



2016-2017 PETITION/PROGRAM SHEET
Degree: Bachelor of Science
Major: Environmental Science and Technology

About This Major . . .

We educate students in the science, protection, and restoration of our natural resources—air, water, land, and ecosystems. Students develop a foundation in biology, chemistry, 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. Students choose either the Pollution Monitoring & Control option, which focuses on pollution prevention as well as investigation and cleanup, or the Ecosystem Restoration option, which focuses on strategies for managing natural resources. Students complete the program with our Capstone course, in which they work in small groups on real-life projects for an off-campus client. Each group plans and implements a project and presents the final results to its client. In addition to providing students with a chance to showcase the knowledge and abilities they have acquired through their studies, students learn how to deal with the challenges of real-life project work.

Our graduates take positions as environmental professionals with consulting firms, industry, and government agencies (e.g., U.S. Bureau of Land Management, U.S. Geological Survey, and U.S. Army Corps of Engineers). Some continue their studies in graduate school (e.g., Colorado School of Mines, Colorado State University, University of Denver).

For more information on what you can do with this major, go to <http://www.coloradomesa.edu/career/whatmajor.html>.

All CMU baccalaureate graduates are expected to demonstrate proficiency in critical thinking, communication fluency, quantitative fluency, and specialized knowledge/applied learning. In addition to these campus-wide student learning outcomes, graduates of this major will be able to:

1. Demonstrate an understanding of terminology, concepts, theories, and practices in environmental science. (Specialized Knowledge)
2. Demonstrate the ability to design an environmental study. (Applied Learning)
3. Demonstrate the ability to analyze quantitative environmental data, effectively translate data into graphs or tables, and interpret results. (Quantitative Fluency)
4. Demonstrate the ability to use appropriate tools, technology, and methods for measuring and analyzing environmental data. (Applied Learning)
5. Identify and evaluate assumptions, hypotheses, and alternative views on environmental problems, then articulate implications and form conclusions. (Critical Thinking)
6. Construct an organized argument (oral and written) supported by current research on a technical issue in environmental science appropriate for a specialized audience. (Communication Fluency)

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 have read and understand the policies listed on the last page of this 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

DEGREE REQUIREMENTS:

- 120 semester hours total (A minimum of 28 taken at CMU in no fewer than two semesters).
- 40 upper division credits (A minimum of 15 taken at the 300-400 course levels within the major at CMU).
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- 2.00 cumulative GPA or higher in all CMU coursework.
- A “C” or higher is required in all courses listed as major requirements.
- A student must follow the CMU 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 catalog for additional graduation information.
- Essential Learning Capstone should be completed between 45 and 75 hours.
- See “Requirements for Undergraduate Degrees and Certificates” in the catalog for additional graduation information.

ESSENTIAL LEARNING REQUIREMENTS (31 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is an Essential Learning option and a requirement for your major, you must use it to fulfill the major requirement and make a different selection for the Essential Learning requirement.

Course No	Title	Sem.hrs	Grade	Term/Trns
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 Essential Learning 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	_____	_____	_____	_____
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Fine Arts (3 semester hours)

Course No	Title	Sem.hrs	Grade	Term/Trns
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WELLNESS REQUIREMENT (2 semester hours)

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

ESSENTIAL LEARNING CAPSTONE (4 semester hours)

ESSL 290	Maverick Milestone (see English & math pre-reqs)	3	_____	_____
ESSL 200	Essential Speech (co-requisite)	1	_____	_____

FOUNDATION COURSES (9-10 semester hours) A “C” or higher is required in all Foundation Courses.

Must choose either CHEM 121/121L **and** CHEM 123 **or** CHEM 131/131L **and** CHEM 132/132L. Students who plan to attend graduate school should take CHEM 131/131L and CHEM 132/132L.

CHEM 121	Principles of Chemistry	4	_____	_____
CHEM 121L	Principles of Chemistry Lab	1	_____	_____
CHEM 123	Introduction to Environmental Chemistry	4	_____	_____

OR

CHEM 131	General Chemistry	4	_____	_____
CHEM 131L	General Chemistry Lab	1	_____	_____
CHEM 132	General Chemistry	4	_____	_____
CHEM 132L	General Chemistry Lab	1	_____	_____

ENVIRONMENTAL SCIENCE AND TECHNOLOGY –MAJOR REQUIREMENTS (57 semester hours) A “C” or higher is required in all courses listed as major requirements.

Core Environmental Science Courses (28-29 semester hours) All students complete the following courses:

ENVS 104 Environmental Science: Global Sustainability (3) **OR** ENVS 101 Introduction to Environmental Science (3) **AND** ENVS 105

Readings in Environmental Science (1):

ENVS	_____	_____	_____	_____
ENVS	_____	_____	_____	_____

ENVS 204	Introduction to Ecosystem Management	3	_____	_____
ENVS 204L	Introduction to Ecosystem Management Lab	1	_____	_____
ENVS 221	Science & Technology of Pollution Control	3	_____	_____
ENVS 221L	Science & Technology of Pollution Control Lab	1	_____	_____
ENVS 331	Water Quality	3	_____	_____
ENVS 331L	Water Quality Lab	1	_____	_____
ENVS 340	Applied Atmospheric Science	3	_____	_____
ENVS 492	Capstone in Environmental Science & Technology	2	_____	_____
STAT 200	Probability & Statistics	3	_____	_____

Must choose either MATH 146 **or** MATH 151:

MATH 146	Calculus for the Biological Sciences	5	_____	_____
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OR

MATH 151	Calculus I	5	_____	_____
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Environmental Science Options (14-15 semester hours) Students complete either the Pollution Monitoring & Control Option or the Ecosystem Restoration Option.

Course No	Title	Sem.hrs	Grade	Term/Trns
Pollution Monitoring & Control Option (14 semester hours)				
ENVS 212	Environmental Health & Safety	2	_____	_____
ENVS 212L	Environmental Health & Safety Lab	1	_____	_____
ENVS 410	Environmental Regulatory Compliance	3	_____	_____
ENVS 420	Pollution Investigation & Monitoring	3	_____	_____
ENVS 420L	Pollution Investigation & Monitoring Lab	1	_____	_____
GEOL 111	Physical Geology	3	_____	_____
GEOL 111L	Physical Geology Lab	1	_____	_____

Ecosystem Restoration Option (15 semester hours)

ENVS 312	Soils & Sustainability	3	_____	_____
ENVS 312L	Soils & Sustainability Lab	1	_____	_____
ENVS 455	Restoration Ecology	3	_____	_____
ENVS 455L	Restoration Ecology Lab	1	_____	_____
POLS 488	Environmental Politics	3	_____	_____
BIOL 107	Principles of Plant Biology	3	_____	_____
BIOL 107L	Principles of Plant Biology Lab	1	_____	_____

Restricted Electives (13-15 semester hours)

Students select additional ENVS courses to bring total credit hours for this section to 57: ENVS 212/212L, ENVS 278/278L, ENVS 301, ENVS 312/312L, ENVS 315, ENVS 321, ENVS 332/332L, ENVS 337, ENVS 350/350L, ENVS 354, ENVS 360/360L, ENVS 370, ENVS 374, ENVS 394, ENVS 396, ENVS 413, ENVS 420/420L, ENVS 431, ENVS 433, ENVS 455/455L, ENVS 460/460L, ENVS 475, ENVS 496, ENVS 497

Course No	Title	Sem.hrs	Grade	Term/Trns
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

ELECTIVES (All college level courses appearing on your final transcript, **not listed above** that will bring your total semester hours to 120 hours. Includes upper division courses required to bring total upper division credit hours to 40. 16-17 semester hours.)

*MATH 113	College Algebra	1	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Restricted Electives – 13-15 semester hours chosen from

- ENVS 212 Environmental Health & Safety
- ENVS 212L Environmental Health & Safety Lab
- ENVS 278 Permaculture Design
- ENVS 278L Permaculture Design Lab
- ENVS 301 Environmental Project Management
- ENVS 312 Soil Science & Sustainability
- ENVS 312L Soil Science & Sustainability Lab
- ENVS 315 Mined Land Rehabilitation
- ENVS 321 Environmental Risk Analysis
- ENVS 332 Introduction to GIS
- ENVS 332L Introduction to GIS Lab
- ENVS 337 Stream Biomonitoring
- ENVS 350 Ecol/Mgmt. Shrublands/Grasslands
- ENVS 350L Ecol/Mgmt. Shrublands/Grasslands Lab
- ENVS 354 Forest Ecology and Management
- ENVS 360 Fire Ecology
- ENVS 360L Fire Ecology Lab

- ENVS 370 Renewable Energy
- ENVS 374 Sustainable Building
- ENVS 394 Natural Resources of the West
- ENVS 396 Topics
- ENVS 413 Env. Fate & Transport of Contaminants
- ENVS 420 Pollution Investigation & Monitoring
- ENVS 420L Pollution Investigation & Monitoring Lab
- ENVS 431 Water & Wastewater Treatment
- ENVS 433 Restoration of Aquatic Systems
- ENVS 455 Restoration Ecology
- ENVS 455L Restoration Ecology Lab
- ENVS 460 Fire Management
- ENVS 460L Fire Management Lab
- ENVS 475 Experimental Design & Statistical Analysis in Environmental Science
- ENVS 496 Topics
- ENVS 497 Structured Research

SUGGESTED COURSE SEQUENCING FOR A MAJOR IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY

Pollution Monitoring & Control Option (PMC) or Ecosystem Restoration Option (ER)

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 Colorado Mesa website for course availability.

FRESHMAN YEAR

Fall Semester	Hours	Spring Semester	Hours
ENVS 104 Env Science: Global Sustainability	3	GEOL 111/111L Princ of Physical Geology with Lab (PMC)	4
ENGL 111 English Composition	3	OR	
MATH 113 College Algebra	4	BIOL 107/107L Principles of Plant Biology with Lab (ER)	4
KINE 100 Health and Wellness	1	ENGL 112 English Composition	3
ESSL Natural Science with Lab	<u>4</u>	STAT 200 Probability and Statistics	3
	15	ESSL Social/Behavioral Science	3
		ESSL Natural Science	<u>3</u>
			16

SOPHOMORE YEAR

Fall Semester	Hours	Spring Semester	Hours
ENVS 204/204L Intro to Ecosystem Management with Lab	4	ENVS 221/221L Sci & Tech of Pollution Control with Lab	4
CHEM 121/121L Principles of Chemistry with Lab	5	CHEM 123 Introduction to Environmental Chemistry	4
OR		OR	
CHEM 131/131L General Chemistry with Lab	5	CHEM 132/132L General Chemistry with Lab	5
ESSL History	3	MATH 146 Calculus for Biology	5
Restricted Elective	1	OR	
KINA Activity	<u>1</u>	MATH 151 Calculus I	5
	14	ESSL Social/Behavioral Science	<u>3</u>
			16-17

JUNIOR YEAR

Fall Semester	Hours	Spring Semester	Hours
Restricted Electives (PMC)	3	ENVS 212/212L Env Health & Safety (PMC)	3
OR		OR	
ENVS 312/312L Soils & Sustainability with Lab (ER)	4	Restricted Electives (ER)	2
ENVS 331/331L Water Quality with Lab	4	ENVS 340 Applied Atmospheric Science	3
ESSL Humanities	3	ENVS 410 Env Regulatory Compliance (PMC)	3
ESSL 200 Essential Speech	1	OR	
ESSL 290 Maverick Milestone	<u>3</u>	POLS 488 Environmental Politics (ER)	3
	14-15	Restricted Electives	3
		ESSL Fine Arts	<u>3</u>
			14-15

SENIOR YEAR

Fall Semester	Hours	Spring Semester	Hours
Restricted Electives	7	ENVS 492 Capstone in ENVS	2
Unrestricted Electives	<u>7-8</u>	ENVS 420/420L Poll. Inv. & Monitoring w/ Lab (PMC)	4
	14-15	OR	
		ENVS 455/455L Restoration Ecology with Lab (ER)	4
		Unrestricted Electives	<u>9</u>
			15

POLICIES:

1. Please see the catalog for a complete list of graduation requirements.
2. 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.** 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. Your advisor will sign and forward the Program Sheet and Graduation Planning Sheet to the Department Head for signature. Finally, the Department Head will submit the signed forms to the Registrar's Office. (Students cannot handle the forms once the advisor signs.)
4. 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.
5. NOTE: During your senior year, you will be required to take a capstone exit assessment/project (e.g., Major Field Achievement Test)