

University of Wyoming Sample Four-Year Degree Plan  
Catalog Year: 2019-20

## Molecular Biology, BS



This sample degree plan is a guide, to be used for planning in consultation with your academic advisor. Actual course sequence may vary by student. A ▲ symbol identifies courses that must be taken and passed during the suggested semester in order for a student to stay on track toward completing the degree program within four years.

Course Sequence	Course Prefix	Course Number	Course Title	Credit Hours	Min Grade	Notes
<b>Freshman Fall Semester</b>						
			USP First-Year Seminar	3	FY	
▲	CHEM	1020	General Chemistry I <sup>1</sup>	4	PN	
▲	LIFE	1010	General Biology <sup>1</sup>	4	C	PN
	MATH	2200	Calculus I <sup>2</sup>	4		Q; MATH 1450 or MATH 1400 AND 1405 may be substituted with advisor approval
<b>Credit hours subtotal:</b>				<b>15</b>		

<b>Freshman Spring Semester</b>						
			USP Communication 1	3	C	C1
▲	CHEM	1030	General Chemistry II	4		
▲	MOLB	2021	General Microbiology	4	C	Cross listed with MICR 2021.
	STAT	2050	Fundamentals of Statistics	4		Can substitute STAT 2070
<b>Credit hours subtotal:</b>				<b>15</b>		

<b>Sophomore Fall Semester</b>						
			USP Communication 2	3	C	C2
			USP Human Culture	3		H
			USP US & Wyoming Constitutions	3		V
▲	CHEM	2420	Organic Chemistry I	4		
▲	MOLB	3000	Introduction to Molecular Biology <sup>3</sup>	3	C	
<b>Credit hours subtotal:</b>				<b>16</b>		

<b>Sophomore Spring Semester</b>						
			USP Human Culture	3	C	H
▲	CHEM	2440	Organic Chemistry II	4		
			Electives	9		
<b>Credit hours subtotal:</b>				<b>16</b>		

This sample degree plan is a guide for course work in the major. • Course sequencing may need to be altered if ACT or Math Placement scores require a student to take pre-college courses before taking required math or English courses. • Not all courses are offered every semester and some electives may have prerequisites. Students should review course descriptions in the *University Catalog* and consult with their academic advisor to plan accordingly.

### University of Wyoming requirements:

Students must have a minimum cumulative GPA of 2.0 to graduate. • Students must complete 42 hours of upper division (3000-level or above) coursework, 30 of which must be from the University of Wyoming. • Courses must be taken for a letter grade unless offered only for S/U. • University Studies Program (USP) Human Culture (H) and Physical & Natural World (PN) courses must be taken outside of the major subject, but can be cross-listed with the major.

### Molecular Biology Program Notes

This course sequence demonstrates how a student could complete a degree in molecular biology in four years. It does not include specified credits for undergraduate research, summer courses, or study abroad experiences. Some students opt to complete their undergraduate courses in more than four years in order to take full advantage of these educational opportunities. • A student should be aware that most courses (except MOLB 4010, MOLB 4050 and MOLB 4051) are offered only one semester each year. • In consultation with an academic advisor, students should select elective courses to develop an individualized program of study meeting educational and career goals. Lists of appropriate courses are available in various interest areas, including biochemistry, cell and molecular genetics, computational molecular biology, microbiology, and preprofessional health sciences.

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Sequence	Course Prefix	Course Number	Course Title	Credit Hours	Min Grade	Notes
<b>Junior Fall Semester</b>						
	LIFE	3050	Genetics	4		
	MOLB	4485	Computers in Biology <sup>3</sup>	1		
▲	MOLB	4600	Biochem 1: Bioenergetics & Metabolism <sup>3</sup>	3	C	
	PHYS	1110	General Physics I	4		
			Elective	3		
<b>Credit hours subtotal:</b>				<b>15</b>		
<b>Junior Spring Semester</b>						
▲	MOLB	4610	Biochemistry 2: Molecular Mechanisms <sup>3</sup>	3		
	PHYS	1120	General Physics II	4		
			Advanced MOLB Core Course <sup>4</sup>	3		Select one of the following to satisfy Advance MOLB Core Requirements: MOLB 4440 OR 4450 OR 4670
			Elective	3		
			Upper Division Elective	3		
<b>Credit hours subtotal:</b>				<b>16</b>		
<b>Senior Fall Semester</b>						
	MOLB	4050	Student Seminar <sup>3</sup>	1		
			MOLB Elective <sup>5</sup>	4		
			MOLB Elective <sup>5</sup>	3		
			Elective	5		
<b>Credit hours subtotal:</b>				<b>13</b>		
<b>Senior Spring Semester</b>						
	MOLB	4320	Investigations in Molecular Biology <sup>3</sup>	4	C	C3
	MOLB	4051	Departmental Seminar <sup>3</sup>	1		Offered S/U only; can substitute MOLB 4052 (Summer Seminar), also offered S/U only.
			MOLB Elective <sup>5</sup>	3		
			Upper Division Electives	6		
<b>Credit hours subtotal:</b>				<b>14</b>		
<b>TOTAL CREDIT HOURS</b>				<b>120</b>		

**Molecular Biology Program notes Continued:**

<sup>1</sup> Requires MATH ACT ≥ 23, MATH SAT ≥ 600, Math Placement Exam ≥ 3, or concurrent enrollment in MATH 1400, 1405, or 1450. (University standard)\*

<sup>2</sup> Requires MATH ACT > 27, MATH SAT > 600, Math Placement Exam > 5, or > C in MATH 1405 or 1450. (University standard)\*

<sup>3</sup> Molecular Biology Core Courses (16 hours).

<sup>4</sup> Spring Semester MOLB Electives or Advanced MOLB Core Courses (see notes on page 3): Choose from the following. NOTE: MOLB 4440 and 4450 may be applied to the Advanced MOLB Core or the MOLB Elective requirements, but not to both.

MOLB 4010	Laboratory Research in MOLB (max 3 hrs)	MOLB 4440	Microbial Genetics (3 hrs)
MOLB 4100	Clinical Biochemistry (4 hrs)	MOLB 4450	Cell & Developmental Genetics (3 hrs)

<sup>5</sup> Fall Semester MOLB Electives or Advanced MOLB Core Courses (see notes on page 3): Choose from the following. NOTE: MOLB 4670 may be applied to the Advanced MOLB Core or the MOLB Elective requirements, but not to both.

MOLB 4010	Laboratory Research in MOLB (max 3 hrs)	MOLB 4460	Microbial Physiology & Metabolism (3 hrs)
MOLB 4260	Quantitative Microscopy (1 hr)	MOLB 4670	Advanced Molecular Cell Biology (3)
MOLB 4400	Immunology (4 hrs)		

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### Molecular Biology Program notes Continued:

• **Advanced MOLB Core Requirement (3 hours):** For this requirement, students must take either MOLB 4440 (Microbial Genetics), MOLB 4450 (Cell & Developmental Genetics), or MOLB 4670 (Advanced Molecular Cell Biology).

• **MOLB Elective Requirement (10 hours):** Courses from the following list that were not used to fulfill the Advanced MOLB Core requirement (see above) may be applied to the MOLB Elective requirement; a maximum of 3 credits of MOLB 4010 may be counted toward the MOLB Elective requirement.

MOLB 4010	Laboratory Research in MOLB (max 3 hrs)	MOLB 4460	Microbial Physiology & Metabolism (3 hrs)
MOLB 4100	Clinical Biochemistry (4 hrs)	MOLB 4540	Microbial Diversity & Ecology (4 hrs)
MOLB 4260	Quantitative Microscopy (1 hr)	MOLB 4670	Advanced Molecular Cell Biology (3 hrs)
MOLB 4400	Immunology (4 hrs)		
MOLB 4440	Microbial Genetics (3 hrs)		
MOLB 4450	Cell & Developmental Genetics (3 hrs)		

\* See the "Prerequisite and MPE Cut Score Reference Chart" on the Math Placement website for the most up-to-date math placement equivalencies: <http://www.uwyo.edu/mathstats/math-placement/>.