

## Physics, B.S.

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### Requirements

A Bachelor 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 prepares students for further graduate study in physics, astronomy, geophysics, medicine, engineering or many other diverse fields. Bachelor's recipients also find employment in a variety of industries and careers, including engineering, education, computer science, programming, electronics, energy and the environment, geology, medical physics, optics, finance, law and more.

### Total Program Credits: 120

Matriculation Requirements:		
1. Advisor approval.		
2. Completion of PHYS 2210 and MATH 1210 with a C or higher.		
General Education Requirements:		37 Credits
	<a href="#">ENGL 1010</a> Introduction to Academic Writing	3
or	<a href="#">ENGL 1005</a> Literacies and Composition Across Contexts	
	<a href="#">ENGL 2010</a> Intermediate Writing/Academic Writing and Research	3
	<a href="#">MATH 1210</a> Calculus I	4
Complete one of the following:		3
	<a href="#">HIST 2700</a> US History to 1877 (3)	
and	<a href="#">HIST 2710</a> US History since 1877 (3)	
	<a href="#">HIST 1700</a> American Civilization (3)	
	<a href="#">HIST 1740</a> US Economic History (3)	
	<a href="#">POLS 1000</a> American Heritage (3)	
	<a href="#">POLS 1100</a> American National Government (3)	
Complete the following:		
	<a href="#">PHIL 2050</a> Ethics and Values	3
	<a href="#">HLTH 1100</a> Personal Health and Wellness (2)	
or	<a href="#">EXSC 1097</a> 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
	<a href="#">PHYS 2210</a> Physics for Scientists and Engineers I	4
	<a href="#">PHYS 2215</a> Physics for Scientists and Engineers I Lab	1
	<a href="#">PHYS 2220</a> Physics for Scientists and Engineers II	4
	<a href="#">PHYS 2225</a> Physics for Scientists and Engineers II Lab	1
	<a href="#">PHYS 3110</a> Modern Physics I	3

<a href="#">PHYS 3115</a>	Introduction to Experimental Physics I WE	2
<a href="#">PHYS 3120</a>	Modern Physics II	3
<a href="#">PHYS 3125</a>	Introduction to Experimental Physics II WE	2
<a href="#">PHYS 3230</a>	Principles of Electronics for the Physical Sciences	3
<a href="#">PHYS 3300</a>	Mathematical Physics	3
<a href="#">PHYS 3330</a>	Computational Physics	3
<a href="#">PHYS 3400</a>	Classical Mechanics	3
<a href="#">PHYS 3500</a>	Thermodynamics	3
<a href="#">PHYS 3600</a>	Optics	3
<a href="#">PHYS 4210</a>	Advanced Experimental Techniques	3
<a href="#">PHYS 4410</a>	Electrostatics and Magnetism	3
<a href="#">PHYS 4420</a>	Electrodynamics	3
<a href="#">PHYS 4510</a>	Quantum Mechanics I	3
<a href="#">PHYS 490R</a>	Seminar (0.5 credits, taken 4 times)	2
<a href="#">MATH 1220</a>	Calculus II	4
<a href="#">MATH 2210</a>	Calculus III	4
<a href="#">MATH 2280</a>	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
<a href="#">ASTR 2040</a>	Intermediate Astronomy (3)	
<a href="#">ASTR 3050</a>	Astrophysics I (3)	
<a href="#">ASTR 3060</a>	Astrophysics II (3)	
<a href="#">ASTR 4100</a>	Brown Dwarfs and Exoplanets (3)	
<a href="#">ASTR 4350</a>	Research Methods in Astronomy (3)	
<a href="#">PHYS 1100</a>	Introductory Math Techniques for Physics and Engineering (3)	
<a href="#">PHYS 2500</a>	Elementary Fluids and Thermal Physics (3)	
<a href="#">PHYS 2700</a>	Biophysics (undefined)	
<a href="#">PHYS 2800</a>	Introduction to Materials Physics (3)	
<a href="#">PHYS 3310</a>	Advanced Mathematical Physics (3)	
<a href="#">PHYS 3350</a>	Applications of LabVIEW in Physics (3)	
<a href="#">PHYS 3700</a>	Particle Physics (3)	
<a href="#">PHYS 3800</a>	Energy use on Earth (3)	
<a href="#">PHYS 4150</a>	Medical Physics (3)	
<a href="#">PHYS 4250</a>	Nuclear Physics (3)	
<a href="#">PHYS 4350</a>	Research Methods in Physics (3)	
<a href="#">PHYS 4520</a>	Quantum Mechanics II (3)	
<a href="#">PHYS 4700</a>	Acoustics <sup>1</sup> (3)	
<a href="#">PHYS 4800</a>	Solid State Physics <sup>1</sup> (3)	
<a href="#">PHYS 481R</a>	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	4
<i>ENGL 1010 or ENGH 1005</i>	Introduction to Academic Writing or Literacies and Composition Across Contexts	3
<i>EXSC 1097 or HLTH 1100</i>	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:	14
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	4
<i>PHYS 2220</i>	Physics for Scientists and Engineers II	4
<i>PHYS 2225</i>	Physics for Scientists and Engineers II Lab	1
<i>ENGL 2010</i>	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	4
<i>PHYS 490R</i>	Seminar	.5
You Choose	Humanities Distribution	3
<i>PHYS 3300</i>	Mathematical Physics	3
<i>PHIL 205G</i>	Ethics and Values	3
	Semester total:	18.5
Semester 4	Course Title	Credit Hours
<i>MATH 2280</i>	Ordinary Differential Equations	3
<i>PHYS 3120</i>	Modern Physics II	3
<i>PHYS 3125</i>	Intro to Experimental Physics II WE	2

<i>PHYS 3230</i>	Principles of Electronics for the Physical Sciences	3
<i>PHYS 490R</i>	Seminar	3
You Choose	Soc/Behavioral Elective	3
	Semester total:	14.5
Semester 5	Course Title	Credit Hours
<i>PHYS 3400</i>	Classic Mechanics	3
<i>PHYS 3500</i>	Thermodynamics	3
You Choose	Physics Electives	9
	Semester total:	15
Semester 6	Course Title	Credit Hours
<i>PHYS 3300</i>	Computational Physics	3
<i>PHYS 3600</i>	Optics	3
You Choose	Physics Electives	9
<i>PHYS 490R</i>	Seminar	0.5
	Semester total:	15.5
Semester 7	Course Title	Credit Hours
<i>PHYS 4210</i>	Advanced Experimental Techniques	3
<i>PHYS 4410</i>	Electrostatics and Magnetism	3
<i>PHYS 4510</i>	Quantum Mechanics I	3
You Choose	Physics Elective	3
<i>PHYS 499A</i>	Senior Project	2
<i>PHYS 490R</i>	Seminar	.5
	Semester total:	14.5
Semester 8	Course Title	Credit Hours
<i>PHYS 3600</i>	Optics	3
<i>PHYS 4420</i>	Electrodynamics	3
<i>PHYS 499B</i>	Senior Thesis	1
You Choose	Physics Electives	6
	Semester total:	13
	Degree total:	120