



Engineering-Physics A.S.

Career Community: Science and Mathematics

Curriculum Code: 1619

Effective: Fall 2023 – Summer 2028

Purpose of Major

This degree is designed for students who plan to transfer to a four-year university to pursue a Bachelor's of Science degree in Engineering or Physics with a variety of concentrations. Students completing this curriculum will also satisfy Michigan Transfer Agreement (MTA) between two-year and four-year institutions in Michigan and qualify for an LCC Transfer Studies Certificate of Achievement (1482). This degree includes a set of courses common to all Science and Mathematics majors and many transfer institutions. Students are encouraged to work with an academic advisor and program advisor to explore transfer opportunities.

Not all courses in this pathway transfer to all colleges. Students who wish to transfer to a four-year institution should select coursework indicated for that institution.

Milestone

In addition to the required General Education courses in Math and English, completion of PHYS 251 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 these courses.

Additional Information

A student must earn a minimum grade of 2.0 in all courses.

Contact Information

For further information, including career options, course substitutions and waivers, etc., contact the Science Department, Arts and Sciences Building, Room 3203, telephone number 517-483-1092, or the Academic Advising Department, Gannon Building – Star Zone, telephone number 517-483-1904.

General Education – Transfer Degrees (MTA) - Recommended Courses

(For the full list of options, see [General Education](#))

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

- Humanities or Fine Arts
Program of Study Required Courses meets this requirement.
- Mathematics
Science and Mathematics Career Community Courses meet this requirement.
- Natural Sciences
Science and Mathematics Career Community Courses and Program of Study Required Courses meet this requirement.
- Social Sciences
Science and Mathematics Career Community Courses and Program of Study Required Courses meet this requirement.

Science and Mathematics Career Community Courses – *These courses are required for all Science and Mathematics programs. 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
GEO 221 or	Physical Geology	4 / 6
GEO 230 or	Environmental Geology	4 / 6
PHYS 251	Physics I with Calculus	5 / 7
CHEM 151	General Chemistry Lecture 1	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

Course Code	Course Title	Credit / Billing Hours
ENGL 121 or ENGL 131	Composition I Honors Composition I	4 / 4 4 / 4
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.

Students wishing to waive ACAD 100 should contact their advisor.

Choose MATH 151 and PHYS 251 for this degree.

Students considering adding Secondary Education Certification in Math or Science in order to teach in Michigan Public Schools are strongly encouraged to select EDUC courses as listed to meet the Michigan Transfer Agreement (MTA) Social Science requirement.

For future transfer (Secondary Education Certification) to:

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

Program of Study Required Courses

Course Code	Course Title	Credit / Billing Hours
MATH 151	Calculus I	4 / 4
MATH 152	Calculus II	4 / 4
MATH 253	Calculus III	4 / 4
MATH 254	Intro to Differential Equations	4 / 4
PHYS 251	Physics I with Calculus	5 / 7
PHYS 252	Physics II with Calculus	5 / 7

Note: If MATH 151 and PHYS 251 were completed as part of the Career Community block, do not repeat enrollment.

Program of Study Required Courses – Limited Choices – Humanities and Fine Arts - *Select two from two different disciplines.*

Course Code	Course Title	Credit / Billing Hours
ARTH 120	Masterpieces of Art & Music	4 / 4
ENGL 220	Science Fiction	4 / 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 224	The Western World since 1500	4 / 4
PHIL 151	Intro to Logic & Critical Think	4 / 4
PHIL 152	Introduction to Ethics	4 / 4
RELG 150	Intro to World Religions	4 / 4

Program of Study Required Courses – Limited Choices – Social Sciences - *Select one from a different discipline chosen for the Science and Mathematics Career Community block of courses. Students considering adding Secondary Education Certification in order to teach in Michigan Public Schools are strongly encouraged to select PSYC 200.*

Course Code	Course Title	Credit / Billing Hours
ANTH 270	Cultural Anthropology	3 / 3
GEOG 200	World Regional Geography	4 / 4
POLS 120	American Political System	3 / 3
PSYC 200	Introduction to Psychology	4 / 4
SOCL 120	Introduction to Sociology	4 / 4

Program of Study Required Courses, Limited Choices – *Select a minimum of two courses to meet the 60-credit minimum required for this degree. For information on preferred courses for specific concentrations identified by transfer institutions, consult with a Program Advisor.*

Course Code	Course Title	Credit / Billing Hours
BIOL 127	Cell Biology	4 / 6
CPSC 131	Numerical Methods and MATLAB	4 / 4
CPSC 230	Algorithms and Computing with C++	4 / 4
MATH 260	Linear Algebra	4 / 4
PHYS 260	Statics for Engineers	4 / 4
STAT 215	Intro to Probability and Statistics	4 / 4

Minimum Total Credit Hours

60 credits / 66 billing hours

Recommended Course Sequence

Semester I
ACAD 100
CHEM 151
CHEM 161
ENGL 121 or ENGL 131
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
COMM 120 or COMM 130 or ENGL 122 or ENGL 132
MATH 152
Limited Choices – Humanities and Fine Arts

Semester III
MATH 253
PHYS 251
Limited Choices – Social Sciences
Limited Choice as needed to meet degree requirements

Semester IV
MATH 254
PHYS 252
Limited Choices – Humanities and Fine Arts
Limited Choice as needed to meet degree requirements

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.