

# Bachelor of Science

# Physics with a Major in Physics-Professional (BS)

## Degree Program Guide

The Degree Program Guide is a suggested curriculum to complete this degree program in four years. It is just one of several plans that will work and is presented only as broad guidance to students. Each student is strongly encouraged to develop a customized plan in consultation with their academic advisor. Additional information can also be found in Degree Works.

Course	Title	Credit Hours
<b>Freshman</b>		
<b>Fall</b>		
ENGL 110C	English Composition (Grade of C or better required)	3
MATH 211	Calculus I	4
PHYS 120 or PHYS 309	Physics in the 21st Century * or Physics on the Back of an Envelope	1
CS 151 or CS 153	Introduction to Programming with Java or Introduction to Programming with Python	4
Language & Culture I (May be waived; See requirement details)		0-3
<b>Credit Hours</b>		<b>12-15</b>
<b>Spring</b>		
ENGL 211C or ENGL 231C (Grade of C or better required)		3
MATH 212	Calculus II	4
Select one of the following:		4
PHYS 261N	Advanced University Physics I	
PHYS 231N	University Physics I	
PHYS 226N	Honors: University Physics I	
Human Behavior		3
Language & Culture II (May be waived; See requirement details)		0-3
<b>Credit Hours</b>		<b>14-17</b>
<b>Sophomore</b>		
<b>Fall</b>		
CHEM 121N and CHEM 122N		4
Select one of the following:		4
PHYS 262N	Advanced University Physics II	
PHYS 232N	University Physics II	
PHYS 227N	Honors: University Physics II	
MATH 312 or MATH 285		4
Select one of the following:		3
CS 120G	Introduction to Information Literacy and Research	
CS 121G	Introduction to Information Literacy and Research for Scientists	
OEAS 130G	Research Skills and Information Literacy for the Natural Sciences	
<b>Credit Hours</b>		<b>15</b>

### Spring

CHEM 123N and CHEM 124N		4
MATH 307 or MATH 280		3
PHYS 319	Analytical Mechanics	3
Interpreting the Past		3
Oral Communication		3
<b>Credit Hours</b>		<b>16</b>

### Junior

<b>Fall</b>		
PHYS 303	Intermediate Experimental Physics	3
PHYS 323	Modern Physics	3
PHYS 355	Mathematical Methods of Physics	3
Select one of the following:		3
PHYS 420	Introductory Computational Physics *	
PHYS 453	Electromagnetism II *	
PHYS 456	Intermediate Quantum Mechanics *	
Philosophy and Ethics		3
<b>Credit Hours</b>		<b>15</b>

### Spring

PHYS 413	Methods of Experimental Physics	3
Select one of the following:		3
MATH 316	Introductory Linear Algebra	
MATH 401	Partial Differential Equations	
MATH 421	Applied Mathematics II: Mathematical Modeling	
MATH 422	Applied Complex Variables	
Select one of the following:		3
ASTP 313	Elements of Astrophysics *	
ASTP 414	Relativity and Cosmology	
ASTP 495	Special Topics in Astrophysics	
PHYS 411	Introduction to Atomic Physics	
PHYS 415	Introduction to Nuclear and Particle Physics	
PHYS 416	Introduction to Solid State Physics	
PHYS 417	Introduction to Particle Accelerator Physics	
Upper-Division General Education Course or Course for Minor		3
Human Creativity		3
<b>Credit Hours</b>		<b>15</b>
<b>Senior</b>		
<b>Fall</b>		
PHYS 425	Electromagnetism I	3
PHYS 452	Introduction to Quantum Mechanics	3
Select one of the following: (C or better required)		3
PHYS 499W	Senior Thesis	
PHYS 489W & PHYS 490W	Senior Thesis I and Senior Thesis II	
Upper-Division General Education Course or Course for Minor		3

Impact of Technology		3
Elective (if needed)		3
<b>Credit Hours</b>		<b>18</b>
<b>Spring</b>		
Select one of the following:		3
ASTP 313	Elements of Astrophysics *	
ASTP 414	Relativity and Cosmology	
ASTP 495	Special Topics in Astrophysics	
PHYS 411	Introduction to Atomic Physics	
PHYS 415	Introduction to Nuclear and Particle Physics	
PHYS 416	Introduction to Solid State Physics	
PHYS 417	Introduction to Particle Accelerator Physics	
Literature		3
Course for Minor or Elective		3
Course for Minor or Elective		3
PHYS 454	Thermal and Statistical Physics	3
<b>Credit Hours</b>		<b>15</b>
<b>Total Credit Hours</b>		<b>120-126</b>

\*PHYS 120 and PHYS 420 are offered fall semester only. ASTP 313, PHYS 309, PHYS 453, and PHYS 456 are offered spring semester only.