

Undergraduate Major Track Plan

EXPE

Exploring Physical Sciences and Engineering - This Track includes majors that connect with physical sciences like engineering, sustainability, math, chemistry, geology, watershed science, and more (see reverse).

This is a guide and should be used in conjunction with academic advising.

To enter the College of Engineering, new students must meet entrance requirements (detailed on reverse) before 45 CSU credits, and transfer students must declare before 30 CSU credits.

1st Term

Math placement is critical to making progress in this Track. Placement for students is based on the Math Placement Exam – www.math.colostate.edu/mpe and the Directed Self Placement – <http://composition.colostate.edu/students/placement/>.

Course Category	Course Suggested	Course Title	Credit Hours	Critical Indicator	Notes
Math – AUCC 1B	MATH117 MATH118 MATH124 MATH125 MATH126	College Algebra I College Algebra II Log & Functions Numerical Trig Analytical Trig	1.0 – 5.0		<ul style="list-style-type: none"> Being calculus-ready is critical to progress in majors. Students calc-ready first-term can ask about MATH157/159 (calc in 1 year) option. Students must place in to MATH117 with MPE or ELM, AP/IB, or college credit. Completion of MATH118 is a prerequisite for CHEM 105 and CHEM111. MATH126 required before MATH160. Students beginning with MATH117 need to take 3-5 credits of math first semester.
Biological and Physical Sciences – AUCC 3A	CHEM111 OR CHEM105	General Chemistry I OR Prob Solving in Chem	4.0		<ul style="list-style-type: none"> CHEM111 with a B or better is an entrance requirement for engineering. Prerequisite is MATH118 and online Chem Prep completion. CHEM 105 prerequisite is MATH118.
Written Communication – AUCC 1A	CO150	Composition	3.0		Students should complete CO150 in the first year.
1st Year Seminar or AUCC			1.0 - 3.0		Work with your advisor to discuss your plans and selections.
Exploratory or Parallel Path Course			3.0		Reverse page lists course requirements by different fields within this Track. Please work with your advisor to confirm appropriate fit.

2nd Term

Course Category	Course Suggested	Course Title	Credit Hours	Critical Indicator	Notes
Math Required by Most Physical Science Majors	MATH160	Calculus for Physical Scientists I	4.0		Many science majors have important course sequencing. Please discuss how sequences impact your graduation timeline with advisor.
Chemistry Required by Many Physical Science Majors	CHEM111	General Chemistry I	4.0		See above.
AUCC of Interest			0.0 – 6.0		See www.catalog.colostate.edu for AUCC options.
Exploratory or Parallel Path Course			1.0 - 3.0		Reverse page lists course requirements for different fields within this Track. Please work with your advisor to confirm appropriate fit.

3rd Term

Course Category	Course Suggested	Course Title	Credit Hours	Critical Indicator	Notes
Math Required by Most Physical Science Majors	MATH160 OR MATH161	Calculus for Physical Scientists I OR II	4.0		Last chance for new students to earn a grade of B or better in calc for College of Engineering is 45 credits (often third semester).
Sciences Required by Most Physical Science Majors	CHEM111 OR PH141	General Chemistry I OR Physics for Scientists & Engr I	4.0 or 5.0		Last chance for new students to earn a grade of B or better in CHEM111 or PH141 to enter College of Engineering is 45 credits (often third semester).
AUCC of Interest			3.0 – 6.0		See www.catalog.colostate.edu for AUCC options.
General Elective			1.0 - 3.0		

Majors in Math and Physical Science Fields

CSU has many majors that focus on math and physical sciences. Students should evaluate how their interests fit with the majors below to consider parallel plans toward graduation.

Visit www.undeclared.casa.colostate.edu and click "Explore Major Tracks" to learn more.

Applied Computing Technology: Major requires CS163 **or** CS164 (Java [CS1]) and MATH160 (Calc for Physical Scientists). The ACT major is in the Computer Science Department.

Biochemistry: Biochemistry studies the chemistry of living systems. Major requires strong biological and physical science foundations, including CHEM111 (Gen Chemistry I) and LIFE102 (Attributes of Living Systems).

Biomedical Sciences: Limited space in the major. Students must have 3.3 cumulative GPA and grades of B or better in LIFE102 (Attributes of Living Systems) **and** CHEM111(Gen Chemistry I) to be placed on the waitlist for this major.

Chemistry: Major requires strong physical science foundations, including CHEM111(Gen Chemistry I) and MATH160 (Calc for Physical Scientists).

Computer Science: To declare, students must earn cumulative 2.5 GPA and grades of C or better in CS163 **or** CS164 (Java [CS1]) **and** MATH160 (Calc for Physical Scientists).

Construction Management: To declare, students must earn a 2.75 cumulative GPA on 15 graded CSU credits along with grades of B or better in CON101 (Introduction to Construction Management) and CO150 and a grade of C or better in MATH125. Department will determine space availability & admissions in to program. Students must be Pre-Construction Management to take CON101.

Ecosystem Science and Sustainability: Students learn about ecosystem resources and how to integrate science in to decision making and public policy. Requires chemistry, physics, and calculus.

Engineering Majors (NOT Mechanical*): To declare, students must earn cumulative 2.75 GPA and grades of B or better in MATH160 (Calc for Physical Scientists) **and** a science (CHEM111 or PH141). New students must declare before 45 CSU credits, and transfer students must declare before 30 CSU credits.

Environmental Health: Major requires strong biological and physical science foundations, including CHEM111 (Gen Chemistry I), LIFE102 (Attributes of Living Systems), and MATH155 (Calc for Biological Sciences).

Geology: Major requires GEOL150 (Geology for Physical Scientists), CHEM111(Gen Chemistry I), PH141 (Physics for Sci & Engr I), and MATH160 (Calc for Physical Scientists).

Mathematics: Major requires MATH160 (Calc for Physical Scientists). Major offers 8 concentrations and prepares students for fields including, but not limited to, 3D modeling, computer programming, and financial risk analysis.

***Mechanical Engineering:** Limited space in the major. To be put on a waitlist, students must earn cumulative 3.0 GPA and grades of B or better in MATH160 (Calc for Physical Scientists) **and** a science (CHEM111 or PH141). New students must declare before 45 CSU credits, and transfer students must declare before 30 CSU credits.

Microbiology: Major explores microorganisms, infectious diseases, and environmental functions of microbes and requires LIFE102 (Attributes of Living Systems), CHEM111(Gen Chemistry I), and MATH155 (Calc for Biological Sciences).

Physics: Requires MATH160 (Calc for Physical Scientists) and PH141 (Physics for Sci & Engr I). Students study phenomena, matter, and energy with applications like electronics, optics, computers, lasers, materials, and molecules.

Statistics: This math-informed major requires MATH160 (Calc for Physical Scientists) to begin math series.

Watershed Science: Major explores natural and human activities that affect water resources. Requires calculus, geology, biology, chemistry, and WR304 (Sustainable Watersheds)