

## Physics, B.S.

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### Requirements

A Bachelor's degree in physics provides the student with an understanding of the laws of nature and with the experimental and analytical techniques necessary to describe and solve problems in physical systems. The degree is most useful in preparing students for further graduate study in physics, astronomy, engineering or other science. However physics BS degree recipients have also entered graduate programs in law and medicine and other diverse programs. Those not intending to pursue advanced degrees find successful employment in a variety of careers, including education, computer science, electronics and related industries and more.

### Total Program Credits: 120

Matriculation Requirements:			
1. Approval of department chair.			
General Education Requirements:			37 Credits
	ENGL 1010	Introduction to Academic Writing	3
or	ENGL 1005	Literacies and Composition Across Contexts	
	ENGL 2010	Intermediate Writing/Academic Writing and Research	3
	MATH 1210	Calculus I	5
Complete one of the following:			3
	HIST 2700	US History to 1877 (3)	
and	HIST 2710	US History since 1877 (3)	
	HIST 1700	American Civilization (3)	
	HIST 1740	US Economic History (3)	
	POLS 1000	American Heritage (3)	
	POLS 1100	American National Government (3)	
Complete the following:			
	PHIL 2050	Ethics and Values	3
	HLTH 1100	Personal Health and Wellness (2)	
or	PES 1097	Fitness for Life	2
Distribution Courses:			
	Biology		3
	Physical Science		3
	Additional Biology or Physical Science		3
	Humanities Distribution		3
	Fine Arts Distribution		3
	Social/Behavioral Science		3
Discipline Core Requirements:			63 Credits
	PHYS 2210	Physics for Scientists and Engineers I	4
	PHYS 2215	Physics for Scientists and Engineers I Lab	1
	PHYS 2220	Physics for Scientists and Engineers II	4
	PHYS 2225	Physics for Scientists and Engineers II Lab	1
	PHYS 3110	Modern Physics I	3

	PHYS 3115	Introduction to Experimental Physics I WE	2
	PHYS 3120	Modern Physics II	3
	PHYS 3125	Introduction to Experimental Physics II WE	2
	PHYS 3230	Principles of Electronics for the Physical Sciences	3
	PHYS 3300	Mathematical Physics	3
	PHYS 3330	Computational Physics	3
	PHYS 3400	Classical Mechanics	3
	PHYS 3500	Thermodynamics	3
	PHYS 3600	Optics	3
	PHYS 4210	Advanced Experimental Techniques	3
	PHYS 4410	Electrostatics and Magnetism	3
	PHYS 4420	Electrodynamics	3
	PHYS 4510	Quantum Mechanics I	3
	PHYS 490R	Seminar (0.5 credits, taken 4 times)	2
	MATH 1220	Calculus II	5
	MATH 2210	Calculus III	3
	MATH 2280	Ordinary Differential Equations	3
Elective Requirements:			20 Credits
Complete 20 credits from the following courses. The selection of elective coursework should present a coherent theme such as engineering physics, medical physics, nuclear physics, geophysics, computational physics, etc. (Consult Advisor or Department Chair for assistance or to consider possible course substitutions.)			20
	ASTR 2040	Intermediate Astronomy (3)	
	ASTR 3050	Astrophysics I (3)	
	ASTR 3060	Astrophysics II (3)	
	ASTR 4100	Brown Dwarfs and Exoplanets (3)	
	ASTR 4350	Research Methods in Astronomy (3)	
	PHYS 1100	Introductory Math Techniques for Physics and Engineering (3)	
	PHYS 2500	Elementary Fluids and Thermal Physics (3)	
	PHYS 2800	Introduction to Materials Physics (3)	
	PHYS 3310	Advanced Mathematical Physics (3)	
	PHYS 3350	Applications of LabVIEW in Physics (3)	
	PHYS 3700	Particle Physics (3)	
	PHYS 3800	Energy use on Earth (3)	
	PHYS 4100	Biophysics (3)	
	PHYS 4150	Medical Physics (3)	
	PHYS 4250	Nuclear Physics (3)	
	PHYS 4350	Research Methods in Physics (3)	
	PHYS 4520	Quantum Mechanics II (3)	
	PHYS 4700	Acoustics <sup>1</sup> (3)	
	PHYS 4800	Solid State Physics <sup>1</sup> (3)	
	PHYS 481R	Physics Internship (1) (no more than 4 hours counted toward degree)	

## Physics, B.S.

	PHYS 489R	Undergraduate Research in Physics (1) (no more than 9 hours counted toward degree)	
	PHYS 492R	Topics in Physics (3) (may only be taken once toward degree credit)	
	PHYS 495R	Independent Readings (1) (no more than 3 hours counted toward degree)	
	PHYS 499A	Senior Project (2) <sup>1</sup>	
	PHYS 499B	Senior Thesis (1) <sup>1</sup>	
See Physics Department academic advisor for possibly more complete and up to date list.			
	CHEM 1210	Principles of Chemistry I (4) <sup>2</sup>	
	CHEM 1215	Principles of Chemistry I Laboratory (1)	
	CHEM 1220	Principles of Chemistry II PP (4) <sup>2</sup>	
	CHEM 1225	Principles of Chemistry II Laboratory (1)	
Any CHEM course 2310 or higher except internship and independent study type courses.			
Any EENG course 2700 or higher except internship and independent study type courses.			
Any ENGR course 2010 or higher except internship and independent study type courses.			
	MATH 2270	Linear Algebra (3)	
Any MATH course 3200 or higher except intership and independent study type courses.			
Any GEO course 3080 or higher, except internship and independent study-type courses.			
	METO 3100	Climate and the Earth System (3)	

### **Graduation Requirements:**

1. Completion of a minimum of 120 semester credits.
2. Overall grade point average of 2.0 (C) or above with no grade lower than a "C" in core and elective requirement courses.
3. Residency hours--minimum of 30 credit hours through course attendance at UVU, with at least 10 hours earned in the last 45 hours.
4. Completion of GE and specified departmental requirements.
5. Successful completion of at least one Global/Intercultural course.

#### Footnotes:

1-Suggested elective option for the student intent on continuing physics studies in graduate school.

2-Strongly recommended for inclusion in any elective option.

## Physics, B.S. Graduation Plan

This graduation plan is a sample plan and is intended to be a guide. Your specific plan may differ based on your Math and English placement and/or transfer credits applied. You are encouraged to meet with an advisor and set up an individualized graduation plan in [Wolverine Track](#).

Milestone courses (pre-requisites for a course in one of the subsequent semesters) are marked in red and italicized.

Semester 1	Course Title	Credit Hours
<i>MATH 1210</i>	Calculus I	5
<i>ENGL 1010 or ENGH 1005</i>	Introduction to Academic Writing or Literacies and Composition Across Contexts	3
PES 1097 or HLTH 1100	Fitness for Life or Person Health and Wellness	2
<i>PHYS 2210</i>	Physics for Scientists and Engineers I	4
<i>PHYS 2215</i>	Physics for Scientists and Engineers I Lab	1
	Semester total:	15
Notes: Matriculation to the Physics major requires department approval (see physics advisor) and completion of PHYS 2210 and MATH 1210.		
Semester 2	Course Title	Credit Hours
<i>MATH 1220</i>	Calculus II	5
<i>PHYS 2220</i>	Physics for Scientists and Engineers II	4
<i>PHYS 2225</i>	Physics for Scientists and Engineers II Lab	1
ENGL 2010	Intermediate Writing--Humanities/Social Sciences	3
You Choose	Fine Arts Distribution	3
	Semester total:	16
Semester 3	Course Title	Credit Hours
<i>PHYS 3110</i>	Modern Physics I	3
<i>PHYS 3115</i>	Intro to Experimental Physics I WE	2
<i>MATH 2210</i>	Calculus III	3
You Choose	Humanities Distribution	3
PHYS 3300	Mathematical Physics	3
	Semester total:	14
Semester 4	Course Title	Credit Hours
MATH 2280	Ordinary Differential Equations	3
PHYS 3120	Modern Physics II	3
PHYS 3125	Intro to Experimental Physics II WE	2
PHYS 3400	Classical Mechanics	3
PHYS 3500	Thermodynamics	3

	Semester total:	14
Semester 5	Course Title	Credit Hours
<i>PHYS 3230</i>	Principles of Electronics for the Physical Sciences	3
You Choose	Soc/Behavioral Distribution	3
PHIL 205G	Ethics and Values GI	3
You Choose	Physics Electives	6
PHYS 490R	Seminar	0.5
	Semester total:	15.5
Notes: See Program listing or Wolverine Track for a complete list of upper division physics electives and program options.		
Semester 6	Course Title	Credit Hours
PHYS 4210	Advanced Experimental Techniques	3
PHYS 3600	Optics	3
You Choose	Physics Electives	6
PHYS 490R	Seminar	0.5
You Choose	Physical Science Distribution	3
	Semester total:	15.5
Notes: See Program listing or Wolverine Track for a complete list of upper division physics electives and program options.		
Semester 7	Course Title	Credit Hours
You Choose	Physics Electives	6
<i>PHYS 4410</i>	Electrostatics and Magnetism	3
PHYS 4510	Quantum Mechanics I	3
You Choose	American Institutions Distribution	3
PHYS 490R	Seminar	0.5
	Semester total:	15.5
Notes: See Program listing or Wolverine Track for a complete list of upper division physics electives and program options.		
Semester 8	Course Title	Credit Hours
PHYS 3330	Computational Physics	3
PHYS 4420	Electrodynamics	3
PHYS 490R	Seminar	0.5
You Choose	Physics Electives	2
You Choose	Third Science Distribution	3
You Choose	Biology Distribution	3
	Semester total:	14.5
Notes: See Program listing or Wolverine Track for a complete list of upper division physics electives and program options.		
	Degree total:	120