

PHYSICS, BACHELOR OF SCIENCE WITH A CONCENTRATION IN PHYSICS (GENERAL) (B.S.)

Program Objectives

Upon completion of this program the graduate will:

1. be able to apply mathematics to analyze problems in Physics;
2. be able to use fundamental physical results, such as conservation laws, to study physical systems;
3. be able to analyze important processes occurring in physical systems.

Additionally, graduates of this program will:

1. be prepared for employment in Physics or a related field in the public or private sector;
2. be prepared for admission to a graduate program in Physics or a related field;
3. be prepared to take and pass the Praxis exam in Physics; and physics teaching majors will be prepared to teach Physics in a secondary school.

Program Requirements

CIP Code: 40.0801

Summary Checklist for General Education

Code	Title	Hours
Element 1		
A:	Written Communication (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/)	3
B:	Written Communication (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/)	3
C:	Oral Communication (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/)	3
Element 2		
	Quantitative Reasoning (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-2/)	3
Element 3		
A:	Arts (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-3/)	3
B:	Humanities (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-3/)	3
Element 4		
	Natural Sciences (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-4/)	6
Element 5		

A: Historical Science (<http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-5/>) 3

B: Social Behavioral Science (<http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-5/>) 3

Element 6

Diversity of Perspectives Experiences (<http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-6/>) 6

Total Hours 36

Students are expected to complete Elements 1 and 2 within their first 60 hours of college credit.

Major

Code	Title	Hours
University Graduation Requirements		
General Education		36
<i>Student Success Seminar</i>		
SCO 100P	Student Success Seminar in Physics (waived for transfers with 30+ hrs.)	1
Upper division courses (42 hrs. distributed throughout Major/ Supporting/Gen Ed/Free Electives categories)		
Major Requirements		
<i>Core Courses</i>		
PHY 201 or PHY 131	University Physics I ¹ College Physics I	5
PHY 202 or PHY 132	University Physics II ² College Physics II	5
PHY 211	Intermediate Physics	4
PHY 302 or PHY 302W	Modern Physics Modern Physics	4
PHY 406 or PHY 406W	Advanced Physics Laboratory	3
Concentrations		
Students must select one of the following Concentrations:		
Physics (General)		40
Engineering Physics		
Physics Teaching		
<i>Free Electives</i>		
Choose from 22 hours of free electives ³		22
Total Hours		120

Concentration

Code	Title	Hours
Concentration Courses		
PHY 310	Theoretical Methods in Physics	3
PHY 421	Electricity and Magnetism I	3
PHY 422	Electricity and Magnetism II	3
PHY 456	Statistical and Thermal Physics	3
PHY 460	Classical Mechanics	4
PHY 470	Quantum Mechanics	3
Choose from three hours of any PHY course numbered 300 and above ¹		3
<i>Supporting Course Requirements</i>		
CHE 111 & 111L	General Chemistry and General Chemistry Lab I (Element 4) ^G	
CHE 112 & 112L	General Chemistry II and General Chemistry Lab	4
CSC 174	Introduction to Programming for Science & Engineering	3
MAT 234	Calculus I (Element 2) ^{G,2}	
MAT 244	Calculus II	4
MAT 254	Calculus III	4
MAT 353	Differential Equations	3
Total Hours		40

¹

Except PHY 506 Physics for High School Teachers

²

A preparatory course (MAT 122 Precalculus Mathematics) in mathematics may be required before admission to MAT 234 Calculus I.

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Course also satisfies a General Education element. Hours are included within the 36 hr. General Education requirement above. Note that a max of 3 credit hours from one course may be applied each to any Gen. Ed. element.