

# PHYSICS, ASSOCIATE OF SCIENCE

The Associate of Science degree with physics emphasis is designed to give students interested in pursuing STEM programs in physics a more complete transfer path than the existing AAOT bulk transfer degree.

## GRADUATION REQUIREMENTS

Students must complete a minimum of 95 credit hours with a cumulative Grade Point Average (GPA) of 2.0 or better. All courses must be completed with a grade of 'C' or better. Twenty-four (24) credits must be completed at Southwestern before the AS degree is awarded.

Courses that are developmental in nature, (designed to prepare students for college transfer courses), are not applicable to this degree.

Students must complete the graduation application process one term prior to the term of completion (e.g., spring term graduates must apply during winter term).

## PROGRAM STUDENT LEARNING OUTCOMES

1. Apply foundational conceptual knowledge and models of physical principles to analyze and/or predict phenomena.
2. Understand and apply proper mathematical interpretation of physical principles and computation methods to analyze and/or predict phenomena
3. Interpret and communicate scientific information via written, spoken, and/or visual representations
4. Describe the relevance of specific scientific principles to the human experience.
5. Form and test a hypothesis in the laboratory or field using discipline-specific tools and techniques for data collection and/or analysis.

## PRE-PROGRAM COURSES

Students are required to take the following courses *prior to* the program courses, depending on students' college placement information. See advisor for details:

Code	Title	Credits
WR90R	Academic Literacy (or placement in higher writing course)	4
MTH112	Trigonometry	4
CIS90	Computer Basics (or higher)	2

## PROGRAM GUIDE

Course	Title	Credits
<b>First Year</b>		
<b>Fall</b>		
WR121	English Composition	4
CHEM221	General Chemistry I	5
MTH251	Calculus I Differential Calculus	4
Western Culture <sup>1</sup>		3
Credits		16

<b>Winter</b>		
WR227	Report Writing	4
CHEM222	General Chemistry II	5
MTH252	Calculus II Integral Calculus	4
SP111	Fundamentals of Public Speaking	3
Credits		16

<b>Spring</b>		
CHEM223	General Chemistry III	5
BI203	Introductory Biology	4
MTH253	Calculus III Infinite Sequences And Series	4
Difference, Power, and Discrimination <sup>2</sup>		3
Credits		16

<b>Second Year</b>		
<b>Fall</b>		
PH211	General Physics with Calculus I	5
MTH254	Vector Calculus I	4
Social Processes and Institutions <sup>3</sup>		3
Literature and Arts <sup>5</sup>		3
Credits		15

<b>Winter</b>		
PH212	General Physics with Calculus II	5
MTH255	Vector Calculus II	4
ENGR112	Engineering Computation	4
or CS161	or Introduction to Computer Science I	
Cultural Diversity <sup>4</sup>		3
Credits		16

<b>Spring</b>		
PH213	General Physics with Calculus III	5
MTH256	Differential Equations	4
MTH260	Matrix Methods and Linear Algebra	4
PE231	Wellness for Life	3
Credits		16

Total Credits 95

<sup>1</sup> Western Culture: ART204, ART205, ART206, ENG201, ENG204, ENG205, ENG206, HST101, HST102, HST103, HST201, HST202, HST203, PHL101, PHL102.

<sup>2</sup> Difference, Power, and Discrimination: SOC206, SOC213, HST201, HST202, OR HST203.

<sup>3</sup> Social Processes and Institutions: ANTH221, ANTH222, ANTH223, ECON201, ECON202, HST101, HST102, HST103, PS201, PS205, PSY201, PSY202, PSY203, SOC204, SOC205.

<sup>4</sup> Cultural Diversity: ANTH224, ANTH230, ANTH231, ANTH232, HST104, HUM204, HUM205, HUM206.

<sup>5</sup> Literature and the Arts: ART204, ART205, ART206, ENG104, ENG105, ENG106, ENG107, ENG108, ENG109, ENG201, ENG204, ENG205, ENG206, ENG262, MUS201, MUS202, MUS203.

\* All Honors courses may substitute for their equivalent requirements.