



2009-2010 PETITION/PROGRAM SHEET

Degree: Bachelor of Science

Major: Biological Sciences

Concentration: Biology

www.mesastate.edu/academics/programs.html

About This Major . . .

The Biology Program provides a broad background in the biological sciences. Students choose biology courses from four areas: cell, developmental, and molecular biology; anatomical and physiological biology; organismal biology; and ecology, evolution, and systematics. Students wishing to obtain teacher certification complete a concentration in Teacher Licensure. The Biology Program also offers field courses on tropical ecosystems in Ecuador and on marine invertebrate communities in Oregon. The Department of Biology operates the only electron microscope facility in the area. Graduates of our program pursue careers in the medical field, pest control, plant pathology, wildlife biology, cell biology or biotechnology, among just a few of the career options opened with a Biology degree from Mesa State College.

POLICIES:

- 1. It is your responsibility to determine whether you have met the requirements for your degree. Please see the MSC Catalog for a complete list of graduation requirements.
2. You must turn in your "Intent to Graduate" form to the Registrar's Office by September 15 if you plan to graduate the following May, and by February 15 if you plan to graduate the following December.
3. This program sheet must be submitted with your graduation planning sheet to your advisor during the semester prior to the semester of graduation, no later than October 1 for spring graduates, no later than March 1 for fall graduates.
4. Your advisor will sign and forward the Program Sheet and Graduation Planning Sheet to the Department Head for signature.
5. Finally, the Department Head or the department administrative assistant will take the signed forms to the Registrar's Office. (Students cannot handle the forms once the advisor signs.)
6. If your petition for graduation is denied, it will be your responsibility to reapply for graduation in a subsequent semester. Your "Intent to Graduate" does not automatically move to a later graduation date.
7. NOTE: The semester before the semester you graduate, you will be required to take a Major Field Achievement Test (exit exam).

NAME: _____ STUDENT ID # _____

LOCAL ADDRESS AND PHONE NUMBER: _____

_____ () _____

I, (Signature) _____, hereby certify that I have completed (or will complete) all the courses listed on the Program Sheet. I further certify that the grade listed for those courses is the final course grade received except for the courses in which I am currently enrolled and the courses which I complete next semester. I have indicated the semester in which I will complete these courses.

Signature of Advisor _____ Date _____ 20____

Signature of Department Head _____ Date _____ 20____

Signature of Registrar _____ Date _____ 20____

Students should work closely with a faculty advisor when selecting and scheduling courses prior to registration.

Degree Requirements:

- Must earn 120 semester hours total and meet the academic residency requirements to earn a baccalaureate degree at Mesa State College.
- 40 upper division credits (i.e., 300-level and 400-level courses).
- 2.0 cumulative GPA or higher in all MSC coursework
- A 2.5 GPA is required in the major courses. A "C" or higher is required in all major courses.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- A student must follow the MSC graduation requirements either from 1) the program sheet for the major in effect at the time the student officially declares a major; or 2) a program sheet for the major approved for a year subsequent to the year during which the student officially declares the major and is approved for the student by the department head. Because a program may have requirements specific to the degree, the student should check with the faculty advisor for additional criteria. It is the student's responsibility to be aware of, and follow, all requirements for the degree being pursued. Any exceptions or substitutions must be approved by the student's faculty advisor and Department Head.
- When filling out the program sheet a course can be used only once.
- See the "Undergraduate Graduation Requirements" in the Mesa State College catalog for additional graduation information.

GENERAL EDUCATION REQUIREMENTS (31 semester hours)

See the current Mesa State College catalog for a list of courses that fulfill the requirements below. If a course is on the general education list of options and a requirement for your major, you must use it to fulfill the major requirement and make a different selection within the general education requirement.

Course No	Title	Sem.hrs	Grade	Term	Trns
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English (6 semester hours, must receive a grade of "C" or better and must be completed by the time the student has 60 semester hours.)

ENGL 111	English Composition	3			
ENGL 112	English Composition	3			

Math: MATH 113 or higher (3 semester hours, must receive a grade of "C" or better, must be completed by the time the student has 60 semester hours.)

MATH 113	College Algebra	4*			
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*3 credits apply to the General Ed requirements and 1 credit applies to elective credit

Humanities (3 semester hours)

Social and Behavioral Sciences (6 semester hours)

Natural Sciences (7 semester hours, one course must include a lab)

_____ L _____

History (3 semester hours)

HIST _____

Fine Arts (3 semester hours)

Course No	Title	Sem.hrs	Grade	Term	Trns
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OTHER LOWER DIVISION REQUIREMENTS (6 semester hours)

Kinesiology (3 semester hours)

KINE 100	Health and Wellness	1			
KINA 1	_____	1			
KINA 1	_____	1			

Applied Studies (3 semester hours)

BACHELOR OF SCIENCE DEGREE DISTINCTION

REQUIREMENTS (6 semester hours) Must receive a grade of "C" or better.

STAT 200	Probability and Statistics	3			
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OR

*MATH 146 Calculus for Biological Sciences 3 _____

*If MATH 146 is taken, 2 credits apply to elective credit

Humanities or Social/Behavioral Sciences: (3 semester hours)

BIOLOGICAL SCIENCES MAJOR REQUIREMENTS

(62 semester hours) A 2.5 GPA is required in the major courses. A "C" or higher is required in all major courses.

Required Core Courses (22 semester hours)

BIOL 105	Attributes of Living Systems	3			
BIOL 105L	Attributes of Living Systems Lab	1			
BIOL 106	Principles of Animal Biology	3			
BIOL 106L	Principles of Animal Biology Lab	1			
BIOL 107	Principles of Plant Biology	3			
BIOL 107L	Principles of Plant Biology Lab	1			
BIOL 208	Ecology and Evolution	3			
BIOL 208L	Ecology and Evolution Lab	1			
BIOL 301	Principles of Genetics	3			
BIOL 301L	Principles of Genetics Lab	1			
BIOL 483	Senior Thesis	2			

Required Related Study Area (20 semester hours): (Should be completed by the end of the sophomore year.)

CHEM 131*	General Chemistry	4			
CHEM 131L*	General Chemistry Lab	1			
CHEM 132*	General Chemistry	4			
CHEM 132L*	General Chemistry Lab	1			
PHYS 111*	General Physics	4			
PHYS 111L*	General Physics Lab	1			
PHYS 112*	General Physics	4			
PHYS 112L*	General Physics Lab	1			

* A higher level subject may be taken in the same category with advisor approval.

Course No Title Sem.hrs Grade Term/Trns

Additional Biology Courses (20 semester hours) At least 50% must be at the 300 level or above. Courses must be selected from three of the following four areas: (1) Cell, Developmental, and Molecular; (2) Organismal; (3) Anatomical and Physiological; (4) Ecology, Evolution, and Systematics. At least ONE of the following must be included: BIOL 302/302L, BIOL 341/341L, OR BIOL 421/421L.

Category 1: Cell, Developmental and Molecular

Category 2: Organismal

Category 3: Anatomical and Physiological

Category 4: Ecology, Evolution and Systematics

Electives (All college level courses appearing on your final transcript **not listed above** that will bring your total semester hours to 120 hours, including 40 upper-division credit hours.)

*MATH 113	College Algebra	1		

Additional Biology Courses (20 semester hours minimum) At least 50% must be at the 300 level above. Courses must be selected from three of the following four areas*:

Category 1: Cell, Developmental and Molecular

- †BIOL 302/302L Cellular Biology and Lab (3) / (1)
- BIOL 310/310L Developmental Biology and Lab (3) / (2)
- BIOL 343/343L Immunology and Lab (3) / (1)
- BIOL 344/344L Forensic Molecular Biology and Lab (3) / (1)
- BIOL 425 Molecular Genetics (3)
- BIOL 442 Pharmacology (3)
- CHEM 315/315L Biochemistry and Lab (3) / (1)

Category 2: Organismal

- BIOL 221/221L Plant Identification and Lab (2) / (2)
- BIOL 250/250L Intro to Medical Microbiology and Lab (3) / (2)
- BIOL 331/331L Insect Biology and Lab (3) / (2)
- BIOL 333 Marine Biology (3)
- BIOL 335/335L Invertebrate Zoology and Lab (3) / (1)
- BIOL 336 Fish Biology (3)
- BIOL 350/350L Microbiology and Lab (3) / (1)
- BIOL 411/411L Mammalogy and Lab (3) / (1)
- BIOL 412/412L Ornithology and Lab (3) / (1)
- BIOL 413/413L Herpetology and Lab (3) / (1)
- BIOL 416/416L Ethology and Lab (3) / (1)
- BIOL 431/431L Animal Parasitology and Lab (3) / (1)
- BIOL 433 Marine Invertebrate Communities (3)
- BIOL 450/450L Mycology and Lab (2) / (2)

Category 3: Anatomical and Physiological

- BIOL 209/209L Human Anatomy & Physiology I and Lab (3) / (1)
- BIOL 210/210L Human Anatomy & Physiology II and Lab (3) / (1)
- BIOL 241 Pathophysiology (4)
- †BIOL 341/341L General Physiology and Lab (3) / (1)
- BIOL 342/342L Histology and Lab (2) / (2)
- †BIOL 421/421L Plant Physiology and Lab (3) / (1)
- BIOL 423/423L Plant Anatomy and Lab (3) / (2)
- BIOL 426/426L Intro to Electron Microscopy and Lab (2) / (2)
- BIOL 441/441L Endocrinology and Lab (3) / (1)

Category 4: Ecology, Evolution, and Systematics

- BIOL 211/211L Ecosystem Biology and Lab (4) / (1)
- BIOL 315 Epidemiology (3)
- BIOL 320 Plant Systematics (3)
- BIOL 321/321L Taxonomy of Grasses and Lab (2) / (2)
- BIOL 403 Evolution (3)
- BIOL 405/405L Adv. Ecological Methods and Lab (3) / (2)
- BIOL 406 Plant-Animal Interactions (3)
- BIOL 407 Tropical Field Biology (5)
- BIOL 408 Desert Ecology (3)
- BIOL 414/414L Aquatic Biology and Lab (3) / (1)
- BIOL 415 Tropical Ecosystems (2)
- BIOL 418/418L Wild Life Management and Lab (3) / (2)

* Category appropriate topics or elective courses may be used with Advisor approval.

† At least one of these lecture/lab courses must be included.

SUGGESTED COURSE SEQUENCING FOR A MAJOR IN BIOLOGICAL SCIENCES – BIOLOGY

This is a recommended sequence of course work. Certain courses may have prerequisites or are only offered during the Fall or Spring semesters. It is the student's responsibility to meet with the assigned advisor and check the 2 year course matrix on the Mesa State website for course availability.

FRESHMAN YEAR

Fall Semester	Hours	Spring Semester	Hours		
BIOL 105	Attributes of Living Systems	3	BIOL 106	Principles of Animal Biology	3
BIOL 105L	Attributes of Living Systems Lab	1	BIOL 106L	Principles of Animal Biology Lab	1
CHEM 131	General Chemistry	4	CHEM 132	General Chemistry	4
CHEM 131L	General Chemistry Lab	1	CHEM 132L	General Chemistry Lab	1
MATH 113*	College Algebra	4	MATH 146*	Calculus for Biological Sciences (5) <u>or</u>	
KINE 100	Health and Wellness	1	STAT 200	Probability and Statistics (3)	3-5
KINA	Activity	<u>1</u>	General Education Fine Arts		<u>3</u>
		15			15-17

*Professional schools (medical, veterinary, dental) may require one or two semesters of calculus. Math 151 and 152 will fulfill the MATH requirement.

SOPHOMORE YEAR

Fall Semester	Hours	Spring Semester	Hours		
BIOL 107	Principles of Plant Biology	3	BIOL 208	Ecology and Evolution	3
BIOL 107L	Principles of Plant Biology Lab	1	BIOL 208L	Ecology and Evolution Lab	1
PHYS 111	General Physics (or higher)	4	PHYS 112	General Physics (or higher)	4
PHYS 111L	General Physics Lab (or higher)	1	PHYS 112L	General Physics Lab (or higher)	1
ENGL 111	English Composition	3	ENGL 112	English Composition	3
General Education Social/Behavioral Sciences	<u>3</u>		General Education History		<u>3</u>
	15				15

JUNIOR YEAR

Fall Semester	Hours	Spring Semester	Hours	
BIOL XXX (selected from list)	7	BIOL XXX (selected from list)	7	
BIOL 301	Principles of Genetics	3	Degree Distinction Social/Behavioral Science or Humanities	3
BIOL 301L	Principles of Genetics	1	General Education Social/Behavioral Science	3
General Education Humanities	3	Electives	<u>3</u>	
KINA	Activity			16
	<u>1</u>			
	15			

SENIOR YEAR

Fall Semester	Hours	Spring Semester	Hours	
BIOL XXX (selected from list)	6	BIOL 483	Senior Thesis	2
General Education Natural Science	3	General Education Natural Science with Lab	4	
General Education Applied Studies	3	Electives#	<u>6-8</u>	
Electives#	<u>3</u>		12-14	
	15			

Professional schools (medical, veterinary, dental) may require one or two semesters of organic chemistry, which may be taken to fulfill part of the electives.