Science and Mathematics G.A.

Career Community: Science and Mathematics
Curriculum Code: 1831
Effective: Fall 2023 – Summer 2028

Purpose of Major

This degree is designed for students interested in pursuing a career in mathematics, engineering, or a broad range of scientific fields. This Career Community includes the following pathways: Biology, Biotechnology, Chemical Technology, Chemistry, Computer Science, Conservation and Sustainability, Engineering-Physics, Geography, Geology, and Mathematics. The degree includes a common set of courses applicable to the Science and Mathematics majors listed above and to many transfer institutions. Students beginning college in this degree program are encouraged to work with academic and program advisors throughout their first few semesters of study to determine their specific major area and, if transfer is a goal, the specific requirements of the transfer institution.

Not all courses in this pathway transfer to all colleges.

Milestone

In addition to the required General Education courses in Math and English, completion of CHEM 151 and CHEM 161 with a 2.0 or higher, is a key component for success in completing this program. Knowledge obtained in these courses is the foundation for learning in other required courses. Students are encouraged to contact their faculty if they need additional assistance with learning the concepts presented in this course.

Contact Information

For further information, including career options, course substitutions and waivers, etc., contact the Science and Mathematics Department, Arts and Sciences Building, Room 3203, telephone number 517-483-1092.

General Education – Applied Degrees - Recommended Courses

Select courses as indicated for specific transfer institutions and majors. These courses are preferred General Education courses listed on Transfer Articulation agreements. The recommended courses in each General Education category also meet Michigan Transfer Agreement (MTA) requirements. If no course is indicated, choose from the list of options under General Education. A minimum grade of 2.0 is required for each General Education course.

- English Composition or Applied English
  Science and Mathematics Career Community Courses meet this requirement.

- English Composition (second course)/Communication or Applied Communication
  Science and Mathematics Career Community Courses meet this requirement.

- Humanities and Fine Arts or Social Sciences or Applied Social Sciences
  Science and Mathematics Career Community courses meet this requirement.

- Mathematics or Applied Mathematics
  Science and Mathematics Career Community Courses meet this requirement.

- Natural Sciences Lab or Applied Sciences and Technology Lab
  Science and Mathematics Career Community Courses meet this requirement.

Science and Mathematics Career Community Courses – *These courses are required for all Science and Mathematics programs. They should be taken before other Program Required or Limited Choice Courses. Some courses meet General Education requirements for Michigan Transfer Agreement (MTA). A minimum of 2.0 is required to meet LCC degree requirements for General Education courses and for all courses to transfer to other colleges (some colleges, and some programs within colleges, require a higher grade in a course.)*

Course Code	Course Title	Credit / Billing Hours
ACAD 100	First-Year Experience	1 / 1
ANTH 270 or	Cultural Anthropology	3 / 3
ECON 120 or	Power, Authority and Exchange	4 / 4
ECON 201 or	Principles of Economics-Micro	4 / 4
EDUC 204 or	Educational Psychology	3 / 3
EDUC 220 or	Introduction to Education	3 / 3
GEOG 120 or	Introduction to Geography	3 / 3
GEOG 200 or	World Regional Geography	4 / 4
POLS 120 or	American Political System	4 / 4
POLS 240 or	Introduction to Public Policy	3 / 3
POLS 260 or	Comparative Political Systems	3 / 3
PSYC 200 or	Introduction to Psychology	4 / 4
SOCL 120	Introduction to Sociology	4 / 4
BIOL 120 or	Environmental Science	4 / 6
BIOL 127 or	Cell Biology	4 / 6
GEOL 221 or	Physical Geology	4 / 6
GEOL 230 or	Environmental Geology	4 / 6
PHYS 251	Physics I with Calculus	5 / 7
CHEM 151	General Chemistry Lecture I	4 / 4
CHEM 161	General Chemistry Lab I	1 / 3
COMM 120 or	Dynamics of Communication	3 / 3
COMM 130 or	Fundamentals Public Speaking	3 / 3
ENGL 122 or	Composition II	4 / 4
ENGL 132	Honors Composition II	4 / 4
ENGL 121 or	Composition I	4 / 4
ENGL 131	Honors Composition I	4 / 4

Course Code	Course Title	Credit / Billing Hours
MATH 120 or MATH 126 or MATH 151	College Algebra Precalculus Calculus I	4 / 4 5 / 5 4 / 4

Notes:
ACAD 100 may be waived when students meet one of the following College-approved waiver criteria:

- Completion of 12 college-level credits with minimum grades of 2.0 shown on the LCC transcript (including transfer, if applicable), or
- Employment in the field of, or a field related to, the degree being sought, or
- For Health Careers students, successful completion of CHSE 100.

In addition to CHEM 151 and CHEM 161, select Science courses as follows:

- Students interested in Biology, Biotechnology, Chemical Technology, Chemistry, or Conservation and Sustainability choose BIOL 127.
- Students interested in Computer Science choose BIOL 120 or GEOL 221 or PHYS 251.
- Students interested in Engineering/Physics or Mathematics choose PHYS 251.
- Students interested in Geography or Geology choose GEOL 230.

Students considering adding Secondary Education Certification in Mathematics or Science in order to teach in Michigan Public Schools are strongly encouraged to select an EDUC course as listed below.

For future transfer (Secondary Education Certification) to:

- Central Michigan University, Ferris State University, or Michigan State University choose EDUC 204.
- Eastern Michigan University, Grand Valley State University, University of Michigan Flint, or Western Michigan University choose EDUC 220.

Program of Study Required Courses – Limited Choices - *Select between 32 to 37 credits to reach the minimum of 60 credits required for the degree. Work with an Academic Advisor or Program Advisor to select the most appropriate courses or to select a field-specific major or transfer major that meets your educational and career goals. Some courses meet General Education requirements for Michigan Transfer Agreement (MTA). A minimum of 2.0 is required to transfer to other colleges (some colleges, and some programs within colleges, require a higher grade in a course.)*

Course Code	Course Title	Credit / Billing Hours
ANTH 270	Cultural Anthropology	3 / 3
ARTH 120	Masterpieces of Art & Music	4 / 4
ASTR 201	Introductory Astronomy	4 / 5
BIOL 120	Environmental Science	4 / 6

Course Code	Course Title	Credit / Billing Hours
BIOL 127	Cell Biology	4 / 6
BIOL 128	Organismal Biology	4 / 6
BIOL 203	Microbiology	3 / 3
BIOL 204	Microbiology Laboratory	1 / 2
BIOL 210	Natural Resource Conservation	4 / 6
BIOL 260	Botany	4 / 6
BIOL 265	Zoology	4 / 6
BIOL 270	Human Genetics	3 / 3
BIOL 275	Molecular Biology I	4 / 6
BIOL 276	Molecular Biology II	4 / 6
CHEM 120	Gen Organic & Biological Chem	4 / 4
CHEM 125	Basic Chemistry	4 / 4
CHEM 152	General Chemistry Lecture II	3 / 3
CHEM 162	General Chemistry Lab II	1 / 3
CHEM 182	Introductory Organic Chemistry	3 / 3
CHEM 192	Intro Organic Chem Lab	1 / 3
CHEM 251	Organic Chemistry Lecture I	4 / 4
CHEM 252	Organic Chemistry Lecture II	4 / 4
CHEM 262	Quantitative Analysis	3 / 6
CHEM 272	Organic Chemistry Laboratory	2 / 6
CITF 110	Intro Computer Info Systems	3 / 3
CJUS 210	Intro to Forensic Science	3 / 3
CPSC 101	Intro to Computer Science	3 / 3
COMM 240	Interpersonal Communication	3 / 3
CPSC 131	Numerical Methods and MATLAB	3 / 4
CPSC 230	Algorithms and Computing w/ C++	4 / 4
CPSC 231	Computing and Data Structures	4 / 4
CPSC 260	Computing Science Structures	4 / 4
ECON 120	Power, Authority and Exchange	4 / 4
ECON 202	Principles of Economics-Macro	4 / 4
ENGL 211	World Literature I	4 / 4
ENGL 220	Science Fiction	4 / 4
ENVR 121	Environmental Rules and Regs	3 / 3
ENVR 122	Enviro Sampl & Instrumentation	4 / 6
ENVR 131	Industrial Process Safety	3 / 3
GEOG 120	Introduction to Geography	3 / 3
GEOG 200	World Regional Geography	4 / 4
GEOG 202	Geography of North America	3 / 3
GEOG 220	Weather, Forecasting & Climate	4 / 4
GEOG 221	Physical Geography	4 / 4
GEOL 221	Physical Geology	4 / 6
GEOL 222	Historical Geology	4 / 6

Course Code	Course Title	Credit / Billing Hours
GEOL 230	Environmental Geology	4 / 6
GSCI 100	Intro to Geospatial Tech	3 / 4
GSCI 110	Beginning ArcGIS	3 / 5
GSCI 120	Advanced ArcGIS	3 / 5
GSCI 210	Global Positioning Systems	3 / 4
GSCI 240	Cartography in GIS	3 / 4
GSCI 241	Remote Sens/AirPhoto Interpret	3 / 4
HIST 211	U.S. History to 1877	4 / 4
HIST 212	U.S. History: 1877 to Present	4 / 4
HUMS 160	Mythology	4 / 4
HUMS 223	The Western World to 1500	4 / 4
HUMS 224	The Western World since 1500	4 / 4
ISCI 121	Physical Science Concepts	4 / 6
ISCI 122	Integrated Sci for Education II	4 / 6
ISCI 131	Integrated Physical Science	4 / 6
ISCI 245	S.T.E.M. Workplace Practices	4 / 6
LING 230	Introduction to Linguistics	3 / 3
MATH 126	Precalculus	5 / 5
MATH 141	Calculus with Applications	4 / 4
MATH 151	Calculus I	4 / 4
MATH 152	Calculus II	4 / 4
MATH 253	Calculus III	4 / 4
MATH 254	Intro to Differential Equation	4 / 4
MATH 260	Linear Algebra	4 / 4
MUSC 108	Concert Choir	1 / 3
MUSC 122	Rock Band	1 / 3
MUSC 123	Jazz Ensemble	1 / 3
MUSC 124	Multi-Instrumental Music Ensem	1 / 3
MUSC 240	Musical Cultures to 1750	4 / 4
MUSC 241	Musical Cultures 1750-Present	4 / 4
PHIL 151	Intro to Logic & Critical Think	4 / 4
PHIL 152	Introduction to Ethics	4 / 4
PHYS 120	The Art of Physics	4 / 5
PHYS 200	Intro to Applied Physics	4 / 5
PHYS 221	Introductory Physics I	4 / 6
PHYS 222	Introductory Physics II	4 / 6
PHYS 251	Physics I with Calculus	5 / 7
PHYS 252	Physics II with Calculus	5 / 7
PHYS 260	Statics for Engineers	3 / 3
POLS 120	American Political System	4 / 4
POLS 260	Comparative Political Systems	3 / 3
PSYC 200	Introduction to Psychology	4 / 4

Course Code	Course Title	Credit / Billing Hours
RELG 150	Intro to World Religions	4 / 4
SCIN 287	Science Technology Internship	2-4 / 2-4
SOCL 120	Introduction to Sociology	4 / 4
STAT 170	Introduction to Statistics	4 / 4
STAT 215	Intro to Probability and Stats	4 / 4

Minimum Total Credit Hours

60 credits / 64 billing hours

Recommended Course Sequence

College-ready Full-time

Semester I
ACAD 100 (if waived, substitute Career Community course)
ANTH 270 or ECON 120 or ECON 201 or EDUC 204 or EDUC 220 or GEOG 120 or GEOG 200 or POLS 120 or POLS 240 or POLS 260 or PSYC 200 or SOCL 120
CHEM 151
CHEM 161
ENGL 121 or 131

Semester II
BIOL 120 or BIOL 127 or GEOL 221 or GEOL 230 or PHYS 251
COMM 120 or COMM 130 or ENGL 122 or ENGL 132
MATH 120 or MATH 126 or MATH 151
Students who have decided on an academic program within the Science and Math Career Community should select that program through the Change of Program Request form and follow the coursework outlined for the associated pathway.
Limited Choice courses for students completing the Science and Math GA

Semester III
Limited Choice courses for students completing the Science and Math GA

Semester IV
Limited Choice courses for students completing the Science and Math GA

College-ready Part-time

Semester I
ACAD 100 (if waived, substitute Career Community course)
CHEM 151
CHEM 161
MATH 120 or MATH 126 or MATH 151

Semester II
ANTH 270 or ECON 120 or ECON 201 or EDUC 204 or EDUC 220 or GEOG 120 or GEOG 200 or POLS 120 or POLS 240 or POLS 260 or PSYC 200 or SOCL 120 ENGL 121 or 131

Semester III (Summer – optional)
BIOL 120 or BIOL 127 or GEOL 221 or GEOL 230 or PHYS 251
COMM 120 or COMM 130 or ENGL 122 or ENGL 132
Students who have decided on an academic program within the Science and Math Career Community should select that program through the Change of Program Request form and follow the coursework outlined for the associated pathway.

Semester IV
BIOL 120 or BIOL 127 or GEOL 221 or GEOL 230 or PHYS 251 (if no Summer enrollment)
COMM 120 or COMM 130 or ENGL 122 or ENGL 132 (if no Summer enrollment)
Students who have decided on an academic program within the Science and Math Career Community should select that program through the Change of Program Request form and follow the coursework outlined for the associated pathway.
Limited Choice courses for students completing the Science and Math GA

Semester V
Limited Choice courses for students completing the Science and Math GA

LCC makes every effort to limit revisions to the pathways during their effective timeframe. However, the College reserves the right to update certificate and degree title changes, and make course changes as needed, without prior notice.