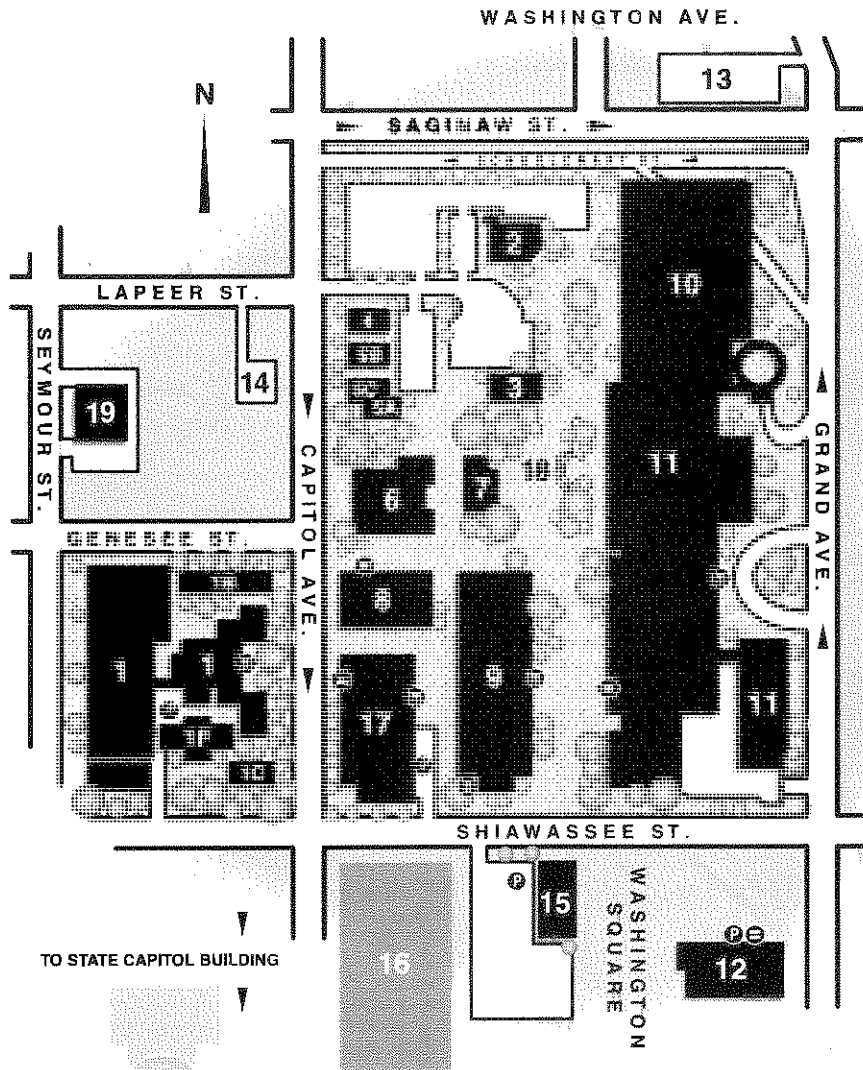
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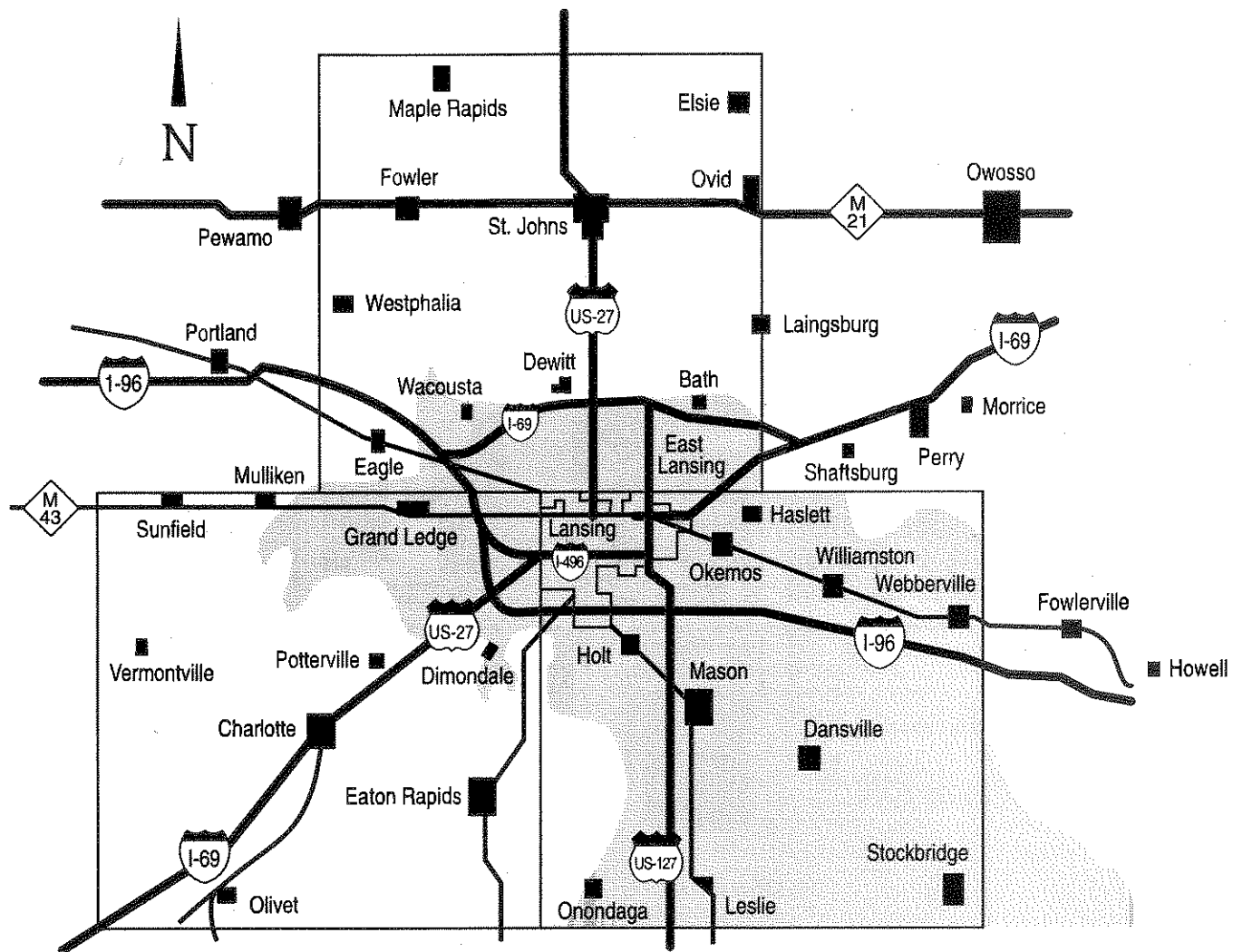
# Campus Map




- 1B. Office Unit B (OUB)
  - 1C. Office Unit C (OUC)
  - 1F. Office Unit F (OUF)
  - 1. Old Central (OC)
  - 2. Photography Center (PC)
  - 3. Administration (ADM)
  - 4. North House (NH)
  - 5. Hermann Conference Center Complex (HCC)
  - 5A. Hermann Conference Center
  - 5B. Rogers-Carrier House
  - 5C. LCC Board Room
  - 6. Dart Auditorium (DRT)
  - 7. Turner House (TH)
  - 8. Student Personnel Services (SPS)
  - 9. Arts and Sciences (A&S)
  - 10. LCC Parking Ramp (Quick Card and Cash)
  - 11. Gannon Vocational-Technical Center (GVT)
  - 12. Academic and Office Facility (AOF)
  - 13. Student Employee Parking Lot (Student Employee Parking Card Only)
  - 14. Parking Lot (Quick Card Only)
  - 15. Continental Building (CB)
  - 16. City Parking Ramp (Quick Card and Cash)
  - 17. Technology and Learning Center (TLC)
  - 18. LCC Outside Amphitheater
  - 19. Business & Community Institute (BCI)
- ⊕ Handicapper Entrances with Electronic Doors (Push-button electronic door at 2nd floor entrance of GVT from parking ramp)
  - Ⓟ Handicapper Parking (parking on 2nd floor of Parking Ramp and other marked spaces)

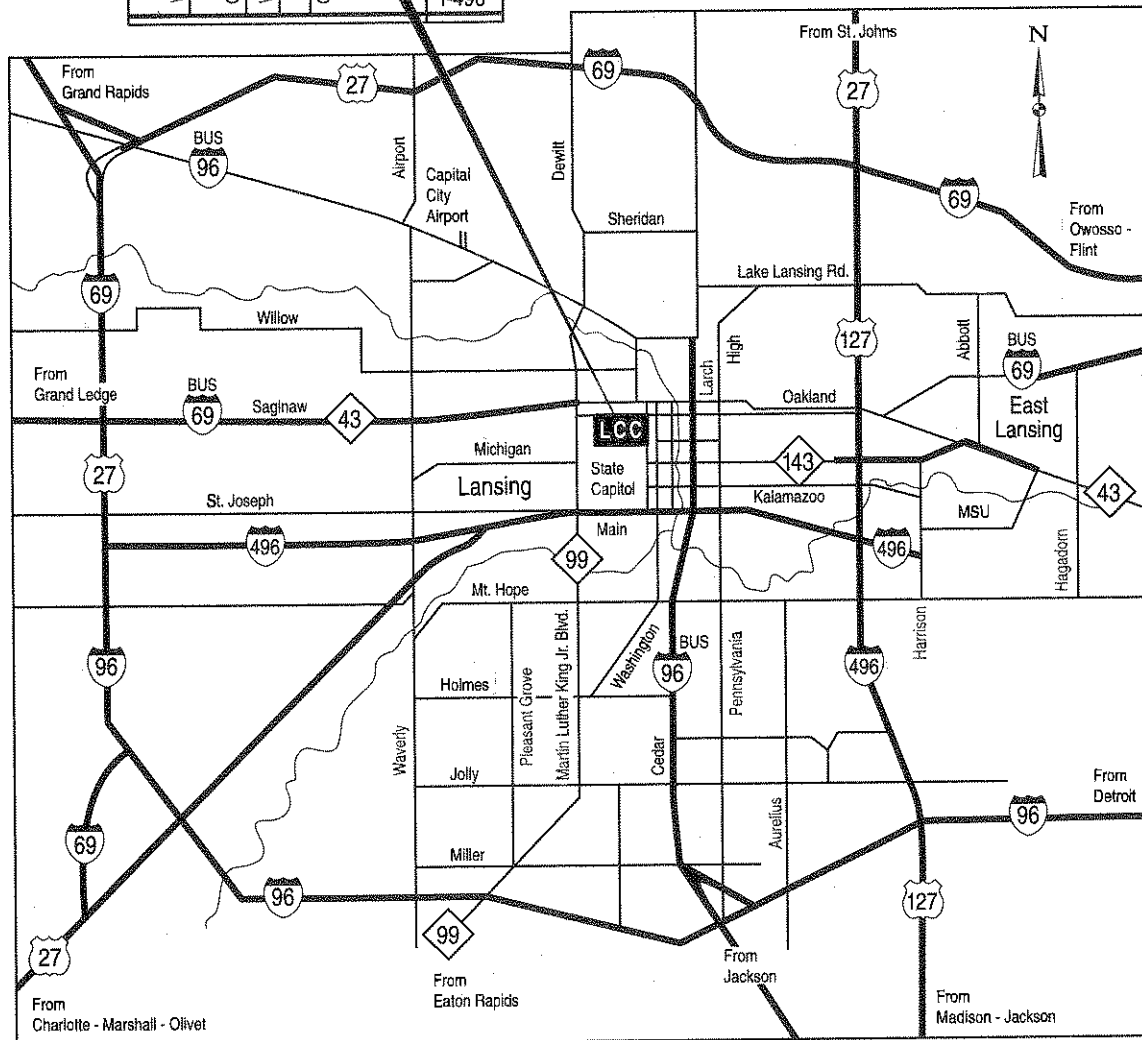


# Service Area Map



 These School Districts constitute the LCC Resident District

# Lansing Area Map



## Visitors to Lansing Community College

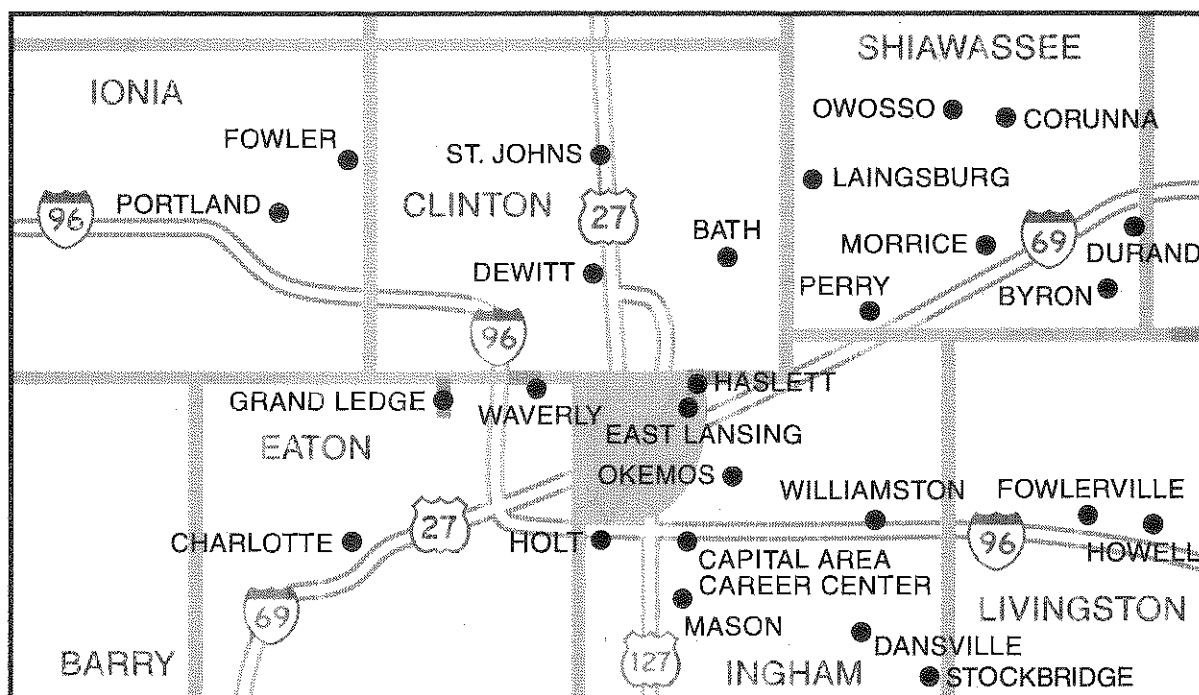
The LCC Visitor Parking Area is located in the AutoCenter Courtyard in the 400 block of Grand Avenue.

### 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



● 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

### BATH

Bath High School

### 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 Center for  
Community Education

### HOLT

Holt High School  
Holt Horizon School  
Holt Junior High School

### HOWELL

Livingston County Center  
Howell High School

### LANSING

Cristo Rey Community  
Center  
Crown Boxing Center  
Lansing Catholic Central  
Lansing Hill Center

### MASON

Capital Area Career Center  
Heartwood School  
Mason High School

### OKEMOS

Chippewa Middle School  
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

### STOCKBRIDGE

Stockbridge High School

### WAVERLY

Waverly High School  
Waverly Middle School

### WILLIAMSTON

Williamston High School