

# CHEMISTRY, ASSOCIATE OF SCIENCE

The Associate of Science Degree in Chemistry prepares students for transfer to a 4-year school as juniors in either chemistry or biochemistry majors. The curriculum provides fundamental knowledge of the major fields of chemistry, covering a full year of both general and organic chemistry. Students will gain laboratory experience in organic synthesis, analytical methods, and spectroscopy. Chemistry is called the central science and as such, it serves as a foundation for careers in many fields, such as medicine, environmental science, and materials science.

## Graduation Requirements

Students must complete a minimum of 93 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).

## 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
CIS90	Computer Basics (or demonstrate proficiency)	2
WR90R	Academic Literacy (or placement in higher writing course)	4
MTH112	Trigonometry	4

## Program Guide

Course	Title	Credits
<b>First Year</b>		
<b>Fall</b>		
CHEM221	General Chemistry I	5
MTH251 or MTH251H	Calculus I Differential Calculus or Calculus I w/Honors	4
WR121 or WR121H	English Composition or English Composition w/Honors	3
BI201	Introductory Biology	4
Credits		16
<b>Winter</b>		
CHEM222	General Chemistry II	5
BI202	Introductory Biology	4
MTH252 or MTH252H	Calculus II Integral Calculus or Calculus II w/Honors	4
WR227	Report Writing	3
Credits		16

<b>Spring</b>		
CHEM223	General Chemistry III	5
BI203	Introductory Biology	4
SP111	Fundamentals of Public Speaking	3
Specific Elective <sup>1</sup>		3
Credits		15
<b>Second Year</b>		
<b>Fall</b>		
CHEM245	Organic Chemistry I	4
MTH254	Vector Calculus I	4
PH211	General Physics w/Calculus I	5
Specific Elective <sup>2</sup>		3
Credits		16
<b>Winter</b>		
CHEM246	Organic Chemistry II	4
PH212	General Physics w/Calculus II	5
Specific Elective <sup>3</sup>		3
Specific Elective <sup>4</sup>		3
Credits		15
<b>Spring</b>		
CHEM247	Organic Chemistry III	4
PH213	General Physics w/Calculus III	5
PE231	Wellness for Life	3
Specific Elective <sup>5</sup>		3
Credits		15
Total Credits		93

## Footnotes

<sup>1</sup> Western Culture - Specific Elective options: ART204 History of Western Art: Introduction to Art History, ART205 History of Western Art: Introduction to Art History, ART206 History of Western Art: Introduction to Art History, ENG107 World Literature, ENG108 World Literature, ENG109 World Literature, ENG201 Shakespeare, ENG204 Survey of English Literature, ENG205 Survey of English Literature, ENG206 Survey of English Literature, HST101 History of Western Civilization, HST102 History of Western Civilization, HST103 History of Western Civilization, HST201 History of the United States, HST201 History of the United States, HST202 History of the United States, HST203 History of the United States, MUS201 Intro to Music and its Literature, MUS202 Intro to Music and its Literature, MUS203 Intro to Music and its Literature, PHL101 Introduction to Philosophy Philosophical Problems, PHL102 Ethics.

<sup>2</sup> Difference, Power, and Discrimination - Specific Elective options: HST201 History of the United States, HST202 History of the United States, HST203 History of the United States, SOC206 Social Problems and Issues or SOC206H Social Problems and Issues with Hon, SOC213 Racial and Ethnic Relations

<sup>3</sup> Social Processes and Institutions - Specific Elective options:  
ANTH221 Intro to Cultural Anthropology I or ANTH221H Intro to Cultural Anthropology Hon, ANTH222 Cultural Anthropology II or ANTH222H Cultural Anthropology II with Honor, ANTH223 Cultural Anthropology III or ANTH223H Cultural Anthropology III with Hono, ECON201 Microeconomics, ECON202 Macroeconomics, HST101 History of Western Civilization, HST102 History of Western Civilization, HST103 History of Western Civilization, PS201 American Government Political Institutions, PS205 Intrnl Relations: US Foreign Policy In The 20Th Century, PSY201 General Psychology or PSY201H General Psychology w/Honors, PSY202 General Psychology or PSY202H General Psychology w/Honors, PSY203 General Psychology or PSY203H General Psychology w/Honors, SOC204 Introduction to Sociology or SOC204H Introduction to Sociology with Hono. SOC205 Social Institutions and Change or SOC205H Institutions and Social Change Hon

<sup>4</sup> Cultural Diversity - Specific Elective options: ANTH224 Intro to Medical Anthropology, ANTH230 Native North Americans: Oregon, ANTH231 Native North Americans: PNW, ANTH232 Native North Americans, HST104 History of the Middle East, HUM204 World Mythology & Religion, HUM205 World Mythology & Religion, HUM206 World Mythlgy & Religion

<sup>5</sup> Literature and the Arts - Specific Elective options: ART101 Art Appreciation, ART204 History of Western Art: Introduction to Art History, ART205 History of Western Art: Introduction to Art History, ART206 History of Western Art: Introduction to Art History, ENG104 Introduction to Literature Fiction, ENG105 Introduction to Literature Drama, ENG106 Introduction to Literature Poetry, ENG107 World Literature, ENG108 World Literature, ENG109 World Literature, ENG201 Shakespeare, ENG204 Survey of English Literature, ENG205 Survey of English Literature, ENG206 Survey of English Literature, ENG262 Worlds and Writings J.R. R. Tolkien, MUS201 Intro to Music and its Literature, MUS202 Intro to Music and its Literature, MUS203 Intro to Music and its Literature.

## Program Student Learning Outcomes

Upon successful completion of this program, the student will be able to:

1. Demonstrate knowledge of chemical structure to predict and explain the physical properties of chemical materials.
2. Demonstrate knowledge of chemical reactivity to predict and explain the outcomes of reactions.
3. Demonstrate knowledge of chemical quantitation to predict and explain chemical phenomena.
4. Critical Thinking: Collect and analyze data using classical methods and modern instrumentation and evaluate experimental results using the principles of the scientific method.
5. Information Literacy: Locate, summarize, and critique scientific articles, as well as synthesize scientific information from various sources to communicate the results of their own experiments.
6. Global Learning: Demonstrate personal and social responsibility, environmental stewardship, and global self-awareness.