PHYSICS MAJOR WITH AN ASTROPHYSICS EMPHASIS

Major Requirements

The requirements for a **major in physics with an astrophysics emphasis** are 58 credits:

Code	Title	Hours
Physics Courses		
PHYS/ESC 104 or PHYS/ESC 106	Introductory Astronomy: Solar System Introductory Astronomy: Stars, Nebulae and Cosmology	4
PHYS 115	Foundations of Modern Physics	4
PHYS 128	Physics for Scientists and Engineers	4
PHYS 211	Physics for Scientists and Engineers II	4
PHYS 231	Introduction to Instrumentation	2
PHYS 233	Introduction to Computational Physics	2
PHYS 324	Modern Physics	4
PHYS 357	Astrophysics	4
PHYS 419	Introduction to General Relativity	4
PHYS 430	Senior Seminar	2
2 additional courses at 300-level or above		8
Required Supporting Courses		
MATH 121	Calculus I	4
MATH 122	Calculus II	4
MATH 223	Calculus III	4
MATH 311	Differential Equations	4
Total Hours		**58**

The following courses are recommended but not required:

Code	Title	Hours
CSC 125	Introduction to Computer Science	4
CHEM 127	General Chemistry I	4
CHEM 128	General Chemistry II	4

Degree and Graduation Requirements

In addition to the program-specific requirements listed above, all students must complete the graduation requirements specified for their degree. See the Degree and Graduation Requirements (https://catalog.concordiacollege.edu/undergraduate-academic-community/degree-graduation-requirements/) section for more information.

Suggested Four-Year Plan

The four-year plan detailed below is a suggested coursework sequence. This plan may need to be adapted based on course offerings as well as individual student circumstances, such as transfer credit and study away experiences.

Course	Title	Hours
First Year		
Fall		
PHYS 115	Foundations of Modern Physics [1]	4
MATH 121	Calculus I [2]	4
Inquiry Seminar		4
IOC or IWC		4
	Hours	**16**
Spring		
PHYS 128	Physics for Scientists and Engineers [1]	4
MATH 122	Calculus II [2]	4
IOC or IWC		4
Core course 1		4
	Hours	**16**
Second Year		
Fall		
PHYS 211	Physics for Scientists and Engineers II [1]	4
PHYS 231 & PHYS 233	Introduction to Instrumentation and Introduction to Computational Physics [1]	4
MATH 223	Calculus III [2]	4
Core course 1		4
	Hours	**16**
Spring		
PHYS 324	Modern Physics [1]	4
MATH 311	Differential Equations [2]	4
Core course 2		4
Core course 3		4
	Hours	**16**
Third Year		
Fall		
PHYS 419	Introduction to General Relativity [1]	4
Core course 4		4
PEAK course I		4
Elective		4
	Hours	**16**
Spring		
Advanced Physics Course I [1]		4
PHYS 327	Techniques for Experimental Physics (suggested elective) [1]	4
Core course 5		4
Core course 6		4
	Hours	**16**
Fourth Year		
Fall		
PHYS 430	Senior Seminar [1]	2
PHYS 357	Astrophysics [1]	4
Core course 7		4
PEAK Course II		4
Elective		2
	Hours	**16**
Spring		
Advanced Physics Course II [1]		4
Core course 8		4
Elective		4
Elective		4
	Hours	**16**
	Total Hours	**128**

1 Offered by the Physics department

2 Required supporting courses offered by the Mathematics department

Suggested Physics Major with Astrophysics Emphasis path for students entering the college on an even-numbered year. Students starting on an odd-numbered year follow a similar path, with the advanced physics courses for Fall 3/Fall 4 and Spring 3/Spring 4 swapped, except for PHYS 430 Senior Seminar . It is suggested that PHYS 104 Introductory

Astronomy: Solar System/ESC 104 Introductory Astronomy: Solar System
be taken as a summer course.