

# CERTIFIED B.S. IN CHEMISTRY

<http://www.as.miami.edu/chemistry/>

## Overview

The **certified B.S.** degree requires 47 credit hours of chemistry. This major is certified by the American Chemical Society. Variations within the program may be recommended by the Department. Transfer students must complete a minimum of half of the required major credit hours in residence in the Department. Students should make certain that math and physics prerequisites are fulfilled in a timely manner.

## Curriculum Requirements

Code	Title	Credit Hours
<b>Core Courses</b>		
CHM 121	Principles of Chemistry	4
CHM 113	Chemistry Laboratory I	1
CHM 221	Introduction to Structure and Dynamics	4
CHM 205	Chemical Dynamics Laboratory	1
CHM 222	Organic Reactions and Synthesis	4
CHM 206	Organic Reactions and Synthesis Laboratory	2
CHM 214	Quantitative Analytical Chemistry	3
<b>Advanced Courses</b>		
BMB 401	Biochemistry for the Biomedical Sciences	4
BMB 402	Principles of Experimental BMB	2
CHM 320	Instrumental Methods in Chemistry and Biochemistry	2
CHM 360	Physical Chemistry I (Lecture)	3
CHM 364	Physical Chemistry (Laboratory I)	1
CHM 365	Physical Chemistry II (Lecture)	3
CHM 441	Inorganic Chemistry (Lecture)	3
CHM 442	Inorganic Chemistry (Laboratory)	1
<b>Chemistry Electives</b>		<b>9</b>
CHM 317	The Chemistry of Food and Taste.	
CHM 401	Environmental Chemistry	
Any 500-level CHM course		
<b>Math and Physics Courses</b>		
MTH 161	Calculus I	4
MTH 162	Calculus II	4
PHY 201	University Physics I for the Sciences	4
PHY 202	University Physics II for the Sciences	4
PHY 106	College Physics Laboratory I	1
PHY 108	College Physics Laboratory II	1
<b>General Education Requirements</b>		
Written Communication Skills:		
WRS 105	First-Year Writing I	3
WRS 106 or ENG 106	First-Year Writing II Writing About Literature and Culture	3
Quantitative Skills:		
MTH 161 or MTH 171	Calculus I (fulfilled through the major) Calculus I	
Areas of Knowledge:		
Arts and Humanities Cognate		9
People and Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the major)		
<b>Additional Required Courses</b>		

Minor	15
Electives	13-7
Language	3-9
<b>Total Credit Hours</b>	<b>120</b>

<sup>1</sup> Variations within the above programs may be recommended by the Department. Transfer students must complete a minimum of half of the required major credit hours in residence in the Department.

<sup>2</sup> Students should make certain that math and physics prerequisites are fulfilled in a timely manner.

## Suggested Plan of Study

This is a guide and is not meant to take the place of the advice of your major advisor; you should consult with them before making any changes.

Year One		Credit Hours
<b>Fall</b>		
CHM 121	Principles of Chemistry	4
CHM 113	Chemistry Laboratory I	1
MTH 161	Calculus I	4
Arts and Humanities Cognate		3
WRS 105	First-Year Writing I	3
<b>Credit Hours</b>		<b>15</b>
<b>Spring</b>		
CHM 221	Introduction to Structure and Dynamics	4
CHM 205	Chemical Dynamics Laboratory	1
MTH 162	Calculus II	4
Arts and Humanities Cognate		3
WRS 106 or ENG 106	First-Year Writing II or Writing About Literature and Culture	3
<b>Credit Hours</b>		<b>15</b>
<b>Year Two</b>		
<b>Fall</b>		
CHM 222	Organic Reactions and Synthesis	4
CHM 206	Organic Reactions and Synthesis Laboratory	2
PHY 201	University Physics I for the Sciences	4
PHY 106	College Physics Laboratory I	1
Language Course		3
<b>Credit Hours</b>		<b>14</b>
<b>Spring</b>		
CHM 214	Quantitative Analytical Chemistry	3
BMB 401	Biochemistry for the Biomedical Sciences	4
PHY 202	University Physics II for the Sciences	4
PHY 108	College Physics Laboratory II	1
Language Course		3
<b>Credit Hours</b>		<b>15</b>
<b>Year Three</b>		
<b>Fall</b>		
CHM 360	Physical Chemistry I (Lecture)	3
CHM 364	Physical Chemistry (Laboratory I)	1
CHM Elective		3
Language Course		3
Arts and Humanities Cognate		3
People and Society Cognate		3
<b>Credit Hours</b>		<b>16</b>

<b>Spring</b>		
CHM 365	Physical Chemistry II (Lecture)	3
CHM 320	Instrumental Methods in Chemistry and Biochemistry	2
People and Society Cognate		3
Minor Course		3
Elective		3
Elective		3
<b>Credit Hours</b>		<b>17</b>
<b>Year Four</b>		
<b>Fall</b>		
CHM 441	Inorganic Chemistry (Lecture)	3
CHM Elective		3
BMB 402	Principles of Experimental BMB	2
Minor Course		3
Minor Course		3
<b>Credit Hours</b>		<b>14</b>
<b>Spring</b>		
CHM 442	Inorganic Chemistry (Laboratory)	1
CHM Elective		3
Elective		3
Elective		4
People and Society Cognate		3
<b>Credit Hours</b>		<b>14</b>
<b>Total Credit Hours</b>		<b>120</b>

Mission

## Student Learning Outcomes

- Graduates will be able to demonstrate a broad understanding of fundamental chemical principles in all areas of the field.
- Graduates will be adept in a broad variety of chemical instrumentation and analytical techniques.
- Graduates will display effective and strong written communication skills pertaining to chemical research.