BIOCHEMISTRY HEALTH PROFESSIONS

The B.S. in Biochemistry prepares students for advanced degrees in biochemistry or biophysics, for medical, dental or veterinary schools and for careers in the pharmaceutical and biotechnology industries. A Health Professions option is also offered within the B.S. in Biochemistry for students whose career goals are in fields related to biochemistry. This option allows more flexibility in upper division electives, permitting students to tailor the degree to their needs.

Bachelor of Science - Biochemistry; Health Professions Concentration

College Humanities & Sciences

Degree Specific Credits: 99

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

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

Lower Division Core	50-51
Biochemistry	
Biology	
General and Organic Chemistry	
Physics	
Mathematics	
Upper Division Core	25-26
Biochemistry	
Microbiology	
Analytical Chemistry	
Inorganic Chemistry	
Physical Chemistry	
Biology Laboratory Course	
Advanced Electives	21
Ethics	3
Total Hours	99-101

Lower Division Core

Rule: Must complete the following subcategories

50 Total Credits Required

Biochemistry

Rule: All of the following courses are required

BCH 110	Intro Biology for Biochemists	3
BCH 111	Intro Biol for Biochemists Lab	1
BCH 294	Seminar/Workshop	1
Total Hours		5

Minimum Required Grade: C-

Biology

Rule: All of the following courses are required

BIOB 260	Cellular and Molecular Biology	4
BIOB 272	Genetics and Evolution	4
Total Hours		8

Minimum Required Grade: C-

General and Organic Chemistry

Rule: All of the following courses are required

CHMY 141N	College Chemistry I	4
CHMY 142N	College Chemistry I Lab	1
CHMY 143N	College Chemistry II	4
CHMY 144N	College Chemistry II Lab	1
CHMY 221	Organic Chemistry I	3
CHMY 222	Organic Chemistry I Lab	2
CHMY 223	Organic Chemistry II	3
CHMY 224	Organic Chemistry II Lab	2
Total Hours		20

Minimum Required Grade: C-

Physics

Rule: Either the PHSX 205N-PHSX 208N or the PHSX 215N-PHSX 218N sequence may be completed

Select one of the following sequences:		10
Sequence 1:		
PHSX 205N	College Physics I	
PHSX 206N	College Physics I Laboratory	
PHSX 207N	College Physics II	
PHSX 208N	College Physics II Laboratory	
Sequence 2:		
PHSX 215N	Fund of Physics w/Calc I	
PHSX 216N	Physics Laboratory I w/Calc	
PHSX 217N	Fund of Physics w/Calc II	
PHSX 218N	Physics Laboratory II w/Calc	
Total Hours		10

Minimum Required Grade: C-

Mathematics

Rule: Either the M 162/M 263 sequence or the M 171/M 172 sequence may be completed

Select one of the following:		7-8
M 162 & M 263	Applied Calculus and Applied Differential Equations	
M 171 & M 172	Calculus I and Calculus II	
Total Hours		7-8

Minimum Required Grade: C-

Upper Division Core

Rule: Must complete the following subcategories

25 Total Credits Required

Biochemistry

Rule: All of the following courses are required

BCH 480	Advanced Biochemistry I	3
BCH 482	Advanced Biochemistry II	3
Total Hours		6

Minimum Required Grade: C-

Microbiology

Rule: The following course is required

BIOM 360	General Microbiology (equiv to 260)	3
Total Hours		3

Minimum Required Grade: C-

Analytical Chemistry

Rule: All of the following courses are required

CHMY 311	Analytical Chem-Quant Analysis	4
CHMY 421	Advanced Instrument Analysis	4
Total Hours		8

Minimum Required Grade: C-

Inorganic Chemistry

Rule: The following course is required

CHMY 401	Advanced Inorganic Chemistry	3
Total Hours		3

Minimum Required Grade: C-

Physical Chemistry

Rule: Choose 1 of the following courses

CHMY 360	Applied Physical Chemistry	3-4
or CHMY 373	Phys Chem-Kntcs & Thrmdynmcs	
Total Hours		3-4

Minimum Required Grade: C-

Biology Laboratory Course

Rule: Choose one of the following lab courses

Select one of the following:		2
BIOB 411	Immunology Laboratory	
BIOB 440	Biological Electron Microscopy	
BIOM 361	General Microbiology Lab	
BIOM 428	General Parasitology Lab	
Total Hours		2

Minimum Required Grade: C-

Advanced Electives

Rule: Choose 21 credits from the courses listed

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.

Select 21 credits from the following:		21
BCH 486	Biochemistry Research Lab	
BCH 490	Undergraduate Research	
BIOB 301	Developmental Biology	
BIOB 375	General Genetics	
BIOB 410	Immunology	
BIOB 411	Immunology Laboratory	
BIOB 425	Adv Cell & Molecular Biology	
BIOB 440	Biological Electron Microscopy	
BIOB 486	Genomics	
BIOB 490	Adv Undergrad Research	
BIOH 365	Human AP I for Health Profsns	
BIOH 370	Human AP II for Health Profsns	
BIOH 405	Hematology	
BIOH 462	Principles Medical Physiology	
BIOM 400	Medical Microbiology	
BIOM 410	Microbial Genetics	
BIOM 411	Exprmntl Microbial Genetcs Lab	
BIOM 427	General Parasitology	
BIOM 428	General Parasitology Lab	
BIOM 435	Virology	
CHMY 371	Phys Chem-Qntm Chm & Spctrscpy	
CHMY 397	Teaching Chemistry	
CHMY 402	Advanced Inorganic Chem Lab	
CHMY 403	Descriptive Inorganic Chem	
CHMY 442	Aquatic Chemistry	
CHMY 465	Organic Spectroscopy	
CHMY 466	FT-NMR Optn for Undrgrd Rsrch	
CHMY 490	Undergraduate Research	
CHMY 494	Seminar/Workshop	
CHMY 498	Internship/Cooperative Educ	
PHAR 421	Medicinal Chem I	
PHAR 422	Medicinal Chem II	
Total Hours		21

Minimum Required Grade: C-

Ethics

Rule: Complete the following course

CHMY 305E	Ethics, Literature and Writing in the Sciences	3
Total Hours		3

Minimum Required Grade: C-