



2006 – 07 PETITION/PROGRAM SHEET
Degree: Bachelor of Science
Major: Environmental Science and Technology
Concentration: Environmental Science
www.mesastate.edu/schools/snsn/environsc

About This Major . . .

Our goal is to educate students in the science, protection, and restoration of our natural resources—air, water, land, and ecosystems. Our students develop a solid foundation in biology, chemistry, geology, mathematics, statistics, and communication skills, then apply this knowledge to the study and solution of environmental problems. We balance theory with hands-on practice, and include considerable work outdoors in our spectacular local environment. Individual and group projects are a key part of our courses. We also have students taking part in work done through partnerships with organizations such as the Colorado National Monument and the Colorado Division of Minerals and Geology. Students pursuing this degree must select one of the following three concentrations: Environmental Restoration and Waste Management; Environmental Science; and Environmental Science Education.

The concentration in Environmental Science focuses on management of natural resources. Students learn not only the basic science of air, water, soils, and ecosystems, but strategies for protection and restoration of these resources as well. Field work and projects are a key part of the coursework. This concentration is particularly appropriate for students planning to attend graduate school.

Graduates from this concentration are working for consulting firms and government agencies such as the U.S. Bureau of Land Management and the U.S. Geological Survey. Several of our students have also gone on to graduate school at the Colorado School of Mines and Colorado State University, among others.

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 graduation, 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 _____ 20_____
Date

Signature of Department Head _____ 20_____
Date

Signature of Registrar _____ 20_____
Date

- Must earn 120 semester hours and meet the academic residency requirements to earn a baccalaureate degree at Mesa State College.
- Must earn a minimum of 40 semester hours in upper division courses (i.e., 300-level and 400-level courses).
- A cumulative grade point average of 2.0 or higher must be maintained for all courses.
- A "C" or higher is required in all courses listed as major requirements.
- When filling out this program sheet a course can only be used once, i.e., no double counting is allowed between categories.
- Excess KINA/HPWE courses beyond the two required and pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- All degree requirements must be completed as described. Any exceptions or substitutions must be recommended in advance by the faculty advisor and approved by the Department Head.
- It is recommended that students work closely with a faculty advisor when selecting courses and scheduling classes prior to registration.
- Students are required to participate in exit examinations or other programs deemed necessary to comply with the college accountability requirement.

General Education Requirements (Minimum of 33 semester hours) See the M.S.C. catalog for the list of courses that meet the general education categories.

Course No. Credit Grade Term Year Trns/Subs

English: ENGL 111 and 112 (6 semester hours, must receive a "C" or higher, must be completed by the time the student has 60 semester hours)

*ENGL _____ _____ _____ _____ _____ _____

*ENGL _____ _____ _____ _____ _____ _____

*ENGL 129, Honors English, may be substituted for ENGL 111 and ENGL 112. Must earn a grade of "C" or better. May need to take additional electives.

Humanities: (6 semester hours)

_____ _____ _____ _____ _____ _____ _____

Social and Behavioral Sciences: (6 semester hours)

_____ _____ _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____ _____

Course No. Credit Grade Term Year Trns/Subs

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

_____ _____ _____ _____ _____ _____ _____

Fine Arts: (3 semester hours)

_____ _____ _____ _____ _____ _____ _____

Natural Sciences: (minimum 6 semester hours, at least one course must include a lab)

_____ _____ _____ _____ _____ _____ _____

Applied Studies: (3 semester hours)

_____ _____ _____ _____ _____ _____ _____

Other Requirements (10 semester hours)

Kinesiology: (3 Semester Hours)

Course No. Credit Grade Term Year Trns/Subs

KINE/HPWA 100 1 _____ _____ _____ _____

KINA/HPWE _____ 1 _____ _____ _____ _____

KINA/HPWE _____ 1 _____ _____ _____ _____

See the M.S.C. catalog for the list of approved KINA/HPWE/Selected DANC courses.

Bachelor of Science Degree Distinction:

(7 semester hours) Must earn a "C" or better in both courses.

Course No. Credit Grade Term Year Trns/Subs

MATH* 113 4 _____ _____ _____ _____

STAT 200 3 _____ _____ _____ _____

*Math 113 or higher level math as approved by advisor

Environmental Science and Technology – Environmental Science Major Requirements (minimum 64 Semester Hours)

A "C" or higher is required in all courses listed as major requirements.

Course No. Credit Grade Term Year Trns/Subs

ENVS 110 3 _____ _____ _____ _____

ENVS 200 1 _____ _____ _____ _____

ENVS 200L 1 _____ _____ _____ _____

ENVS 210 3 _____ _____ _____ _____

ENVS 312 3 _____ _____ _____ _____

ENVS 312L 1 _____ _____ _____ _____

ENVS 331 3 _____ _____ _____ _____

ENVS 331L 1 _____ _____ _____ _____

ENVS 340 3 _____ _____ _____ _____

ENVS 455 3 _____ _____ _____ _____

Course No. Credit Grade Term Year Trns/Subs

ENVS 492 2 _____ _____ _____ _____

POLS 488 3 _____ _____ _____ _____

MATH 151 **or** MATH 146:

MATH _____ 5 _____ _____ _____ _____

BIOL 107 **and** BIOL 107L **or** BIOL 211 **and** BIOL 211L:

BIOL _____ _____ _____ _____ _____ _____

BIOL _____ _____ _____ _____ _____ _____

CHEM 121/121L **and** CHEM 122/122L **or**

CHEM 131/131L **and** CHEM 132/132L:

CHEM _____ 4 _____ _____ _____ _____

CHEM _____ 1 _____ _____ _____ _____

Course	No.	Credit	Grade	Term	Year	Trns/Subs	Course	No.	Credit	Grade	Term	Year	Trns/Subs
6-8 semester hours selected from Biology, Chemistry, Geology, or Physics. See list of approved courses on page 4.													
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Restricted Electives: Choose a minimum of 11 semester hours from ENVS 301, ENVS 313/313L, ENVS 315, ENVS 321, ENVS 332/332L, ENVS 350/350L, ENVS 360/360L, ENVS 396, ENVS 413, ENVS 420/420L, ENVS 431, ENVS 433, ENVS 460/460L, ENVS 496, ENVS 497													
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

Course	No.	Credit	Grade	Term	Year	Trns/Subs	Course	No.	Credit	Grade	Term	Year	Trns/Subs
Electives (All college level courses appearing on your final transcript, not listed above that will bring your total semester hours to 120 hours. Excludes KINA/HPWE activity courses.) (12-13 semester hours; additional upper division hours may be needed.)													
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

GRADUATION INFORMATION

See the “Undergraduate Graduation Requirements” in the Mesa State College catalog for additional graduation information.

GENERAL EDUCATION REQUIREMENTS (Minimum of 33 Semester Hours) See current Mesa State College catalog for list of courses that fulfill the requirements below. If one (or more) of the selections below is required in your major, you must use it to fulfill the major requirement and **make a different selection to meet the general education requirement. The courses may not be used to fulfill both requirements.**

English – 6 Semester Hours (Must be **completed** before student has 60 semester hours. Must receive grade of “C” or above.)

ENGL 111 and ENGL 112 or ENGL 129 (*by permission*)

Humanities – 6 semester hours

Social and Behavioral Sciences – 6 semester hours

Humanities or Social/Behavioral Sciences – 3 semester hours

Fine Arts – 3 semester hours

Natural Sciences – 6 semester hours (At least one course must include a lab.)

Applied Studies – 3 semester hours

OTHER REQUIREMENTS (10 Semester Hours)

Kinesiology – 3 Semester Hours

Each student must take KINE/HPWA 100 together with two KINA/HPWE/Selected DANC courses. See current catalog for listing.

Degree Distinction – 7 Semester Hours

MATH 113 College Algebra (Or a higher level math as approved as approved by advisor) – 4 semester hours

STAT 200 Probability and Statistics - 3 semester hours

Environmental Science and Technology – Environmental Science (minimum 64 Semester Hours)

A “C” or higher is required in all courses listed as major requirements.

Required Courses:

One of the two Biology course combinations:

BIOL 107/107L Plant Biology and Lab

BIOL 211/211L Ecosystem Biology and Lab

One of the two following Chemistry course combinations:

CHEM 121/121L **and** CHEM 122/122L Principles of Chemistry and Lab **or**

CHEM 131/131L **and** CHEM 132/132L General Chemistry and Lab

ENVS 110 Environmental Science and Technology I

ENVS 200 Field Methods in Environmental Science

ENVS 200L Field Methods in Environmental Science Laboratory

ENVS 210 Environmental Science & Technology II

ENVS 312 Soil Properties & Characterization

ENVS 312L Soil Properties & Characterization Laboratory

ENVS 331 Water Quality

ENVS 331L Water Quality Laboratory

ENVS 340 Air Quality & Pollution Control

ENVS 455 Restoration Ecology

ENVS 492 Capstone in Environmental Science & Technology

POLS 488 Environmental Politics

One of the following:

MATH 146 Calculus for Biological Sciences

MATH 151 Calculus I

Restricted Electives – 11 semester hours chosen from:

ENVS 301 Environmental Project Management

ENVS 313 Characterization Of Contaminated Sites

ENVS 313L Characterization Of Contaminated Sites Lab

ENVS 315 Mined Land Rehabilitation

ENVS 321 Environmental Risk Analysis

ENVS 332 Introduction to GIS

ENVS 332L Introduction to GIS Lab

ENVS 350 Ecol/Mgmt. Shrublands/Grasslands

ENVS 350L Ecol/Mgmt. Shrublands/Grasslands Lab

ENVS 360 Fire Ecology

ENVS 360L Fire Ecology Lab

ENVS 396 Topics

ENVS 413 Env. Fate & Transport of Contaminants

ENVS 420 Adv. Env. Samp. & Analytical Methods

ENVS 420L Adv. Env. Samp. & Analytical Methods Lab

ENVS 431 Water & Wastewater Treatment

ENVS 433 Restoration of Aquatic Systems

ENVS 460 Fire Management

ENVS 460L Fire Management Lab

ENVS 496 Topics

ENVS 497 Structured Research

6-8 Semester Hours chosen from the following:

BIOL 105/105L Attributes of Living Systems and Lab

BIOL 106/106L Principles Of Animal Biology and Lab

BIOL 107/107L Principles Of Plant Biology and Lab

BIOL 211/211L Ecosystem Biology and Lab

BIOL 221/221L Plant Identification and Lab

BIOL 231/231L Invertebrate Zoology and Lab

BIOL 315 Epidemiology

BIOL 321/321L Taxonomy of Grasses and Lab

BIOL 331/331L Insect Biology and Lab

BIOL 350/350L Microbiology and Lab

BIOL 405/405L Advanced Ecological Methods and Lab

BIOL 406/406L Plant-Animal Interactions and Lab

BIOL 411/411L Mammalogy and Lab

BIOL 412/412L Ornithology and Lab

BIOL 413/413L Herpetology

BIOL 414/414L Aquatic Biology

BIOL 415/415L Tropical Ecosystems and Lab

GEOL 111/111L Principles Of Physical Geology and Lab

GEOL 321/321L Intro to Remote Sensing and Lab

GEOL 325 Introduction to Engineering Geology

GEOL 333 Geology of the Canyon Country

GEOL 351 Applied Geochemistry

GEOL 355 Basic Hydrology

GEOL 402/402L App. of Geomorphology and Lab

GEOL 404/404L Geophysics and Lab

GEOL 415/415L Intro to Ground Water and Lab

PHYS 111/111L General Physics and Lab

PHYS 112/112L General Physics and Lab

General Electives: 12-13 Semester Hours; additional upper division hours may be needed.

Students are required to participate in exit examinations or other programs deemed necessary to comply with the college accountability requirement. All degree requirements must be completed as described above. Any exceptions or substitutions must be recommended in advance by the faculty advisor and approved by the Department Head.

SUGGESTED COURSE SEQUENCING FOR A MAJOR IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY – ENVIRONMENTAL SCIENCE

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 their advisor and check the 2 year course matrix on the Mesa State website for course availability.

FRESHMAN YEAR

Fall Semester	Hours	Spring Semester	Hours
ENVS 110 Environmental Science & Technology I	3	ENVS 210 Environmental Science & Technology II	3
ENGL 111 English Composition	3	ENGL 112 English Composition	3
MATH 113 College Algebra	4	STAT 200 Probability and Statistics	3
General Education Natural Science	3	General Education Natural Science with Lab	4
General Education Humanities	<u>3</u>	General Education Applied Studies	<u>3</u>
	16		16

SOPHOMORE YEAR

Fall Semester	Hours	Spring Semester	Hours
ENVS 200 Field Methods in Environmental Science	1	Required Chemistry/Lab Combination	5
ENVS 200L Field Methods in Env. Science Lab	1	Required Biology/Geology/Physics from list	4
Required Chemistry/Lab Combination	5	General Education Humanities	3
Required Math – MATH 146 <u>or</u> MATH 151	5	General Education Social/Behavioral Science	<u>3</u>
General Education Social/Behavioral Science	3		15
KINA/HPWE Activity	<u>1</u>		
	16		

JUNIOR YEAR

Fall Semester	Hours	Spring Semester	Hours
ENVS 331 Water Quality	3	ENVS 340 Air Quality and Pollution Control	3
ENVS 331L Water Quality Lab	1	Required Biology/Geology/Physics from list	4
BIOL 211 Ecosystem Biology	4	Unrestricted Electives	<u>7</u>
BIOL 211L Ecosystem Biology lab	1		14
POLS 488 Environmental Politics	3		
General Education Social/Behavioral Science or Humanities	<u>3</u>		
	15		

SENIOR YEAR

Fall Semester	Hours	Spring Semester	Hours
ENVS 312 Soil Properties and Characterization	3	ENVS 492 Capstone in ENVS	2
ENVS 312L Soil Properties and Characterization Lab	1	ENVS 455 Restoration Ecology	3
Electives (Restricted)	4	General Education Fine Arts	3
Electives (Unrestricted)	3-6	Electives (Restricted)	7
KINA/HPWE Activity	<u>1</u>	KINE/HPWA 100 Health and Wellness	<u>1</u>
	12-15		16