MONTANA STATE UNIVERSITY - DEPARTMENT OF LAND RESOURCES & ENVIRONMENTAL SCIENCES

Degree Requirements for a B. S. in Environmental Sciences - Geospatial & Environmental Analysis Option

2021 - 2022 Catalog

Name: **GID#** **Date:** **Graduating Semester:**

A minimum of 120 credits is required for graduation; at least 42 of these credits must be in courses numbered 300 and above.

ALL DEPARTMENTAL REQUIREMENTS & THEIR PREREQUISITES MUST BE A GRADE OF C- OR BETTER

GRADUATION WORKSHEETS ARE DUE ONE YEAR BEFORE GRADUATION

DEPARMENTAL REQUIREMENTS

Subject/#	Course Title	Credits	Semester	Year	EXCEPTIONS
Freshman Year					
ENSC 110	Land Resources & Environmental Sci	3	F		
BIOB 170IN	Principles of Biological Diversity	4	F S (F)		
CHMY 141 & CHMY 142	College Chemistry I & Lab	4	F S Su (F)		
WRIT 101W	College Writing I	3	F S Su (F)		
WRIT 101W is waived with an ACT English Score of 28 or higher, an SAT Critical Writing score of 650 or higher, an MUS Writing Assessment of 5.5, or an ACT/SAT essay/writing subscore of 11.					
BIOB 160	Principles of Living Systems	4	F S (S)		
CHMY 143 & CHMY 144	College Chemistry II & Lab	4	F S Su (S)		
M 161Q (or higher)	Survey of Calculus	4	F S Su (S)		
US Core	University Seminar	3	F S (S)		
Sophomore Year	**Course Title**	**Credits**	**Semester**	**Year**	**EXCEPTIONS**
ENSC 245IN	Soils	3	F		
ERTH 101IN	Earth Systems Sciences	4	F S Su (F)		
GPHY 284	Intro to GIS Science & Cartography	3	F S (F)		
STAT 216Q	Intro to Statistics	3	F S Su (F)		
Univ. Core		3	F S (F)		
ENSC 210	Role of Plants in the Environment	3	S		
ENSC 260	Evolution for Environ Scientists	3	S		
PHSX 205	College Physics I	4	F S Su (S)		
STAT 217Q	Intermediate Statistical Concepts	3	F S Su (S)		
WRIT 201/HONR 202IH	College Writing II	3	F S (S)		
Junior Year	**Course Title**	**Credits**	**Semester**	**Year**	**EXCEPTIONS**
ENSC 353	Environmental Biogeochemistry	3	F		
GPHY 357	GPS Fund & Apps in Mapping	3	F		
BIOE 370 or	General Ecology	3	F S Su (F)		
NRSM 240	Natural Resource Ecology		F		
Univ. Core and Electives		6	F S Su (F)		
GPHY 384	Adv GIS & Spatial Analysis	3	F S (S)		
Univ. Core and Electives		12	F S Su (S)		
Senior Year	**Course Title**	**Credits**	**Semester**	**Year**	**EXCEPTIONS**
ENSC 444	Watershed Hydrology	3	F		
ENSC 454	Landscape Pedology	3	F		
ENSC 499R	LRES Capstone	3	F		
NRSM 430 or	Natural Resource Law	3	F (F)		
PSCI 362	Natural Resource Policy		S		
Univ Core		3	F S Su (F)		
ENSC 464 or	Computional Techniques Envir Sci	1	S		
ENSC 465	Environmental Biophysics I	3	S		
GPHY 429R	Applied Remote Sensing	3	S		
GPHY 484R	Applied GIS & Spatial Analysis	3	S		
Directed Electives		5-7	F S Su (S)		

Each student shall work closely with their faculty advisor to plan an integrated set of elective courses appropriate to their academic, professional and personal goals. Courses not on this list may be used IF considered appropriate to the student's goals AND approved by the faculty advisor as a curricular exception.

DIRECTED ELECTIVES - Choose 17-19 Credits from the following:					
AGSC 401	Integrated Pest Management	3	F		
AGSC 428	Cropping Systems Sustain Ag	3	S		
BIOE 375	Ecological Responses to Climate Change	3	S		
BIOE 408	Rocky Mountain Vegetation	3	F		
BIOE 416	Alpine Ecology	3	Su		
BIOE 421	Yellowstone Wildlife Ecology	3	Su		
BIOE 422	Insect Ecology	3	S (even)		
BIOE 424	Ecology of Fungi	3	F (odd)		
BIOE 427RN	Research in Freshwater Ecology	3	F		
BIOE 428	Freshwater Ecology	3	F		
BIOE 439	Stream Ecology	3	F		
BIOE 440R	Conservation Biology	3	F		
BIOE 445	Macrosys Ecology: Plant/Anml/Ecosyst	3	S		
BIOE 455	Plant Ecology	3	S		
BIOM 415	Microbial Divers, Ecology & Evolution	3	S (even)		
BIOM 452	Soil & Environmental Microbiology	3	S		
BIOO 433	Plant Physiology	3	S		
BIOO 435	Plant Systematics	3	S		
ECNS 332	Economy of Natural Resources	3	F		
ENSC 407	Environmental Risk Assessment	3	F (even)		
ENSC 410R	Biodiversity Survey & Monitoring Methods	3	F		
ENSC 443	Weed Ecology & Management	3	F		
ENSC 445	Watershed Analysis	3	S		
ENSC 448	Stream Restoration Ecology	3	F		
ENSC 458	Teaching Applications in LRES	3	F S		
ENSC 460	Soil Remediation	3	S		
ENSC 461	Restoration Ecology	3	F		
ENSC 466	Chemical Ecology	3	F		
ENSC 468	Ecosystem Biogeochemistry	3	S		
ERTH 303	Weather & Climate	3	F		
ERTH 307	Principles of Geomorphology	4	F		
ERTH 432R	Surface Water Resources	3	On Demand		
GPHY 121D	Human Geography	3	F		
GPHY 358	GPS Map Serv Learning: Trail/E-911/Canal	1	F S		
NRSM 421	Holistic Thought & Management	4	S		
NRSM 453	Habitat Inventory & Analysis	3	F		
NRSM 455	Riparian Ecology & Management	3	S		
SOCI 470	Environmental Sociology	3	On Demand		
SRVY 375	Analytical Photo Remote Sensing	2	F (odd)		
SRVY 230	Intro Surveying for Engineers	3	F S Su		
STAT 401	Applied Methods n Statistics	3	F S		
STAT 408	Stat Computing and Grpah Analysis	3	F S		
STAT 411	Methods for Data Analysis I	3	F S		
STAT 412	Methods for Data Analysys II	3	F S		

Because some courses are offered alternate years, the proposed scheduling of courses in junior and senior years may need to be modified. Work with your advisor for your individual schedule.

LRES Majors: ENSC 490 Undergrad Research, ENSC 492 Independent Study or ENSC 498 Internship is strongly recommended.

CORE 2.0 REQUIREMENTS - Must be a grade C- or better	**Semester**	**Year**	**Course**
Seminar (US)			
College Writing (W)*			
Quantitative Reasoning (Q)*			
Diversity (D)			
Contemporary Issues in Science (CS)* *2nd IN Course will apply to CS*			
Arts (IA or RA)			
Humanities (IH or RH)			
Social Sciences (IS or RS)			
Natural Science (IN or RN)*			
Research & Creative Experience* (R, RA, RH, RN or RS)			

*Satisfied by departmental requirements