

B.S. IN APPLIED PHYSICS

Code	Title	Credits
Major in Applied Physics (B.S.)		
CHE 113 & CHE 113D	General Chemistry I and General Chemistry I Lab	4
CHE 214 & CHE 215	General Chemistry II and General Chemistry II Lab	4
COS 205	Scientific Computing ¹	3
MAT 125	Calculus 2 ¹	4
MAT 223	Multivariable Calculus	3
Choose one of the following:		3-4
MAT 222	Differential Equations	
MAT 224	Differential Equations with Linear Algebra	
PHY 260	Careers in Engineering and Physics Seminar	1
PHY 292 & PHY 292D	General Physics I and General Physics I Lab ¹	4
PHY 296 & PHY 297	General Physics II and General Physics II Lab	4
PHY 302 & PHY 303	Electronics and Electronics Lab	4
PHY 312 & PHY 313	Modern Physics and Modern Physics Lab	4
PHY 320	Mathematical Methods in Physics and Engineering	4
PHY 340	Mechanics	4
PHY 352 & PHY 353	Computer Methods in Physics and Engineering and Computer Methods in Physics and Engineering Lab	4
PHY 365	Physics Research Seminar	1
PHY 490	Research	3
Code	Title	Credits
Major		54-55
General Education		43-44
Emphasis		16-24
Electives		0-8
Total Credits		122-124

¹ MAT 124M is a prerequisite for this course.

Courses whose number is followed by a letter fulfill a General Education requirement.

Students may not declare a B.S. in Applied Physics and a Minor in Physics.

Biomedical Emphasis (24 credits)

Code	Title	Credits
BIO 120 & BIO 120D	Introduction to Molecular and Cellular Biology and Introduction to Molecular and Cellular Biology Lab	4

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BIO 214 & BIO 215	Human Anatomy and Human Anatomy Lab	4
BIO 216 & BIO 217	Human Physiology and Human Physiology Lab	4
PHY 422 & PHY 423	Fluid Mechanics and Fluid Mechanics Lab	4
Choose from one of the following Optics courses:		4
PHY 332 & PHY 333	Optics and Optics Lab	
PHY 432 & PHY 433	Laser Fundamentals and Laser Fundamentals Lab	
Choose one of the following courses on properties of materials:		4
PHY 400	Electricity and Magnetism	
PHY 424 & PHY 425	Electronic Materials and Devices and Electronic Materials and Devices Laboratory	
Total Credits		24

Computational Emphasis (16 credits)

Code	Title	Credits
COS 351	High-Performance Computing	3
MAT 241	Discrete Mathematics ¹	3
MAT 300	Numerical Analysis	3
MAT 330	Probability and Statistics	3
MAT 376	Operations Research ²	4
Total Credits		16

¹ MAT 124M is a prerequisite for this course.

² MAT 211 with a C- or higher or MAT 224 with a C- or higher is a prerequisite for this course.

Electronics Emphasis (20 credits)

Code	Title	Credits
ENR 306 & ENR 307	Digital Logic and Design and Digital Logic and Design Lab	4
ENR 326	Circuit Analysis & Simulations	4
PHY 400	Electricity and Magnetism	4
PHY 424 & PHY 425	Electronic Materials and Devices and Electronic Materials and Devices Laboratory	4
Choose one of the following Optical Science courses:		4
PHY 332 & PHY 333	Optics and Optics Lab	
PHY 432 & PHY 433	Laser Fundamentals and Laser Fundamentals Lab	
Total Credits		20

Mechanics Emphasis (16 credits)

Code	Title	Credits
ENR 304 & ENR 305	Engineering Materials and Manufacturing and Engineering Materials and Manufacturing Lab	4
ENR 308	Statics and Mechanics of Materials	4
PHY 410	Thermodynamics	4
PHY 422 & PHY 423	Fluid Mechanics and Fluid Mechanics Lab	4
Total Credits		16

Optics Emphasis (16 credits)

Code	Title	Credits
PHY 332 & PHY 333	Optics and Optics Lab	4
PHY 400	Electricity and Magnetism	4
PHY 432 & PHY 433	Laser Fundamentals and Laser Fundamentals Lab	4
PHY 440	Quantum Mechanics	4
Total Credits		16