

BS Engineering Sciences

All engineering sciences students take the core classes, and then pick one “track” to complete
...please see our suggested freshman- and/or sophomore-start schedules for the Physics BS degree
if you’d like suggestions for how to pace yourself through various physics courses.

Feel free to reach out to your advisor and/or the physics Director of Undergraduate Studies too!

Core classes

- PHYS 151 & 152
- CHEM 150/150L
- MATH 111, 112, 211, 212
- PHYS 212: Computational modeling for scientists & engineers
- PHYS 220: Math methods for scientists & engineers
- PHYS 222: Fundamentals of engineering design

Engineering physics track

Phys 253: Modern Physics

Phys 234: Digital electronics

Phys 361: Classical mechanics

Phys 365: Electricity & magnetism

Phys 421: Thermo & stat physics

Phys 461: Quantum mechanics

Phys 444W: Advanced lab

1 elective from:

- Math 315 (numerical analysis)
- Math 345 (math modeling)
- Math 351 (partial dif. eq.)
- Math 361 (prob and stats)
- Phys 422 (applied solid state phys)
- Phys 432 (optics)
- Phys 525 (solid state physics)
- Phys 564 (polymer physics)
- Phys 528 (continuum mechanics)
- Phys 495 or 499 (research†)

Materials science track

Either **Organic chemistry 1 & 2 (and labs)**
or **Chem 202 and 203 (and labs)**

Either **P-Chem 1 & 2** (and labs; Analytical Chem lab
is prereq for P-Chem labs)
or **Phys 253, 421, & 444W**

2 electives from:

- Chem 301 (biochem)
- Phys 422 (applied solid state phys)
- Phys 461 (quantum)
- Chem 571 (biomolecular chemistry)
- Chem 572 (adv. biophysical chem)
- Phys 525 (solid state physics)
- Phys 528 (continuum mechanics)
- Phys 564 (polymer physics)
- Phys 562 (soft condensed matter)
- Phys 552 (biomacromolecules)

1 elective may be Phys or Chem 495 or 499 (research†)

Geoscience track

ENVS 120 or 130

ENVS 131: Intro Environmental Studies

ENVS 331: Earth Systems Science

PHYS 253: Modern Physics

PHYS 421: Thermo & Stat Physics

5 electives, including at least one course with a lab
(marked with *), from:

- ENVS 230* (Fund. Geo.) / GEOL OX 141*
- ENVS 235 (Env. Geo.)
- ENVS 229* (Meteorology) / GEOL OX 115*
- ENVS 250 (Cartography)
- GEOL OX 250* (Mineral Resources)
- ENVS 325 (Energy & Climate Change)
- ENVS 328 (Intro Atmos Chem)
- ENVS 330 (Climatology)
- ENVS 346* (Geo. Origins of Landscapes)
- ENVS 348* (Sust. Water Res.)
- CS 170* (Intro to Computer Science)
- PHYS 528 (Continuum Mechanics)

1 elective may be 399, 494, 498, or 499 (research†)

†must be 4 research credits as a single course in a single semester