

# BIOCHEMISTRY B.S. - HEALTH PROFESSIONS

The Biochemistry Program is a joint program between the Department of Chemistry and Biochemistry and the Division of Biological Sciences. Biochemistry is an interdisciplinary science that integrates chemistry and biology to understand the molecular basis of life. The program offers a B.S. in Biochemistry, a B.S. in Computational Biochemistry, and M.S. and Ph.D. degrees in Biochemistry & Biophysics. The Biochemistry Program is accredited by the American Society for Biochemistry and Molecular Biology (ASBMB).

A Health Professions option is offered within the B.S. in Biochemistry for students whose career goals are in fields related to biochemistry, particularly medical school. This option is designed so that students can complete all coursework necessary for the MCAT and other exams required for health-related professional schools by the end of their third year.

## Bachelor of Science - Biochemistry; Health Professions Concentration

### General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umt.edu/academics/general-education-requirements/>) of the catalog.

### Summary

Code	Title	Hours
Lower-Division Core		51
	Biochemistry	
	Biology	
	General and Organic Chemistry	
	Physics	
	Mathematics	
Upper-Division Core		32
	Biochemistry	
	Microbiology	
	Biology - Human	
	Allied Health - Human Science	
	Analytical Chemistry	
Advanced Electives		7
Social Science - Sociology and Psychology		6
<b>Total Hours</b>		<b>96</b>

Degree Specific Credits: 96

Required Cumulative GPA: 2.0

### Lower-Division Core

Rule: Complete the following subcategories. 51 total credits required.

### Biochemistry

Code	Title	Hours
<b>Complete the following course:</b>		
BCH 294	Seminar/Workshop	1
<b>Total Hours</b>		<b>1</b>

Minimum Required Grade: C-

### Biology

Code	Title	Hours
<b>Complete all of the following courses:</b>		
BIOB 160N	Principles of Living Systems	3
BIOB 161N	Principles of Living Systems Lab	1
BIOB 260	Cellular and Molecular Biology	4
BIOB 272	Genetics and Evolution	4
<b>Total Hours</b>		<b>12</b>

Minimum Required Grade: C-

### General and Organic Chemistry

Code	Title	Hours
<b>Complete all of the following courses:</b>		
CHMY 141N & CHMY 142N	College Chemistry I and College Chemistry I Lab	5
CHMY 143N & CHMY 144N	College Chemistry II and College Chemistry II Lab	5
CHMY 221 & CHMY 222	Organic Chemistry I and Organic Chemistry I Lab	5
CHMY 223 & CHMY 224	Organic Chemistry II and Organic Chemistry II Lab	5
<b>Total Hours</b>		<b>20</b>

Minimum Required Grade: C-

### Physics

Code	Title	Hours
<b>Complete all of the following courses:</b>		
PHSX 215N & PHSX 216N	Fundamentals of Physics with Calculus I and Physics Laboratory I with Calculus	5
PHSX 217N & PHSX 218N	Fundamentals of Physics with Calculus II and Physics Laboratory II with Calculus	5
<b>Total Hours</b>		<b>10</b>

Minimum Required Grade: C-

### Mathematics

Code	Title	Hours
<b>Complete all of the following courses:</b>		
M 171	Calculus I	4
M 172	Calculus II	4
<b>Total Hours</b>		<b>8</b>

Minimum Required Grade: C-

### Upper-Division Core

Rule: Complete the following subcategories. 32 total credits required.

**Biochemistry**

Code	Title	Hours
<b>Complete all of the following courses:</b>		
BCH 480	Advanced Biochemistry I	3
BCH 482	Advanced Biochemistry II	3
BCH 486	Biochemistry Research Lab	3
<b>Total Hours</b>		<b>9</b>

Minimum Required Grade: C-

**Microbiology**

Code	Title	Hours
<b>Complete all of the following courses:</b>		
BIOM 360	General Microbiology (equiv to 260)	3
BIOM 361	General Microbiology Lab	2
<b>Total Hours</b>		<b>5</b>

Minimum Required Grade: C-

**Biology - Human**

Code	Title	Hours
<b>Complete all of the following courses:</b>		
BIOH 365 & BIOH 366	Human Anatomy and Physiology for Health Professions I and Human Anatomy and Physiology for Health Professions I Laboratory	4
BIOH 370 & BIOH 371	Human Anatomy and Physiology for Health Professions II and Human Anatomy and Physiology for Health Professions II Laboratory	4
<b>Total Hours</b>		<b>8</b>

Minimum Required Grade: C-

**Allied Health - Health Science**

Code	Title	Hours
<b>Complete the following course:</b>		
AHHS 391	Special topics (Pre-Medical Science 101 Honors)	2
<b>Total Hours</b>		<b>2</b>

Minimum Required Grade: C-

**Analytical Chemistry**

Code	Title	Hours
<b>Complete all of the following courses:</b>		
CHMY 311	Analytical Chemistry-Quantitative Analysis	4
CHMY 421	Advanced Instrument Analysis	4
<b>Total Hours</b>		<b>8</b>

Minimum Required Grade: C-

**Advanced Electives**

**Note:** No more than 3 credits combined of BIOB 490, CHMY 490, CHMY 498 and BCH 490. No more than 3 credits combined of CHMY 397 and CHMY 494.

Code	Title	Hours
<b>Complete 7 credits from the following courses:</b>		
BCH 490	Undergraduate Research	7
BIOB 301	Developmental Biology	
BIOB 375	General Genetics	
BIOB 410	Immunology	
BIOB 411	Immunology Laboratory	
BIOB 425	Advanced Cellular & Molecular Biology	
BIOB 486	Genomics	
BIOB 490	Advanced Undergraduate Research	
BIOH 405	Hematology	
BIOH 462	Principles of Medical Physiology	
BIOM 410	Microbial Genetics	
BIOM 411	Experimental Microbial Genetics Lab	
BIOM 427	General Parasitology	
BIOM 428	General Parasitology Lab	
BIOM 435	Virology	
CHMY 371	Physical Chemistry-Quantum Chemistry & Spectroscopy	
CHMY 373	Physical Chemistry-Kinetics & Thermodynamics	
CHMY 397	Teaching Chemistry	
CHMY 401	Advanced Inorganic Chemistry	
CHMY 402	Advanced Inorganic Chemistry Lab	
CHMY 442	Aquatic Chemistry	
CHMY 465	Organic Spectroscopy	
CHMY 466	FT-NMR Option for Undergraduate Research	
CHMY 490	Undergraduate Research	
CHMY 494	Seminar/Workshop	
CHMY 498	Internship/Cooperative Education	
PHAR 421	Medicinal Chemistry I	
PHAR 422	Medicinal Chemistry II	
STAT 451	Statistical Methods I	
<b>Total Hours</b>		<b>7</b>

Minimum Required Grade: C-

**Social Science - Sociology and Psychology**

Code	Title	Hours
<b>Complete all of the following courses:</b>		
SOCI 101S	Introduction to Sociology	3
PSYX 100S	Intro to Psychology	3
<b>Total Hours</b>		<b>6</b>

Minimum Required Grade: C-

**Advanced College Writing Requirement**

**Rule:** To complete the Advanced College Writing Requirement, Biochemistry students may take the following courses or any other stand-alone advanced writing course.

<b>Code</b>	<b>Title</b>	<b>Hours</b>
BCH 482	Advanced Biochemistry II	3
BCH 486	Biochemistry Research Lab	3

Minimum Required Grade: C-