

Environmental Science, Multidisciplinary Concentration

Department of Earth & Atmospheric Sciences, 303-556-3143, Science 2028

College of Letters, Arts, and Sciences

Catalog 16-17

This sheet applies to the 2016-17 catalog *only*. It does not replace the full catalog as an official statement of requirements. Students with declared majors *must* work with a faculty advisor on course selection and sequencing to ensure a timely graduation.

General Studies
 Environmental Science Required Courses
 Multidisciplinary Requirements
 Unrestricted Electives
 Total to Graduate (Min. 40 hrs. Upper-Division)

36 min
 37
 41
 6
 120 min

Students who have reached junior standing (60 hrs.) should run a Degree Progress Report and review it with a faculty advisor.

General Studies Course Requirements Credits

***TO BE COMPLETED WITHIN FIRST 30 COLLEGE-LEVEL CREDIT HOURS**

Written Communication min. 6 credits

____ ENG 1010 Composing Arguments* 3
 ____ ENG 1020 Freshman Comp: Analysis, Research, & Doc. 3
(ENG 1020 must be completed within 45 credit hours)

Oral Communication* min. 3 credits

Quantitative Literacy*

____ MTH 1210 Intro to Statistics 4

Arts and Humanities min. 6 credits

Historical min. 3 credits

Natural and Physical Sciences min. 6 credits

____ CHE 1800 General Chemistry I 4
(Preq. MTH 1110 or MTH 1112)
 ____ GEL 1010 Physical Geology 4

Social and Behavioral Sciences I min. 3 credits-

Social and Behavioral Sciences II min. 3 credits

Global Diversity

____ May be satisfied within General Studies (GD code)

Multicultural Requirement

____ May be satisfied within General Studies (MC code)

Environmental Science Required Core Courses Credits

____ ENV 1200 Intro to Environmental Science 3
 ____ ENV 4960 Global Environmental Challenges 3
(Preq. 12 credits Upper Division of GEL, GEG, MTR, & Senior Standing)
 ____ BIO 1080 General Biology I 3
(Co: BIO 1090)
 ____ BIO 1090 General Biology Laboratory I 1
(Co: BIO 1080)
 ____ BIO 1081 General Biology II 3
(Preq. BIO 1080 & BIO 1090; Co: BIO 1091)
 ____ BIO 1091 General Biology Laboratory II 1
(Preq. BIO 1080 & BIO 1090; Co: BIO 1081)
 ____ CHE 1810 General Chemistry II 4
(Preq. CHE 1800 & MTH 1400, MTH 1410, MTH 2410, or MTH 2420)
 ____ CHE 1850 General Chemistry Laboratory 2
(Preq. or Co. CHE 1810)
 ____ CET 3320 Environmental Impact Statements 3
(Preq. Junior Standing)
 ____ MTH 3240 Environmental Statistics 4
(Preq. MTH 1210 & MTH 1110 or MTH 1112)
 ____ GIS 1220 Introduction to Geospatial Science 3
(Preq. CSS 1010 or CMS 1010 Recommended)
 ____ GIS 2250 Geographic Information Systems 3
(Preq. GIS 1220)

Choose one of the following:

____ MTH 1110 College Algebra 4
 ____ MTH 1400 Precalculus Mathematics 4
(Preq. MTH 1110 & MTH 1120)
 ____ MTH 1410 Calculus I 4
(Preq. MTH 1110 & MTH 1120 or MTH 1400)

Multidisciplinary Required Courses		Credits
___	CHE 3100 Organic Chemistry I (<i>Preq. CHE 1800, CHE 1810, CHE 1850</i>)	4
___	MTR 1400 Weather and Climate	3
___	MTR 2020 Weather and Climate Lab for Scientists (<i>Preq. MTR 1400</i>)	1

Biology (min 8 credits)		Credits
___	BIO 2100 General Botany (<i>Preq. BIO 1080 & BIO 1090, BIO 1081 & BIO 1091</i>)	5
___	BIO 2400 General Microbiology (<i>Preq. BIO 1080 & BIO 1090, BIO 1081 & BIO 1091, 1 semester of CHE</i>)	5
___	BIO 3140 Plant Physiology (<i>Preq. BIO 2100</i>)	5
___	BIO 3160 Plant Anatomy and Morphology (<i>Preq. BIO 2100</i>)	4
___	BIO 3180 Vascular Plant Taxonomy (<i>Preq. BIO 2100</i>)	4
___	BIO 3200 Invertebrate Zoology (<i>Preq. BIO 1080 & BIO 1090, BIO 1081 & BIO 1091</i>)	4
___	BIO 3260 Vertebrate Zoology (<i>Preq. BIO 1080 & BIO 1090, BIO 1081 & BIO 1091</i>)	4
___	BIO 3360 Animal Physiology (<i>Preq. BIO 3200 or BIO 3260 & CHE 1810</i>)	4
___	BIO 4450 Pathogenic Microbiology (<i>Preq. BIO 2400, BIO 3600, or BIO 3610,</i>)	5
___	BIO 4510 Microbial Ecology (<i>Preq. BIO 2400 & 6 credits of upper division micro and/or molecular biology courses; Senior standing</i>)	4
___	BIO 4540 Plant Ecology (<i>Preq. BIO 2100, Senior Standing</i>)	4
___	BIO 4550 Animal Ecology (<i>Preq. BIO 3200 or BIO 3260 & 6 credits of upper division BIO, Senior Standing</i>)	4

Chemistry (min 3 credits)		Credits
___	CHE 3050 Environmental Chemistry (<i>Preq. CHE 1810, CHE 1811, CHE 3100</i>)	3
___	CHE 3110 Organic Chemistry II (<i>Preq. CHE 3100</i>)	3
___	CHE 3120 Organic Chemistry Laboratory I (<i>Preq. CHE 1810, CHE 1811; Preq. or Co: CHE 3100</i>)	1
___	CHE 3130 Organic Chemistry Laboratory II (<i>Preq. CHE 3100 & CHE 3120; Preq. or Co: CHE 3110</i>)	2

Chemistry Continued (min 3 credits)		Credits
___	CHE 3890 Science and Public Policy: Variable Topics (<i>Preq. ENG 1010</i>)	1-3
___	CHE 4310 Biochemistry I (<i>Preq. CHE 3100</i>)	4
___	CHE 4320 Biochemistry II (<i>Preq. CHE 4310</i>)	4
___	CHE 4350 Biochemistry Laboratory (<i>Preq. or Co: CHE 4310</i>)	2
___	CET 3330 Environmental Technology Processes (<i>Preq. CHE 1100 or CHE 1800, Junior Standing</i>)	3

Environmental Science (min 9 credits)		Credits
___	ENV 3400 Water Resources (<i>Preq. ENV 1200 or GEG 1920</i>)	3
___	ENV 3700 Mountain Environments (<i>Preq. ENV 1200, 9 credits of ENV, GEL, GEG, BIO, CHE, MTR, Junior Standing</i>)	3
___	ENV 3710 Environmental Remediation (<i>Preq. ENV 1200, BIO 1091, CHE 1800, Junior Standing</i>)	3
___	ENV 3720 Waste Management (<i>Preq. ENV 1200, BIO 1091, CHE 1800, Junior Standing</i>)	3
___	ENV 3730 Environmental Risk Assessment (<i>Preq. ENV 1200, 9 credits of ENV, GEL, GEG, BIO, CHE, MTR, Junior Standing</i>)	3
___	ENV 3740 Environmental Health (<i>Preq. ENV 1200, BIO 1091, CHE 1800</i>)	3
___	ENV 4010 Environmental Hazards and GIS (<i>Preq. ENV 4000, GEG 3610 Recommended</i>)	3
___	ENV 4200 Environmental Policy and Planning (<i>Preq. ENV 1200</i>)	3
___	ENV 4410 Water Law (<i>Preq. ENV 1200 or ENV 1400, or ENV 3400</i>)	3
___	ENV 4420 Wetlands (<i>Preq. ENV 1200</i>)	3
___	ENV 4430 Habitat Planning (<i>Preq. ENV 1200</i>)	3
___	ENV 4500 Environmental Biogeochemistry (<i>Preq. ENV 1200, BIO 1091, CHE 1850, Junior Standing</i>)	3
___	ENV 4980 Global Environmental Field Problems: Variable Topics	3
___	ENV 4990 Topics in Environmental Science: Variable Topics	3
___	MTR 3100 Air Pollution (<i>Preq. ENV 1200 or MTR 2020 or MTR 2400</i>)	3

Geographic Information System (min 3 credits)		Credits
___ GIS 3250	Cartography (Preq. GIS 2250 & MTH 1210)	3
___ GIS 4840	Remote Sensing (Preq. GIS 1220 & MTH 1110)	3
___ GIS 4850	Spatial Modeling in Raster (Preq. GIS 2250 & MTH 1110; Co: GIS 3250)	4
___ GIS 4860	GIS Applications (Preq. GIS 2250, Pre or Co: GIS 3250)	4
___ GIS 4880	Current Topics in GIS: Variable Topics (Preq. GIS 2250)	1-3

Geology (min 4 credits)		Credits
___ ENV 3540	Adv. Geologic & Environmental Hazards: Denver and Vicinity (Preq. 9 credits of GEG or GEL)	2
___ ENV 4000	Environmental Geology (Preq. GEL 1010, GEL 3120, & GEL 3420)	3
___ GEL 3050	Introduction to Mineralogy & Optical Mineralogy (Preq. GEL 1010, CHE 1800)	4
___ GEL 3060	Stratigraphy and Structure (Preq. GEL 1010 & GEL 3050; MTH 1120 or MTH 1400)	4
___ GEL 3120	Geomorphology (Preq. GEL 1010 or GEG 1100)	4
___ GEL 3420	Soil Resources (Preq. ENV 1200)	4
___ GEL 3440	Energy and Mineral Resources (Preq. ENV 1400 & GEL 3050)	4
___ GEL 3510	Advanced Geology of Red Rocks Park and Vicinity (Preq. 9 credits of GEG or GEL)	1
___ GEL 3520	Advanced Garden of the Gods: Front Range Geology (Preq. 9 credits of GEG or GEL)	2
___ GEL 3530	Advanced Geology of the Colorado Plateau: Variable Topics (Preq. GEL 1010, 1 lower-division field course)	2
___ GEL 3550	Advanced Geology of the Great Sand Dunes National Monument (Preq. 9 credits of GEG or GEL)	2
___ GEL 4150	Hydrology (Surface Water) (Preq. GEG 1100 or GEG 1910 or ENV 3400; Pre or Co: CSS 1010 or CIS 1010, MTH 1210)	4
___ GEL 4250	Hydrogeology (Ground Water) (Preq. GEL 1010, CHE 1800, MTH 1110; Pre or Co: GEL 3420)	4

Internship Requirement (min 3 credits)		Credits
___ ENV 4950	Internship in Environmental Science (Preq. Junior standing, 12 credits of ENV, EAS Permission)	2-15

Senior Experience Requirement (min 3 credits)		Credits
Choose one of the following:		
___ ENV 4970	Environmental Field Studies (Preq. 12 credits of upper-division courses in GEL, Physical GEL, BIO, and/or MTR, and/or Senior standing)	3
___ BIO 4510	Microbial Ecology (Preq. BIO 2400 & 6 credit hours of upper-division micro and/or molecular biology courses; Senior standing)	4
___ CHE 4950	Senior Experience in Chemistry (Preq. Senior standing, CHE 3000, CHE 3110, & CHE 3190 or CHE 3250)	3