Bachelor of Science Degree: Biology General Bulletin 2026-2027

Name: _____

Student ID: _____

General Education Requirements – see attached page for specific courses

A Minimum grade of "C-" required in all General Education courses. Note: Certain degrees may require a minimum grade of "C" in General Education courses.

Category I: Global Academic Skills (10 credits)

Gen Ed Category	Course	Credits	Grade	Semester	Equivalent
Mathematics (3 credits) M 171 – *Major Requirement*					
English (3 credits)					
Communication & Information Literacy (3 credits)					
Skills for College Success (1 credit)	COLS 108				

NOTE: Skills for College Success Course: in addition to the MUS Transfer Policies (see MUS Core Curriculum), transfer and re-admit students who transfer in 30 or more credits are not required to meet this category.

Category II: Natural Sciences (6 credits)

Gen Ed Category	Course	Credits	Grade	Semester	Equivalent
Life Sciences (3 credits) BIOB 160/161 – *Major Requirement*					
Physical Sciences (3 credits) CHMY 141/142 – *Major Requirement*					

NOTE: Some majors are required to take specific science labs as part of their requirements. Please speak with an advisor for more information

Category III: Social Sciences and History (6 credits)

Gen Ed Category	Course	Credits	Grade	Semester	Equivalent
Social Science (3 credits)					
History (3 credits)					

Category IV: Cultural Diversity (3 credits)

Gen Ed Category	Course	Credits	Grade	Semester	Equivalent
Cultural Diversity (3 credits)					

Category V: Arts & Humanities (6 credits)

Gen Ed Category	Course	Credits	Grade	Semester	Equivalent
Fine Arts (3 credits)					
Humanities (3 credits)					

General Education Requirements

Category I: Global Academic Skills (10 credits)

Subcategory A – Mathematics (3 credits)

Subject	Number	Course Title	Credits
M	105	Contemporary Math	3
M	114	Extended Technical Mathematics	3
M	121	College Algebra	3
M	122	College Trigonometry	3
M	130	Mathematics for Elementary Teachers I	3
M	140	College Math for Health Care	3
M	143	Finite Mathematics	4
M	161	Survey of Calculus	3
M	171	Calculus I	4
STAT	141	Introduction to Statistical Concepts	3
STAT	216	Introduction to Statistics	4

Subcategory B – English (3 credits)

Subject	Number	Course Title	Credits
WRIT	101	College Writing I	3
WRIT	121	Introduction to Technical Writing	3
WRIT	122	Introduction to Business Writing	3

Subcategory C – Communication and Information Literacy (3 credits)

Subject	Number	Course Title	Credits
BMIS	150	Cyber Security & Electronic Communication	3
COMX	111	Introduction to Public Speaking	3
COMX	115	Intro to Interpersonal Communication	3
COMX	210	Communication in Small Groups	3
LSCI	125	Research in the Information Age	3

Subcategory D – Skills for College Success (1 credit)

Subject	Number	Course Title	Credits
COLS	108	Skills for College Success	1

Category II: Natural Sciences (6 credits)

Subcategory A – Life Science (3 credits)

Subject	Number	Course Title	Credits
BIOB	101	Discover Biology	3
BIOB	102	Discover Biology Laboratory	1
BIOB	120	Fundamentals of Biology Plants and People	3
BIOB	121	Fundamentals of Biology for Allied Health	3
BIOB	123	Fundamentals of Biology Nature of Nutrition	3
BIOB	160	Principles of Living Systems	3
BIOB	161	Principles of Living Systems Laboratory	1
SCIN	101	Integrated Sciences I	4

Subcategory B – Physical Science (3 credits)

Subject	Number	Course Title	Credits
ASTR	110	Introduction to Astronomy	3
ASTR	111	Introduction to Astronomy Laboratory	1
CHMY	121	Introduction to General Chemistry	3
CHMY	122	Introduction to General Chemistry Lab	1
CHMY	141	College Chemistry I	4
CHMY	142	College Chemistry II Laboratory	1
GEO	101	Introduction to Physical Geology	3
GEO	102	Introduction to Physical Geology Laboratory	1
GEO	112	Montana Geology	3
GPHY	262	Spatial Sciences Technology & Applications	3
GPHY	263	Spatial Sciences Tech & Applications Lab	3
PHSX	103	Our Physical World	3
PHSX	104	Our Physical World Laboratory	1
PHSX	205	College Physics I	3
PHSX	206	College Physics I Laboratory	1
SCIN	103	Integrated Sciences II	4

BIOB 101, BIOB 102, BIOB 120, BIOB 161, ASTR 111, CHMY 122, CHMY 142, GEO 102, GPHY 263, PHSX 103, PHSX 104, PHSX 206, SCIN 101, and SCIN 103 include a lab experience. Elementary Education majors can satisfy Natural Sciences by taking SCIN 101 and SCIN 103.

Category III: Social Sciences and History (6 credits)

Subcategory A – Social Sciences (3 credits)

Subject	Number	Course Title	Credits
BGEN	105	Introduction to Business	3
COMX	106	Communicating in a Dynamic Workplace	3
ECNS	201	Principles of Microeconomics	3
ECNS	202	Principles of Macroeconomics	3
EDU	105	Education and Democracy	3
HTH	110	Personal Health and Wellness	3
PSCI	210	Introduction to American Government	3
PSCI	220	Introduction to Comparative Government	3
PSYX	100	Introduction to Psychology	3
SOCI	101	Introduction to Sociology	3
SOCI	201	Social Problems	3

Subcategory B – History

Subject	Number	Course Title	Credits
HSTA	101	American History I	3
HSTA	102	American History II	3
HSTR	159	World History to 1500 CE	3
HSTR	160	Modern World History	3
PSCI	230	Introduction to International Relations	3

Category IV: Cultural Diversity (3 credits)

Subject	Number	Course Title	Credits
ANTY	220	Cultural and Society	3
ARTH	160	Global Visual Culture	3
COMX	212	Intro to Intercultural Communication	3
GPHY	121	Human Geography	3
HTH	270	Global Health Issues	3
LIT	230	World Literature Survey	3
MUSI	207	World Music	3
NASX	105	Intro to Native American Studies	3
NASX	205	Native Americans in Contemporary Society	3
REHA	201	Intro to Diversity in Counseling	3
RLST	170	The Religious Quest	3
SPNS	150	The Hispanic Tradition	3
WGSS	274	Women, Culture, and Society	3

Category V: Arts and Humanities (6 credits)

Subcategory A – Fine Arts (3 credits)

Subject	Number	Course Title	Credits
ARTZ	105	Visual Language-Drawing	3
ARTZ	106	Visual Language-2-D Foundations	3
ARTZ	108	Visual Language-3-D Foundations	3
ARTZ	131	Ceramics for Non-Majors	3
CRWR	240	Intro to Creative Writing Workshop	3
FILM	160	Intro to World Cinema	3
LIT	270	Film and Literature	3
MUSI	101	Enjoyment of Music	3
MUSI	114	Band: MSUB Symphonic	1
MUSI	131	Jazz Ensemble I: MSUB	1
MUSI	147	Choral Ensemble: University Chorus	1
PHOT	154	Exploring Digital Photography	3
THTR	101	Introduction to Theater	3

Subcategory B – Humanities (3 credits)

Subject	Number	Course Title	Credits
ARTH	150	Introduction to Art History	3
HONR	111	Perspectives & Understanding	3
LIT	110	Introduction to Literature	3
LIT	213	Montana Literature	3
PHL	110	Introduction to Ethics	3
PHL	111	Philosophies of Life	3
PHL	254	People and Politics	3

Major Requirements

A minimum grade of C- or better is required in all major coursework

Core Biology Requirements

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
BIOB	160	Principles of Living Systems	3			
BIOB	161	Principles of Living Systems Lab	1			
BIOB	170	Principles of Biological Diversity	3			
BIOB	171	Principles of Biological Diversity Lab	1			
BIOB	260	Cellular and Molecular Biology	3			
BIOB	261	Cellular and Molecular Biology Lab	1			
BIOB	375	General Genetics	3			
BIOB	376	General Genetics Lab	1			
BIOM	360	General Microbiology	3			
BIOM	361	General Microbiology Lab	1			

Student's choice of either of the following courses:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
BIOB	499	Senior Thesis/Capstone	1			
SCIN	499	Senior Thesis/Capstone	1			

Core Chemistry Requirements

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
CHMY	141	College Chemistry I	4			
CHMY	142	College Chemistry Laboratory I	1			
CHMY	143	College Chemistry II	4			
CHMY	144	College Chemistry Laboratory II	1			

Select one of the following pairs:

Pair 1:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
CHMY	211	Elements of Organic Chemistry	3			
CHMY	212	Elements of Organic Chemistry Laboratory	1			

Pair 2:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
CHMY	321	Organic Chemistry I	3			
CHMY	322	Organic Chemistry I Laboratory	1			

Note: Students that are contemplating pursuing a graduate degree should consider taking the full year of organic chemistry (CHMY 321/CHMY 322/CHMY 323/CHMY 324) in order to provide themselves with the widest range of options.

Physics Requirement

Select one pair:

Pair 1:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
PHSX	205	College Physics I	3			
PHSX	206	College Physics I Laboratory	1			

Pair 2:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
PHSX	220	Physics I	4			
PHSX	221	Physics I Laboratory	1			

Core Mathematics/Statistics Requirements

Select 2 courses from the following:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
CHMY	250	Applied Math for the Sciences	3			
M	161	Survey of Calculus	3			
M	171	Calculus I	4			
M	172	Calculus II	4			
STAT	216	Introduction to Statistics	4			
STAT	217	Intermediate Statistical Concepts	4			
PSYX	225	Research Design and Analysis	3			
PSYX	226	Research Design and Analysis Lab	1			

Area of Concentration

Choose either the General Biology Plan of Study or one of the three Areas of Concentration below:

General Biology

Students that choose not to select an Area of Concentration must select 34 Restricted Electives as described below. At least 27 of these credits must be upper division.

Select 10 Biology elective credits from the following rubrics: BIOB, BIOE, BIOH, BIOM, and/or BIOO

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent

Select an additional 24 Science elective credits from the following rubrics: BCH, BIOB, BIOE, BIOH, BIOM, BIOO, CHMY, and/or PHSX.

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent

If General Biology is not selected, select one of the three Areas of Concentration below:

Concentration in Pre-Health Sciences

Select 22 biology credits from the following:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
BIOB	315	Animal Development	3			
BIOB	410	Immunology	3			
BIOB	487	Bioinformatics	3			
BIOB	490	Undergraduate Research	2			
BIOB	498	Internship/Cooperative Education	3			
BIOH	301	Human Anatomy and Physiology I	3			
BIOH	302	Human Anatomy and Physiology I Laboratory	1			
BIOH	311	Human Anatomy and Physiology II	3			
BIOH	312	Human Anatomy and Physiology II Laboratory	1			
BIOH	333	Cancer Biology	3			
BIOH	382	Fundamentals of Medical Histology	3			

BIOH	383	Biology of Human Reproduction	3			
BIOH	405	Hematology	3			
BIOH	406	Hematology Laboratory	1			
BIOM	400	Medical Microbiology	3			
BIOM	401	Medical Microbiology Laboratory	1			
BIOO	432	Medical Botany	3			

Note: Students interested in applying to medical school are encouraged to participate in undergraduate research.

Additional Chemistry Courses

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
CHMY	323	Organic Chemistry II	3			
CHMY	324	Organic Chemistry II Laboratory	1			
BCH	380	Biochemistry	3			
BCH	381	Biochemistry Laboratory	1			

Additional Physics Courses

Select one pair:

Pair 1:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
PHSX	207	College Physics II	3			
PHSX	208	College Physics II Laboratory	1			

Pair 2:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
PHSX	232	Physics II and Thermo	4			
PHSX	233	Physics II and Thermo Laboratory	1			

Concentration in Pre-Veterinary Medicine

Select 26 biology credits from the following:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
BIOB	315	Animal Development	3			
BIOB	410	Immunology	3			
BIOB	487	Bioinformatics	3			
BIOB	490	Undergraduate Research	2			
BIOB	498	Internship/Cooperative Education	3			
BIOH	405	Hematology	3			

BIOH	406	Hematology Laboratory	1			
BIOM	400	Medical Microbiology	3			
BIOM	401	Medical Microbiology Laboratory	1			
BIOO	412	Animal Physiology	3			
BIOO	432	Medical Botany	3			
BIOO	450	Vertebrate Zoology	3			
BIOO	451	Vertebrate Zoology Laboratory	1			

Additional Chemistry Course

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
BCH	380	Biochemistry	3			
BCH	381	Biochemistry Laboratory	1			

Note: Most vet schools require CHMY 211/212 (in the core). However, some may require CHMY 321/322 and CHMY 323/CHMY 324 instead. Check with the individual schools in which you have interest.

Additional Physics Courses

Select one pair:

Pair 1:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
PHSX	207	College Physics II	3			
PHSX	208	College Physics II Laboratory	1			

Pair 2:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
PHSX	232	Physics II and Thermo	4			
PHSX	233	Physics II and Thermo Laboratory	1			

Concentration in Organismal Biology

Complete all of the following:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
BIOE	370	General Ecology	3			
BIOE	371	General Ecology Laboratory	1			
BIOO	320	General Botany	3			
BIOO	321	General Botany Laboratory	1			
BIOO	450	Vertebrate Zoology	3			
BIOO	451	Vertebrate Zoology Laboratory	1			

Scientific Inquiry and Experiential Learning Courses

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
SCIN	289	Scientific Inquiry	1			

Students choice of one course from the following:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
BIOB	490	Undergraduate Research	1-6			
BIOB	495	Fieldwork	1-3			
BIOB	498	Internship/Cooperative Education	1-9			

Systematics, Ecology, and Evolution
Select two courses from the following:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
BIOB	420	Evolution	3			
BIOB	487	Bioinformatics	3			
BIOO	435	Plant Systematics	3			
BIOO	436	Plant Systematics Laboratory	1			

Anatomy and Physiology Courses
Select one course from the following:

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent
BIOB	315	Animal Development	3			
BIOO	412	Animal Physiology	3			
BIOO	433	Plant Physiology	3			
BIOO	434	Plant Physiology Laboratory	1			

Restricted Electives

Select 9 additional upper division science credits from the following rubrics: BCH, BIOB, BIOE, BIOH, BIOM, BIOO, CHMY, and/or PHSX.

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent

Unrestricted Electives

Course Subject	Course Number	Course Title	Credits	Grade	Semester	Equivalent

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Categories	Credits	Earned	Remaining
General Education	31		
Core Biology Requirements	21		
Core Chemistry Requirements	14		
Physics Requirements	4-5		
Core Mathematics/Statistics Requirements	6-8		
General Biology or Area of Concentration	34-36		
Restricted Electives	9		
Electives	V		
Total	120		

Students planning on applying to a graduate-level science program, additional chemistry and physics may be required. Consult your academic advisor.

BIOB 160, CHMY 141, STAT 216, M 171, and M 172 may satisfy General Education requirements

Certain courses in this program have prerequisites; students should check course descriptions for required pre-requisites.

It is the student's responsibility to know and meet the requirements for graduation. A minimum of 36 credits must be upper division classes (300 and above).

Montana State University Billings

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