

**CHEMISTRY AND BIOCHEMISTRY  
ASSOCIATE OF SCIENCE: 412D**

Total Credits: 60  
Catalog Edition: 2016-2017

**Program Description**

The chemistry and biochemistry program is designed to provide the first two years of courses necessary to obtain a chemistry or biochemistry baccalaureate degree from a four-year college or university. In addition to general and organic chemistry knowledge, students will be trained in data collection and analysis, and scientific communication. Through the laboratory portion of the program, students will reinforce their understanding and application of the theory learned in class, develop laboratory skills and techniques, and formulate conclusions based on observations. Students are strongly encouraged to work with an adviser in course selection as transfer requirements between four-year institutions may differ.

**Program Outcomes**

Upon completion of this program a student will be able to:

- Apply knowledge of general and organic chemistry to analyze data, draw conclusions, and solve problems.
- Apply safe practices to execute laboratory techniques and use appropriate equipment and instrumentation to carry out experimental procedures.

**Program Outcomes (continued)**

- Access scientific information using basic scientific references and literature and evaluate technical information critically.
- Communicate in an ethical, clear and organized manner, scientific concepts, experimental results, and properly cited reference material.
- Work effectively in groups, as leaders or team members, to solve problems and interact productively with a diverse group of peers.
- Apply knowledge of general and organic chemistry to analyze data, draw conclusions, and solve problems.

**Program Advising****Rockville**

- **Dr. Thomas Chen, 240-567-7633**  
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**Germantown**

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**Takoma Park/Silver Spring**

- **Dr. Cory Newman, 240-567-1413**  
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**For more information please visit:**

[www.montgomerycollege.edu/advising](http://www.montgomerycollege.edu/advising)

or

GT STEP Advising

(<http://cms.montgomerycollege.edu/EDU/Department4.aspx?id=67267>)

**2016-2017**

# Program Advising Guide

**An Academic Reference Tool for Students****412D****CHEMISTRY AND BIOCHEMISTRY  
ASSOCIATE OF SCIENCE: 412D**

# CHEMISTRY AND BIOCHEMISTRY

## ASSOCIATE OF SCIENCE: 412D

### Suggested Course Sequence

A suggested course sequence for full-time students follows. All students should review this advising guide and consult an advisor.

#### First Semester

- CHEM 131 - Principles of Chemistry I  
*4 semester hours (NSLD)*
- ENGL 101 - Introduction to College Writing  
*3 semester hours \**
- MATH 181 - Calculus I  
*4 semester hours (MATF)*
- Humanities distribution  
*3 semester hours (HUMD) ‡*

#### Second Semester

- BIOL 150 - Principles of Biology I  
*4 semester hours (NSLD/GEEL)*
- CHEM 132 - Principles of Chemistry II  
*4 semester hours (NSLD)*
- ENGL 102 - Critical Reading, Writing, and Research  
*3 semester hours (ENGF)*
- MATH 182 - Calculus II  
*4 semester hours*

#### Third Semester

- CHEM 203 - Organic Chemistry I  
*5 semester hours*
- PHYS 161 - General Physics I: Mechanics and Heat  
*3 semester hours*
- MATH 280 - Multivariable Calculus  
*4 semester hours*
- Behavioral and social sciences distribution  
*3 semester hours (BSSD) \*\**

#### Fourth Semester

- CHEM 204 - Organic Chemistry II  
*5 semester hours*
- ENES 206 - MATLAB for Engineers  
*1 semester hour*  
OR  
Science (BIOL,CHEM,PHYS) or mathematics elective  
*1 semester hour*
- PHYS 262 - General Physics II: Electricity and Magnetism  
*4 semester hours*
- Arts distribution  
*3 semester hours (ARTD)*
- Behavioral and social sciences distribution  
*3 semester hours (BSSD)*

**Total Credit Hours: 60**

### Advising Notes

\* ENGL 101 /ENGL 101A if needed for ENGL 102 /ENGL 103 , or choose general elective

\*\* Behavioral and Social Science Distribution (BSSD) courses must come from different disciplines. Choose one distribution course that also fulfills the Global and Cultural Perspectives requirement.

‡ It is recommended that COMM 108 be taken as the HUMD distribution elective.

# CHEMISTRY & BIOCHEMISTRY A.S.: 412D

Total Credits: 60  
Catalog Edition 16-17

Name:  Date:  ID #:

<b>GENERAL EDUCATION: FOUNDATION COURSES</b>	<b>Course</b>	<b>Hours</b>	<b>Grade</b>
English Foundation (EN 102/ENGL 102 or EN 109/ENGL 103)		3	
Math Foundation	MA 181/ <b>MATH 181</b>	4	

<b>GENERAL EDUCATION: DISTRIBUTION COURSES</b>	<b>Course</b>	<b>Hours</b>	<b>Grade</b>
Arts Distribution (ARTD)			
Humanities Distribution (HUMD)			
Behavioral & Social Sciences Distribution (BSSD) *		3	
Behavioral & Social Sciences Distribution (BSSD) *		3	
Natural Sciences Distribution with Lab (NSLD)	CH 101/ <b>CHEM 131</b>	4	
Natural Sciences Distribution with Lab (NSLD)	CH 102/ <b>CHEM 132</b>	4	
General Education Elective (GEEL)	BI 107/ <b>BIOL 150</b>	4	

<b>PROGRAM REQUIREMENTS</b>	<b>Course</b>	<b>Hours</b>	<b>Grade</b>
(only if needed for MA 181/ <b>MATH 181</b> )	MA 180/ <b>MATH 165</b>	(4)	
EN 101/ENGL 101 (if needed for ENGL102/103 or general elective if not)			
	MA 182/ <b>MATH 182</b>	4	
	MA 280/ <b>MATH 280</b>	4	
	CH 203/ <b>CHEM 203</b>	5	
	CH 204/ <b>CHEM 204</b>	5	
	PH 161/ <b>PHYS 161</b>	3	
	PH 262/ <b>PHYS 262</b>	4	
<b>ENES 206 or MATH or SCIENCE ELECTIVE</b>			

Has student completed the Global Perspectives requirement?  Yes  No

Overall GPA of 2.0 is required to graduate

Total Credits:

Global Perspectives Course:

Last Modified: June 2016

\* ENGL 101/ENGL 101A, if needed for ENGL 102/ENGL 103, or choose general elective

Advising Worksheet Contact: [Anthony Solano](#)

\*\* Behavioral and Social Science Distribution (BSSD) courses must come from different disciplines.

‡ It is recommended that COMM 108 be taken as the HUMD distribution elective.

Choose one distribution course that also fulfills the Global and Cultural Perspectives requirement.

See an [advisor](#) to submit an [Application for Graduation](#) the semester BEFORE you intend to graduate.

**This UNOFFICIAL document is for planning purposes ONLY and completion does not guarantee graduation.**

## Transfer Opportunities

Montgomery College has partnerships with multiple four-year institutions and the tools to help you transfer.

To learn more please visit:

<http://cms.montgomerycollege.edu/EDU/Plain.aspx?id=62341> or <http://www.artsys.usmd.edu/>

## Get Involved at MC!

Employers and Transfer Institutions are looking for experience outside the classroom.

## MC Student Clubs and Organizations

<http://cms.montgomerycollege.edu/edu/plain.aspx?id=2439>

## Related Careers

Some require a Bachelor's degree. Food Scientist and Technologist, Chemical Technician, Medical and Clinical Laboratory Technologist, Geological Sample Test Technician, Chemist, Materials Scientist, Biochemist and Biophysicist, Chemical Engineer, Biochemical Engineer, Chemistry Teacher, Postsecondary

## Career Services

<http://www.montgomerycollege.edu/career>

## Career Coach

A valuable online search tool that will give you the opportunity to explore hundreds of potential careers or job possibilities in Maryland and the Washington D.C. metropolitan area.

Get started today on your road to a new future and give it a try. Visit the website listed below:

<https://montgomerycollege.emsicareercoach.com>

## Notes: