



2019-2020 Catalog

Bachelor of Science in Biochemistry

This document corresponds to the Catalog 2019-2020. Determine your Catalog year by performing a Degree Evaluation in Trailhead. Important: this document is an advising tool for students and faculty -- not an official document. Students are responsible for complying with all graduation requirements as stated in the Mines Bulletin that corresponds to your enrollment term.

LEGEND		Required by the Mines Core Curriculum
		Distributed Science Courses

FRESHMAN YEAR	FALL	4.0 hr. MATH 111 Calculus for Scientists and Engineers I <i>Pre-req: Pre-calculus</i>	4.0 hr. CBEN 110 Fundamentals of Biology I	4.0 hr. CHGN 121 Principles of Chemistry I with Lab	0.5 hr. CSM 101 Freshman Success Seminar	3.0 hr. EDNS 151 Intro to Design	0.5 hr. PAGN Physical Education <i>(any PAGN course)</i>	
	SPRING	4.0 hr. MATH 112 Calculus for Scientists and Engineers II <i>Pre-req: MATH 111 with a C or better</i>	4.5 hr. PHGN 100 Physics I - Mechanics <i>Pre-req: MATH111; Co-Req: MATH112 or MATH113 or MATH122</i>	4.0 hr. CHGN 122 Principles of Chemistry II with Lab <i>Pre-req: CHGN 121 with C- or better</i>		4.0 hr. HASS 100 Nature and Human Values	0.5 hr. PAGN Physical Education <i>(any PAGN course)</i>	
SOPHOMORE YEAR	FALL	4.0 hr. MATH 213 Calculus for Scientists and Engineers III <i>Pre-req: MATH 112 with a C or better</i>	4.5 hr. PHGN 200 Physics II - Electromagnetism & Optics <i>Pre-req: PHGN 100, MATH 213 with C- or better</i>	3.0 hr. CHGN 209 Intro to Chemical Thermodynamics <i>Pre-req: CHGN 122 or CHGN 125, MATH 112, PHGN 100</i>	3.0 hr. CHGN 221 Organic Chemistry I <i>Pre-req: CHGN 122 or CHGN 125 with C- or better</i>	1.0 hr. CHGN 223 Organic Chemistry I Lab	0.5 hr. PAGN Physical Education <i>(any PAGN course)</i>	
	SPRING	3.0 hr. MATH 225 Differential Equations <i>Pre-req: MATH 112 or MATH 122 with a C or better, or concurrent MATH 113</i>	3.0 hr. CHGN 335 Instrumental Analysis <i>Pre-req: CHGN 122 with C- or better</i>	3.0 hr. EBGN 201 Principles of Economics	3.0 hr. CHGN 222 Organic Chemistry II <i>Pre-req: CHGN 221 with C- or better</i>	1.0 hr. CHGN 224 Organic Chemistry II Lab	3.0 hr. HASS 200 Global Studies <i>Pre-req: HASS 100</i>	0.5 hr. PAGN Physical Education <i>(any PAGN course)</i>
JUNIOR YEAR	FALL	3.0 hr. CHGN 428 Biochemistry <i>Pre-req: CHGN 222 or consent of instructor</i>	4.0 hr. CHGN 351 Physical Chemistry: A Molecular Perspective I <i>MATH 225, PGHN 200, CHGN 122 and (CHGN 209 or CBEN 210) with C- or better</i>	1.0 hr. CHGN 395 Introduction to Undergraduate Research <i>Pre-req: CHGN 222, 224 or consent of Dept Head. Complete Chemistry Curriculum thru spring semester sophomore year</i>	3.0 hr. CHGN 336 Analytical Chemistry <i>Pre-req: CHGN 122 and (CHGN 209 or CBEN 210) with C- or better</i>	1.0 hr. CHGN 337 Analytical Chemistry Lab	4.0 hr. TECH ELECT* Technical Elective	
	SPRING	3.0 hr. CHGN ELECT ** Chemistry Elective	2.0 hr. CHGN 323 Qualitative Organic Analysis and Applied Spectroscopy <i>Pre-req: CHGN 222 and 224, C- or better</i>	4.0 hr. CBEN 120 Fundamentals of Biology II <i>Pre-req: CBEN 110 or equivalent course</i>	3.0 hr. CHGN ELECT ** Chemistry Elective	1.0 hr. CHGN 4XX Biochemistry Lab	3.0 hr. HASS/EBGN*** HASS Mid-Level Restricted Elective I	
SUMMER	6.0 hr. CHGN 490 Field Session <i>Pre-req: CHGN 323, CHGN 341, and CHGN 351 or consent of instructor</i>							
SENIOR YEAR	FALL	3.0 hr. CHGN 429 Biochemistry II <i>Pre-req: CHGN 428 or consent of instructor</i>	3.0 hr. TECH ELECT* Technical Elective	3.0 hr. CHGN 341 Inorganic Chemistry I <i>Pre-req: CHGN 222 and CHGN 209 with C- or better</i>		3.0 hr. HASS/EBGN*** HASS Mid-Level Restricted Elective II	3.0 hr. FREE Free Elective	
	SPRING	3.0 hr. CHGN ELECT ** Chemistry Elective	3.0 hr. CHGN ELECT ** Chemistry Elective		3.0 hr. FREE Free Elective	3.0 hr. HASS/EBGN*** HASS 400-Level Restricted Elective III	3.0 hr. FREE Free Elective	

Notes:

*Technical Electives: CBEN304 Anatomy and Physiology-3.0, CBEN305 Anatomy and Physiology Lab-1.0, CBEN311 Introduction to Neuroscience-3.0, CBEN320 Cell Biology and Physiology-3.0, CBEN321 Intro to Genetics-4.0, CBEN322 Biological Psychology-3.0, CBEN411 Neuroscience, Memory, and Learning-3.0, CBEN431 Immunology for Engineers and Scientists-3.0

** Chemistry Electives: CHGN311 Introduction to Nanoscience and Nanotechnology-3.0, CHGN403 Introduction to Environmental Chemistry-3.0, CHGN462 Microbiology-3.0, CHGN4XX Chemical Biology-3.0, CHGN4XX Chemistry and Biochemistry of Pharmaceutical-3.0

*** The list of courses that qualify for this requirement are revised yearly and posted on the Mines website. At least one of the courses must be at the 400-level; at least one must have an HASS prefix.

133.5 Credit Hours

*TECH Electives:

CBEN304	Anatomy and Physiology	3.0
CBEN305	Anatomy and Physiology Lab	1.0
CBEN311	Introduction to Neuroscience	3.0
CBEN320	Cell Biology and Physiology	3.0
CBEN321	Intro to Genetics	4.0
CBEN322	Biological Psychology	3.0
CBEN411	Neuroscience, Memory, and Learning	3.0
CBEN431	Immunology for Engineers and Scientists	3.0

**CHGN Electives:

CHGN462	Microbiology	3.0
CHGN4XX	Chemical Biology	3.0
CHGN311	Introduction to Nanoscience and Nanotechnology	3.0
CHGN4XX	Chemistry and Biochemistry of Pharmaceuticals	3.0
CHGN403	Introduction to Environmental Chemistry	3.0