B.S. Physics

Required
(Optional)
Prerequisite
Concurrent

Notes:
1. Math 112 (Calculus I) preparation is assumed in high school. If you studied differentiation and integration in high school, move on to Math 113.
2. If you want a more formal versus applied math preparation, and perhaps a math minor, take the math sequence on the right. It requires 1-2 more hours than the left track. Both tracks are good.
3. Senior Thesis is required; join research group as early as possible. Credit in Sr. year in 498R.
4. Physics 416, Writing in Physics, can replace Wrtg 316, and can help you write your thesis. Take it when your research is essentially complete.
5. Color code: blue = math & CS, orange = introductory sequence, purple = lab, yellow = careers, green = computational, red = upper level.

Suggested semester:

Freshman 1

High school calc. or Math 112 — FWSpSu

MATH 113 Calculus II (4.0 hr) — FWSpSu

PHYS 121 Mechanics — FWSp

PHYS 191 Phys Careers & Research (0.5 hr) — F, 1st term

Freshman 2

MATH 302 Math for Eng. 1 (4.0 hr) — FW

or

MATH 213 + 215 Linear Alg +lab (2+1 hr) — 213:FWSpSu; 215: FW

or Math 302

PHYS 123 Waves, optics, thermo — FWSp

C S 111 Intro to Computer Science — FWSpSu

recommended

Soph. 3

or Math 314

(Complete either math sequence)

MATH 314 Calculus many variables (3.0 hr) — FWSpSu

PHYS 230 Computational Physics 1 (1.0 hr) — FW

PHYS 220 Elec & Mag — FWSp

PHYS 225 Intro to Expt. Phys (2.0 hr) Take with 220 if possible — FW

PHYS 291 Phys Careers & Research (0.5 hr) — F, 2nd term

Soph. 4

MATH 303 Math for Eng. 2 (4.0 hr) — FW

MATH 334 Diff. Equations (3.0 hr) — FWSpSu

or Math 302

PHYS 222 Modern Phys — FW

PHYS 240 Sci Apparatus Design, Fab (2.0 hr) — FW

Senior Thesis - Begin research in Jr year or before, sign up for 498R your last semester

Junior 5

PHYS 321 Mechanics — FSp

PHYS 330 Computational Physics 2 (1.0 hr) — FSp

PHYS 318 Math Phys Take 318 as soon as you have prereqs — FW

PHYS 245 Experiment in Con-temp Phys (2.0 hr) — FW

Junior 6

PHYS 430 Computational Physics 3 (1.0 hr) — WSu

PHYS 360 Statistical/Thermal Addl Prereq: Math 302 or 314 — W

Senior 7

PHYS 441 Elec & Mag 1 — FSp

PHYS 451 Quantum 1 — F

Senior 8

(Phys 416) Writing in Phys. Alternative: Wrtg 316 — W

PHYS 471 Optics Prereq: 123, 220, Math 302 or 314, Math 303 or 334 concurrent. Recom: 318 — WSu Can also take Jr. year

PHYS 442 Elec & Mag 2 — WSu

PHYS 452 Quantum 2 — W

Other optional advanced courses (Prereqs)
399R Internship
427 Astrophysics (instructor's consent)
461, 561 Acoustics (123, Math 334)
500 Business Practices for Sci, Math Major
513R Special topics
545 Plasma Physics (321, 441)
571 Lasers and Atoms (451, 471)
581 Solid State Physics (222)
583 Nanostructures & Surfaces (222)
585 Thin-film Physics (222)
586 Electron Microscopy
587 Semiconductor devices (581)
601,2 Math. Physics (Math 318, 334)

Other courses rec'ed by alumni
Stat 201 (Stat for Eng. & Sci)
Math 352 (Complex Analysis)
Math 410 (Numerical Methods)
Mech Eng 273 (Intro to Sci Comp & Comp Aid Eng)