

# Physics Major-Applied Physics Concentration

## I. MAJOR COURSES (29-30 hours)

### Group A: Required courses

Course	Hrs	Subject
*PHYS 2311, 2341	3+1	Physics 1 + Lab
*PHYS 2321, 2351	3+1	Physics 2 + Lab
PHYS 3051	3	Modern Physics
PHYS 3451	3	Math Methods
PHYS 3731	3	Analytical Mechanics
PHYS 4111	3	Electricity and Magnetism 1
PHYS 4951	1	Senior Thesis Seminar
PHYS 1051 or PHYS 1061	3	Planetary Astronomy or Stars and Galaxies (PHYS elective 3XX1 or 4xx1 can be substituted for either of these)
24 hrs		

\* PHYS 2111, 2121 can be substituted for PHYS 2311, 2321.

### Group B: Electives

Choose 2 additional courses from the list below to complete the hours required for the applied physics major, that is, an additional 5 or 6 hours.

Course	Hrs	Subject	Course	Hrs	Subject
PHYS 3011	2	Advanced Physics Lab	PHYS 3551	3	Electronics
PHYS 3111	3	Nuclear Physics	PHYS 3571	3	Computational Physics
PHYS 3411	3	Optics	PHYS 3751	3	Quantum Mechanics
PHYS 3471	3	Astrophysics	PHYS 4151	3	Plasma Physics
PHYS 3511	3	Solid State	PHYS 4901	3	Special Topics in Physics
PHYS 3531	3	Statistical Mechanics			

*Substitutions:* A maximum of 3 external credit hours may be substituted provided a grade of C or better is earned in the corresponding course. Substitutions which may be allowed are:

- ENGR 2131 for PHYS 3731, or
- ECCS 3111 for PHYS 4111, or
- CHEM 3421 for PHYS 3531.

## II. OTHER REQUIRED COURSES

1. MATH 1631, 1641    Calculus 1, Calculus 2
2. Completion of a Major, Minor, or Option in another field  
or  
Completion of one of the following sequences:
  1. CHEM 1811, 1821    General Chemistry 1 - majors, Gen. Chem. 2 - majors
  2. BIOL 1311, 1321    Biology 1, Biology 2

## III. CAPSTONE PROJECT

PHYS 4951

The student is required to complete a capstone project. This project will consist of research on a physics topic in consultation with a physics professor. In the case when the student is involved in a capstone project in a discipline other than physics, and the research topic has significant ideas that belong to the physics discipline, the capstone will be considered joint research and will satisfy the requirement of a physics capstone as well.