PRESCRIBED COURSES

CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
ENGL 202C	Effective Writing: Technical Writing	3
MATH 220	Matrices	2

PRESCRIBED COURSES: REQUIRE A GRADE OF C OR BETTER

CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 251	Ordinary and Partial Differential Equations	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4

PRESCRIBED COURSES

PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
PHYS 237	Introduction to Modern Physics	3
PHYS 400	Intermediate Electricity and Magnetism	4
PHYS 410	Introduction to Quantum Mechanics I	4
PHYS 419	Theoretical Mechanics	3
PHYS 420	Thermal Physics	3
PHYS 444	Topics in Contemporary Physics	2
PHYS 457W	Experimental Physics	3

ADDITIONAL COURSES

Select 3 credits from the following:		3
CMPSC 101	Introduction to C++ Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 200	Programming for Engineers with MATLAB	
CMPSC 201	Programming for Engineers with C++	

PRESCRIBED COURSES		
ADDITIONAL COURSES: REQUIRE A GRADE OF C OR BETTER		
MATH 230	Calculus and Vector Analysis	4
or MATH 231 & MATH 232	Calculus of Several Variables and Integral Vector Calculus	
SUPPORTING COURSES AND RELATED AREAS		
Select 3 credits of 400-level MATH from departmental list		3
REQUIREMENTS FOR THE OPTION		
Select an option		24-27

REQUIREMENTS FOR THE OPTION

COMPUTATION OPTION (24 CREDITS)

PRESCRIBED COURSES		
MATH 455	Introduction to Numerical Analysis I	3
MATH 456	Introduction to Numerical Analysis II	3
ADDITIONAL COURSES		
CMPSC 122	Intermediate Programming [1]	3
or CMPSC 132	Programming and Computation II: Data Structures	
SUPPORTING COURSES AND RELATED AREAS		
Select 6 credits from program list		6
Select 3 credits of natural science (GN) courses that are not listed in the major		3

PRESCRIBED COURSES		
Select 6 credits from the following:		6
AERSP 424	Advanced Computer Programming	
PHYS 430	Introduction to Computational Physics	
300-400-level CMPSC		
400-level MATH from departmental list		
400-level STAT		

[1] CMPSC 122 has CMPSC 121 as a prerequisite and CMPSC 132 has CMPSC 131 as a prerequisite so care should be taken when choosing the 'programming requirement' under the Common Requirements for the major.

ELECTRONICS OPTION (27 CREDITS)

PRESCRIBED COURSES		
EE 210	Circuits and Devices	4
ADDITIONAL COURSES		
Select 8 credits from the following:		8
CMPEN 270	Digital Design: Theory and Practice	
EE 310	Electronic Circuit Design I	
EE 350	Continuous-Time Linear Systems	
SUPPORTING COURSES AND RELATED AREAS		
Select 6 credits from program list		6
Select 3 credits of natural science (GN) courses that are not listed in the major		3
Select 6 credits of EE 300- or 400-level courses		6

GENERAL PHYSICS OPTION (25-26 CREDITS)

ADDITIONAL COURSES

PHYS 402	Electronics for Scientists	4
or PHYS 458	Intermediate Optics	
Select 6-7 credits from items A, B, and/or C: [1]		6-7
A		
PHYS 406	Subatomic Physics	
PHYS 411	Introduction to Quantum Mechanics II	
PHYS 412	Solid State Physics I	
PHYS 413	Solid State Physics II	
PHYS 414	Solid State Physics	
PHYS 430	Introduction to Computational Physics	
PHYS 461	Theoretical Mechanics	
PHYS 472	Elements of Nuclear Physics and its Applications to Medical Imaging and Treatments	
PHYS 479	Special and General Relativity	
PHYS 496	Independent Studies	
PHYS 497	Special Topics	
B		
PHYS 402	Electronics for Scientists [2]	
or PHYS 458	Intermediate Optics	
C		
ASTRO 410	Computational Astrophysics	

ADDITIONAL COURSES

ASTRO 440	Introduction to Astrophysics
ASTRO 485	Introduction to High-Energy Astronomy

SUPPORTING COURSES AND RELATED AREAS

Select 3 credits of natural science (GN) courses that are not listed in the major	3
Select 9 credits from program list, with a maximum of 6 credits of the following:	9
PHYS 496	Independent Studies
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III
Select 3 credits of 400-level MATH from program list	3

[1] Only 3 credits of ASTRO courses may be used.

[2] The course not selected above may be used.

MEDICAL PHYSICS OPTION (24-25 CREDITS)

This option prepares students for graduate study in medical physics, medical school, or bioengineering.

ADDITIONAL COURSES

Select course set A or B:	15-16

SET A

BIOL 110	Biology: Basic Concepts and Biodiversity

ADDITIONAL COURSES		
BIOL 230W or BIOL 240W	Biology: Molecules and Cells Biology: Function and Development of Organisms	
CHEM 210	Organic Chemistry I	
CHEM 212	Organic Chemistry II	
CHEM 213	Laboratory in Organic Chemistry	
SET B		
BIOL 141 or BIOL 472	Introductory Physiology Mammalian Physiology	
9 credits of PHYS 472 or BME at the 300- or 400-level		
Select one of the following:		
BMB 251	Molecular and Cell Biology I	
BIOL 230W	Biology: Molecules and Cells	
BME 201	Fundamentals of Cells and Molecules	
SUPPORTING COURSES AND RELATED OPTIONS		
Select 9 credits from program list, a maximum of 6 credits may be from the following:		9
PHYS 496	Independent Studies	
SC 295	Science Co-op Work Experience I	
SC 395	Science Co-op Work Experience II	

ADDITIONAL COURSES

SC 495	Science Co-op Work Experience III	

NANOTECHNOLOGY/MATERIAL SCIENCE OPTION (24-25 CREDITS)

PRESCRIBED COURSES

PHYS 412	Solid State Physics I	3

ADDITIONAL COURSES

Select course set A or B: [1]		12-13
A		
ESC 312	Engineering Applications of Wave, Particle, and Ensemble Concepts	
ESC 313	Introduction to Principles, Fabrication Methods, and Applications of Nanotechnology	
6 credits from ESC 400-level courses		
B		
MATSE 201	Introduction to Materials Science	
MATSE 402	Materials Process Kinetics	
or MATSE 436	Mechanical Properties of Materials	
MATSE 430	Materials Characterization	
MATSE 460	Introductory Laboratory in Materials	
3 credits from 400-level MATSE courses		

SUPPORTING COURSES AND RELATED AREAS

Select 6 credits from program list		6

PRESCRIBED COURSES

Select 3 credits of natural science (GN) courses that are not listed in the major	3

[1] The courses in option A help satisfy the requirements for the Nanotechnology minor.