Entering the STEM Fields at Penn

STEM Areas & Majors

Click on a specific major below to learn more about its curriculum.

Climate & Earth Sciences

- Environmental Sciences
- Biology
- Earth Sciences

Mind, Brain & Cognition

- Cognitive Sciences
- Linguistics
- Neuroscience
- Biology
- Psychology
- Logic, Information, and Computation

Experimental Sciences

- Biophysics
- Biochemistry
- Chemistry
- Physics
- Mathematics
- Computational Biology
- Psychology

Life Sciences

- Biology
- Psychology
- Neuroscience
- Biophysics
- Mathematics
- Environmental Studies
- Logic, Information, and Computation

Physical Sciences

- Chemistry
- Physics
- Astrophysics
- Earth Sciences
- Environmental Studies
- Biochemistry
- Logic, Information, and Computation

Common STEM Entry Courses

To the right is a chart that shows recommended courses that STEM majors above with signifcant quantitative (), chemistry (), biology () and physics ()requirements should start with. Students should consult with their advisors about their prior experience and exposure in a subject area and their current interests. For example, some things to discuss and take into consideration when determining the correct course to start with include:

- The last course (year and level) that they took Math, Bio, Chem and Physics
- Advance Placement (AP) courses or exams (5 is highest) and their approximate score
- What they plan on doing with the sciences (i.e. health professions with humanities major, science major, etc.)

Little or No Prior Exposure to Subject	Some Prior Exposure to Subject	Extensive Prior Exposure to Subject
Math *(Click to Learn More)*		
MATH 1300 + 0030 Lab Introduction to Calculus **Meets requirement for health professional programs*	**MATH 1400 + 0040 Lab** Calculus, Part I	**MATH 1410 + 0140 Lab** Calculus, Part II
Biology *(Click to Learn More)*		
BIOL 1101/1102 Lab Included Introduction to Biology A/ Introduction to Biology B **Meets requirement for health professional programs*	**NRSC 1110** Introduction to Brain and Behavior	**BIOL 1121 & 1123** Introduction to Biology (The Molecular Biology of Life) & Introductory Molecular Biology Lab *Requires significant prior Chemistry experience*
Chemistry *(Click to Learn More)*		
CHEM 1011 + 1101 Lab/ CHEM 1021 + 1102 Lab Introduction to General Chemistry I and General Chemistry I Laboratory/ Introduction to General Chemistry II and General Chemistry II Laboratory **Meets requirement for health professional programs*	**CHEM 1012 + 1101 Lab/ CHEM 1022 + 1102 Lab** General Chemistry I and General Chemistry I Laboratory/ General Chemistry II and General Chemistry II Laboratory ***Requires significant prior Math experience*** **Meets requirement for health professional programs*	**CHEM 1151 CHEM 1161** Honors Chemistry I and Honors Chemistry II *Requires significant prior Math experience* *Recommended for Biochemistry and Chemistry Majors*
Physics *(Click to Learn More)*		*Biochemistry, Chemistry and Physics and Biophysics majors must take PHYS0150/0151 or 0170/0171*
PHYS 0101/0102 General Physics: Mechanics, Heat and Sound/ General Physics: Electromagnetism, Optics, and Modern Physics *Algebra/Trigonometry Based* **Meets requirement for health professional programs*	**PHYS 0150/0151** Principles of Physics I: Mechanics and Wave Motion/ Principles of Physics II: Electromagnetism and Radiation *Calculus Based*	**PHYS 0170/0171** Honors Physics I: Mechanics and Wave Motion/ Honors Physics II: Electromagnetism and Radiation

Pre-Health Professions

https://careerservices.upenn.edu/channels/apply-to-health-professions-school/

Note that some courses to the chart on the right in teal meet the minimum level needed for applications to most professional programs in the health professions below. For questions regarding course selection for specific students, please consult with your back-up advisor in the College Office.

- Pre-Medicine
- Pre-Dental
- Pre-Veterinary

Students are encouraged to meet with the Career Services Pre-Health Team for help with their career development.

Research Opportunities

https://www.curf.upenn.edu/

As they enter the STEM fields, students can get involved in a number of research opportunities, which they can discuss with advisors. Students can also view and learn of opportunities through the Center for Undergraduate Research (CURF).

College of Arts & Sciences
University of Pennsylvania