APPLIED PHYSICS, B.A.

Completion of this major prepares a student for a career as a laboratory technician, systems analyst, engineering assistant, research associate, or physics associate. Continued study may include a master's degree in physics, engineering, geology, biology, environmental science, natural science, or science education, among others. It may also include doctorates in medicine, dentistry, or the previously identified fields.

The requirements for admission to this degree track are a minimum cumulative grade point average (CGPA) of 2.5 and MATH 175. Students interested in this track are encouraged to make their selection of major as soon as possible.

Code	Title	Credits
Pre-Requisites		
PHYS 100	Preparation for Physics	3
CHEM 100	Preparation for General Chemistry	3
Required		
PHYS 130	College Physics I (Lecture)	3
PHYS 1130	Physics I Recitation & Laboratory	1
PHYS 131	Physics II (Lecture)	3
PHYS 1131	Physics II Recitation & Laboratory	1
PHYS 230	Physics III (Lecture)	3
PHYS 1230	Physics III Recitation & Laboratory	1
MATH 192	Calculus and Analytic Geometry I	4
MATH 193	Calculus and Analytic Geometry II	4
MATH 292	Calculus & Analytical Geometry III	4
MATH 311	Differential Equations for Engineers	4
CHEM 105	General Chemistry I Lecture	3
CHEM 1105	General Chemistry I Recitation/Laboratory	2
CHEM 106	General Chemistry II Lecture	3
CHEM 1106	General Chemistry II Recitation/Laboratory	2
INTD 180	Computer Tools For Science and Mathematics	3
PHYS 321	Theory and Applications of Electricity and Magnetism	3
PHYS 405	Introduction to Quantum Mechanics	3
PHYS 401	Principles and Application of Modern Optics	3
PHYS 1401	Optics Recitation/Laboratory	1
PHYS 410	Classical Mechanics	4
Restricted Electives		
Select a minimum of nine credits from the following courses:		9
PHYS 204	Digital Electronics and Applications	3
PHYS 301	Thermodynamics and Kinetic Theory	3
PHYS 307	Principles of Electronics Lecture	3
PHYS 404	Nuclear Radiation: Theory and Applications	3
Supportive Electives		
Select a minimum of nine credits from the following courses:		9
CHEM 305	Physical Chemistry I	3
CHEM 3305	Physical Chemistry I Recitation/Laboratory	2
CHEM 306	Physical Chemistry II, Lecture	3
CHEM 3306	Physical Chemistry II Recitation/Laboratory	2
EESC 110	Physical Geography	3
PHYS 113	Introduction to Astronomy	3
MATH 330	Mathematical Statistics I	3
Total Credits		**110**

Freshman

Semester 1		Credits
ENGL 101 or ESL 101	English Composition I or English Composition I for English as a Second Language Students	4
MATH 192	Calculus and Analytic Geometry I [1]	4
PHYS 130	College Physics I (Lecture)	3
PHYS 1130	Physics I Recitation & Laboratory	1
CHEM 105	General Chemistry I Lecture	3
CHEM 1105	General Chemistry I Recitation/Laboratory	2
INTD 101	Orientation to College *First time Freshmen Only*	1
	Credits	18

Semester 2		
ENGL 102 or ESL 102	English Composition II or English Composition 2 ESL	4
MATH 193	Calculus and Analytic Geometry II [1]	4
PHYS 131	Physics II (Lecture)	3
PHYS 1131	Physics II Recitation & Laboratory	1
CHEM 106	General Chemistry II Lecture	3
CHEM 1106	General Chemistry II Recitation/Laboratory	2
	Credits	17

Sophomore

Semester 1		
PHYS 230	Physics III (Lecture)	3
PHYS 1230	Physics III Recitation & Laboratory	1
MATH 292	Calculus & Analytical Geometry III	4
INTD 180	Computer Tools For Science and Mathematics (General Education Tier I Course)	3
General Education Tier I Course		3
	Credits	14

Semester 2		
PHYS 321	Theory and Applications of Electricity and Magnetism	3
PHYS 113 or EESC 110	Introduction to Astronomy (General Education Tier I Course) or Physical Geography	3
MATH 311	Differential Equations for Engineers	4
General Education Tier I Course		3
General Education Tier II Course		3
	Credits	16

Junior

Semester 1		
PHYS 204 or PHYS 301	Digital Electronics and Applications (Physics Restricted Elective Course) or Thermodynamics and Kinetic Theory	3

PHYS 307 or PHYS 404	Principles of Electronics Lecture (Physics Restricted Elective Course) or Nuclear Radiation: Theory and Applications	3
PHYS 401	Principles and Application of Modern Optics	3
PHYS 1401	Optics Recitation/Laboratory	1
General Education Tier II Course		3
General Education Tier II Course		
Elective or Minor Course		3
	Credits	**16**
Semester 2		
MATH 330	Mathematical Statistics I (or Physics Supportive Elective Course (see requirements))	3
General Education Tier II Course		3
Elective or Minor Course		3
Elective or Minor Course		3
Elective or Minor Course		3
	Credits	**15**
Senior		
Semester 1		
PHYS 405	Introduction to Quantum Mechanics	3
CHEM 305	Physical Chemistry I (Physics Supportive Elective Course)	3
CHEM 3305	Physical Chemistry I Recitation/Laboratory (Physics Supportive Elective Course)	2
General Education Tier II Course		3
General Education Tier II Course		3
	Credits	**14**
Semester 2		
General Education Tier III Course		3
Elective or Minor Course		3
Elective or Minor Course		3
Elective or Minor Course		3
	Credits	**12**
	Total Credits	**122**

[1] Courses are part of the General Education program and may be used to simultaneously satisfy a General Education Mode of Inquiry requirement.

Student Learning Outcomes

Upon completion of the Applied Physics BA program, students will be able to:

1. Demonstrate knowledge of the factual and theoretical basis of physics including Newton's Laws of motion, conservation laws, E&M and Quantum Mechanics.
2. Demonstrate understanding of scientific inquiry and explain how scientific knowledge is discovered and validated.
3. Apply quantitative reasoning to describe or explain phenomena in the natural world.
4. Demonstrate knowledge of mathematical tools and their applications to understanding physics systems.
5. Communicate scientific information based on original research or literature review.
6. Demonstrate preparedness to enter the work force or Graduate School.