Required courses for physics majors
(On next page: BS Engineering Sciences!)

		BS Physics	BS Physics & Astro.	BS Biophys.	BA Physics	BA Physics & Astro.
Phys 116: Introductory Astronomy			recommended			yes
Phys 151*: Phys. for Sci. and Eng. I	F	yes	yes	yes	yes	yes
Phys 152*: Phys. for Sci. and Eng. II	S	yes	yes	yes	yes	yes
Phys 212: Comp. Modeling for Sci., Eng.	S	yes	yes	yes	yes	yes
Phys 220: Math for Sci. and Eng.	F	yes	yes	yes		
Phys 253: Modern Physics	F	yes	yes	yes	yes	yes
Phys 311: Astrophysics I	S		yes			*(one of*
Phys 312: Astrophysics II	S		yes			*these two)*
Phys 361: Classical Mechanics	F	yes	yes	yes	*(one*	*(one*
Phys 365: Electricity and Magnetism	S	yes	yes	yes	*of*	*of*
Phys 421: Thermo. and Stat. Physics	F	yes	yes	yes	*these*	*these*
Phys 461: Quantum Mechanics	S	yes	yes	yes	*four)*	*four)*
Phys 444W: Advanced Lab		yes	yes	yes	yes	yes
Phys 434, 552, 554, 556: biophysics electives				2		
Phys 397R, 495R or 499R: 4 credits as 1 course				yes		

ADDITIONAL PHYSICS ELECTIVES: (One elective may be four credits of 397R, 495R, or 499R, as a single course)

must be at 200 level or higher		1			2	
must be at 300 level or higher		1				

COURSES IN OTHER DEPARTMENTS:

Chem 150 w/lab				*(one of*		
Bio 141 w/lab				*these two)*		
Math 111: Calculus I		yes	yes	yes	yes	yes
Math 112: Calculus II		yes	yes	yes	yes	yes
Math 211: Multivariable Calculus		yes	yes	yes	yes	yes
Math 212: Differential Equations		yes	yes	yes	yes	yes

*With permission of the Director of Undergraduate Studies, Phys 141/142 may replace Phys 151/152

BS Engineering Sciences

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

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