**BS Engineering Sciences**

all engineering sciences students take the core classes, and then pick one “track” to complete

### Core classes
- PHYS 151 & 152
- CHEM 141/141L or 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys 253</td>
<td>Modern Physics</td>
</tr>
<tr>
<td>Phys 234</td>
<td>Digital electronics</td>
</tr>
<tr>
<td>Phys 361</td>
<td>Classical mechanics</td>
</tr>
<tr>
<td>Phys 365</td>
<td>Electricity &amp; magnetism</td>
</tr>
<tr>
<td>Phys 421</td>
<td>Thermo &amp; stat physics</td>
</tr>
<tr>
<td>Phys 461</td>
<td>Quantum mechanics</td>
</tr>
<tr>
<td>Phys 444W</td>
<td>Advanced lab</td>
</tr>
</tbody>
</table>

#### Materials science track

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

#### Geoscience track

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVS 120</td>
<td>Intro Environmental Studies</td>
</tr>
<tr>
<td>ENVS 131</td>
<td>Earth Systems Science</td>
</tr>
<tr>
<td>PHYS 253</td>
<td>Modern Physics</td>
</tr>
<tr>
<td>PHYS 421</td>
<td>Thermo &amp; Stat Physics</td>
</tr>
</tbody>
</table>

#### 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)

**Engineering physics track**

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 562 (soft condensed matter)
- Phys 552 (biomacromolecules)

**Materials science track**

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**

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

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