Physics B.A.

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General Education Foundations

Please use this link to view a list of courses that meet each GEF requirement. **(**http://registrar.wvu.edu/gef/**)**

NOTE: Some major requirements will fulfill specific GEF requirements. Please see the curriculum requirements listed below for details on which GEFs you will need to select.

Code	Title	Hours
General Education Foundations		
F1 - Composition & Rhetoric		3-6
ENGL 101 & ENGL 102	Introduction to Composition and Rhetoric and Composition, Rhetoric, and Research	
or ENGL 103	Accelerated Academic Writing	
F2A/F2B - Science & Technology		4-6
F3 - Math & Quantitative Reasoning		3-4
F4 - Society & Connections		3
F5 - Human Inquiry & the Past		3
F6 - The Arts & Creativity		3
F7 - Global Studies & Diversity		3
F8 - Focus (may be satisfied by completion of a minor, double major, or dual degree)		9
Total Hours		31-37

Please note that not all of the GEF courses are offered at all campuses. Students should consult with their advisor or academic department regarding the GEF course offerings available at their campus.

Degree Requirements

Students must complete WVU General Education Foundations requirements, Eberly Edge Program requirements, major requirements, and electives to total a minimum of 120 hours.

Departmental Requirements for the B.A. in Physics

Students may not earn both a B.A. and a B.S. in Physics. All students wishing to obtain a B.A. degree in Physics must comply with the following:

- **Calculation of the GPA in the Major:** A minimum grade point average of a 2.0 is required in all courses applied to major requirements, including the STEM Foundations. If a course is repeated, all attempts will be included in the calculation of the GPA, unless the course is eligible for a D/F repeat.
- **Writing and Communication Skills Requirement:** Physics Bachelor of Arts students fulfill the Writing and Communication Skills requirement by completing ENGL 101 and ENGL 102 (or ENGL 103), and two of the following **SpeakWrite Certified Courses**^{TM}: PHYS 341L, PHYS 496, ASTR 469.
- **Capstone Requirement**: The university requires the successful completion of a Capstone course. Students majoring in Physics must complete PHYS 496.

Curriculum Requirements

Code	Title	Hours
University Requirements		49
Eberly Edge Requirements		15
Physics Major Requirements		56
Total Hours		120

University Requirements

Code	Title	Hours
General Education Foundations (GEF) 1, 2, 3, 4, 5, 6, 7, and 8 (31-37 Credits)		
Outstanding GEF Requirements 1, 4, 5, 6, 7		18
PHYS 191	First-Year Seminar	1
General Electives		30
Total Hours		49

Eberly Edge Program Requirements

Code	Title	Hours
EDG 1: Data and Society		3
EDG 2: Effective and Civil Communication		3
EDG 3: Ethics and Civil Responsibility		3
EDG 4: Global and Regional Perspectives		3
EDG 5: Practicing Arts & Sciences (ARSC 380)		3
EDG 6: High Impact Experience (PHYS 341L)		
Total Hours		15

Physics Major Requirements

Code	Title	Hours
STEM FOUNDATIONS [*]		**12**
MATH 155	Calculus 1	
Select 1 pair of courses		
BIOL 115 & 115L & BIOL 117 & BIOL 117L	Principles of Biology and Principles of Biology Laboratory and Introductory Physiology and Introductory Physiology Laboratory	
CHEM 111 & 111L & CHEM 112 & CHEM 112L	Survey of General, Organic, and Biological Chemistry 1 and Survey of Chemistry 1 Laboratory and Survey of General Organic Biological Chemistry 2 and Survey of Chemistry 2 Laboratory	
CHEM 115 & 115L & CHEM 116 & CHEM 116L	Fundamentals of Chemistry 1 and Fundamentals of Chemistry 1 Laboratory and Fundamentals of Chemistry 2 and Fundamentals of Chemistry 2 Laboratory	
CS 110 & CS 111	Introduction to Computer Science and Introduction to Data Structures	
SUST 101 & 101L & SUST 201 & SUST 201L	Sustainable Earth and Sustainable Earth Laboratory and Earth System Science and Earth System Science Laboratory	
FOUNDATION COURSES		**23**
MATH 156	Calculus 2	
MATH 251	Multivariable Calculus	
MATH 261	Elementary Differential Equations (or any upper-division MATH course) [**]	
PHYS 111 & 111L	General Physics 1 and General Physics 1 Laboratory	
PHYS 112 & 112L	General Physics 2 and General Physics 2 Laboratory	
PHYS 312	Oscillations and Thermal Physics	
CORE COURSES		**7**
PHYS 314	Introductory Modern Physics	
PHYS 341L	Advanced Physics 1 Laboratory	

or PHYS 376L	Research Methods Laboratory	
UPPER-DIVISION ELECTIVES		**11**
Additional Physics or Astronomy Courses at the 300 or 400-level ***		
CAPSTONE EXPERIENCE		**3**
PHYS 496	Senior Thesis	
Total Hours		56

*

STEM foundation courses are common to most STEM majors and excluded from the calculation of the percentage of upper-division course

**

Exclusive of PHYS 490, 494, 495 and 497.

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No more than 3 hours may be chosen from PHYS 490, 491, 494, 495, or 497

Suggested Plan of Study

First Year

Fall	Hours	Spring	Hours
PHYS 191 (First Year Seminar)	1	MATH 156 (GEF 8)	4
MATH 155 (GEF 3)	4	PHYS 111 & 111L (GEF 2)	4
Science Elective 1 (GEF 8)	4	Science Elective 2	4
EDG 1 : Data and Society	3	EDG 2 : Effective and Civil Communication (COMM104)	3
General Elective	3		
	15		15

Second Year

Fall	Hours	Spring	Hours
MATH 251	4	PHYS 312	3
PHYS 112 & 112L (GEF 8)	4	PHYS 314	4
EDG 3 : Ethics and Civil Responsibility (PHIL 130)	3	EDG 4: Global and Regional Perspectives (SUST102)	3
F4	3	General Elective	4
General Elective	1	General Elective	1
	15		15

Third Year

Fall	Hours	Spring	Hours
ARSC 380 (EDG 5)	3	ENGL 102 (GEF 1)	3
ENGL 101 (F1)	3	MATH 261 (or 300- or 400-level MATH class)	4
F5	3	PHYS 341L (EDG 6)	3
PHYS Elective 1	4	F7	3
General Elective	3	General Elective	1
	16		14

Fourth Year

Fall	Hours	Spring	Hours
F6	3	PHYS 496	3
PHYS Elective 2	4	General Elective	4
PHYS Elective 3	3	General Elective	4
General Elective	3	General Elective	3
General Elective	3		
	16		14

Total credit hours: 120

Major Learning Outcomes

PHYSICS B.A.

Upon successful completion of the B.A. degree, **Physics** majors will demonstrate:

1. An understanding of and ability to solve basic conceptual and quantitative problems in foundational physics areas and to apply complex reasoning and problem solving skills developed in physics across disciplines, with focus on such application in a cognate area.
2. A range of effective strategies, both written and oral, to communicate physics theories, processes, and results.
3. An ability to develop experiments to test basic or applied research questions, to perform accurate experimental measurements, and to critically evaluate others' answers to research questions.