UNIVERSITY OF WYOMING | Office of Transfer Relations

Catalog: 2026-2027 University of Wyoming Catalog
Program: Environmental Systems Science, B. S.

Wyoming Transfer Alignment Guide (WyoTAG)

Environmental Systems Science, B. S.

Environmental Systems Science (ESS) is an interdisciplinary undergraduate degree in environmental science, focusing on the interactions between the various components of Earth and environmental systems.

Degree Program Requirements

This major requires a minimum of 58 credits (primary) or 52 (concurrent), of which are upper-division credits. All undergraduate students in ESS complete their coursework in conjunction with another major or minor. See "18+ Credit Hours in an Approved Minor or Concurrent Major" section for more details. Students must satisfy USP requirements in accordance with their primary program. Additionally, students need a minimum of 120 total credits, including 42 upper-division credits to graduate from UW.

Program Overview

Students earning a B.S. in Environmental Systems Science will:

1. demonstrate a knowledge of interdisciplinary perspective and integrative thinking,

understand physical and biological components of environmental systems, including the human component;

2. design, conduct, and interpret scientific investigations,

understand the ethics of scientific investigation,

demonstrate proficiency in data collection, statistical analysis, and use of information technology tools and modeling;

3. apply systems concepts to problems concerning environmental systems and their components, and construct conceptual and quantitative systems models;
4. examine spatial, temporal, and spatial-temporal patterns in environmental systems, and use information technology tools to depict, project, and communicate such patterns.

University Studies Program

This degree requires that The University Studies Program 2015 requirements are met before graduation. Some of the courses required for this major fulfill USP requirements, but not all. Students should check their degree evaluations and consult with their assigned academic advisor to discuss their specific course plan.

Course Name	Credits	UW Course in Major	AA/AS/AB/ADN satisfies this USP
C 1-Communication 1 (COM1)	3		X
C 2-Communication 2 (COM2)	3		X
C 3-Communication 3 (COM3)	3	(Must be completed at UW)	
Q-Quantitative Reasoning (Q)	3		X
PN-Physical and Natural World (1) (PN)	3		X
PN-Physical and Natural World (2) (PN)	3		X
H-Human Culture (1) (H)	3		X
H-Human Culture (2) (H)	3		X
V-US & WY Constitution (V)	3		X
FYS or USP Elective-Any 3-credit hour of FYS or 3-credit hours of USP electives	3		X

Note: FYS courses have been paused. 3 hours from any additional USP designated courses is still required.

20+ Credit Hours of Foundations Courses

Course Name	Credits	Casper	CWC	EWC	LCCC	NWCCD	Northwest	Western
PLNT 1000 - Agroecology PN OR LIFE 1010 - General Biology PN OR ENR 1200 - Environment PN	4	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
GEOG 1010 - Introduction to Physical Geography PN OR GEOL 1100 - Physical Geology PN OR ENR/GEOL 1330 - Water, Dirt, and Earth's Environment PN	3-4	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
CHEM 1000 - Introductory Chemistry PN OR CHEM 1020 - General Chemistry I PN	4	X	X	X	X	X	X	X
GIST 2310 - Intro to Geographic Information Systems (GIST pathway) OR GIST 3140 - Introduction to Remote Sensing Q (Remote Sensing Pathway)	3-4		Note 3		Note 3	Note 3	Note 3	

Course Name	Credits	
ESS 1000 - Wyoming in the Earth System PN	3	UW Course
COMP 3250 - Storytelling with Data OR *special topics data course also allowed-see advisor for details.	3	UW Course

15+ Credit Hours of Spheres Courses
Courses taken to satisfy one sphere cannot apply toward another.

Anthrosphere (Choose one course):

Course Name	Credits	
GEOG/NAIS 3400 - Traditional Ecological Knowledge	3	UW Course
GEOL 3650 - Energy for Society: Addressing the Energy Grand Challenge	4	UW Course
ENR/SOC 3950 - Environmental Sociology PN	3	UW Course
AMST/ENR 4030 - Ecology of Knowledge	3	UW Course
ENR/GEOG 4040 - Conservation of Natural Resources	3	UW Course
ANTH/ENR 4310 - Environmental Anthropology	3	UW Course
ENR/HIST 4412 - Global Environment HistoryH	3	UW Course
ENR 4570 - Climate Change Responses	3	UW Course
ENR 4320 - Experience of Place	3	UW Course

Atmosphere (Choose one course):

Course Name	Credits	
ATSC 2000 - Introduction to Meteorology PN	4	UW Course
ATSC 2100 - Global Warming: The Science of Humankinds' Energy Consumption Impacting Climate PN	3	UW Course
ATSC 2200 - Severe and Unusual Weather PN	3	UW Course
ERS 3010 - Air Quality Management	3	UW Course
ENR/GEOG/GEOL 3450 - Weather and Climate	3	UW Course
GEOL 3500 - Global Change: A Geological Perspective	4	UW Course
GEOG/GEOL 4441 - Advanced Climate Variability	3	UW Course

Biosphere (Choose one course):

Course Name	Credits	Casper	CWC	EWC	LCCC	NWCCD	Northwest	Western
REWM 2000 - Principles of Rangeland Management	3	X	X	X	X	X	X	X
LIFE 2022 - Animal Biology	4	Note 4	Note 4		Note 4	Note 4		Note 4
LIFE 2023 - Biology of Plants and Fungi	4	Note 5	Note 5		Note 5	Note 5		Note 5
ENR/RNEW 2100 - Forest Management	3						Note 6	Note 6
ENR/ZOO 2450 - Fish and Wildlife Management in the Anthropocene C2	4	X		X	X	X	X	
LIFE 3400 - General Ecology	3	Note 7		Note 7		Note 7	Note 7	Note 7

Course Name	Credits	
REWM 4200 - Reclamation of Drastically Disturbed Lands	3	UW Course
REWM 4440 - Applied Fire Ecology	3	UW Course
GEOG 4460 - Biogeography	3	UW Course
GEOG/GEOL 4470 - Fire Ecology	3	UW Course

Environmental Systems Interactions (Choose one course):

Course Name	Credits	
ESS/GEOG/GEOL 3480 - Environmental Change	3	UW Course
GEOL 3500 - Global Change: A Geological Perspective	4	UW Course
GEOL 3600 - Earth and Mineral Resources PN	4	UW Course
CE/CHE/ENR 4430 - Green Chemistry and Global Environmental Problems	3	UW Course
ENR 4570 - Climate Change Responses	3	UW Course
ENR 4320 - Experience of Place	3	UW Course

Lithosphere - Hydrology & Surface Processes (Choose one course):

Course Name	Credits	Casper	CWC	EWC	LCCC	NWCCD	Northwest	Western
GEOL 2150 - Geomorphology	4	X					X	

Course Name	Credits	
GEOG 3010 - Geomorphology of Earth's Dynamic Landscapes	3	UW Course
ENR/REWM 3100 - Principles of Wildland Water Quality	3	UW Course
ENR/REWM 4285 - Wildland Hydrology Credits: 3	3-4	UW Course
REWM 4700 - Wildland Watershed Management	3	UW Course
REWM 4710 - Watershed Water Quality Management	3	UW Course

16+ Credit Hours of Skills & Tools Courses

College Algebra

Course Name	Credits	Casper	CWC	EWC	LCCC	NWCCD	Northwest	Western
MATH 1400 - College Algebra Q	3	X	X	X	X	X	X	X

College Algebra is waived if a student transfers in with Stat 2050 or MATH 2200 and CHEM 1000 or CHEM 1020.

Statistics or Calculus (Choose one course):

Course Name	Credits	Casper	CWC	EWC	LCCC	NWCCD	Northwest	Western
STAT 2050 - Fundamentals of Statistics Q	4	X	X	X	X	X	X	X
SOC/ STAT 2070 - Introductory Statistics for the Social Sciences Q	4	Note 8		Note 8		Note 8	Note 8	Note 8
MATH 2200 - Calculus I Q	4	X	X	X	X	X	X	X

Data Analysis (Choose one course):

Course Name	Credits	
STAT 3050 - Statistical Methods	3	UW Course
ESS 4001 - Analysis of Nature's Data	3	UW Course
ENR 4525 - Environmental Data Analysis	4	UW Course
GEOL 4525 - Environmental Data Analysis	4	UW Course

GIS/Remote Sensing

Undergraduate certificates available in GIS or Remote Sensing. See advisor for information. (Choose one pathway):

GIS (Take all courses):

Course Name	Credits	Casper	CWC	EWC	LCCC	NWCCD	Northwest	Western
GIST 2200 - Spatial Data Visualization	3			X				
GIST 2190 - Introduction to Programming in Geospatial Information Science and Technology	3		X					

OR

Remote Sensing (Choose six credits):

Course Name	Credits	Casper	CWC	EWC	LCCC	NWCCD	Northwest	Western
GIST 2140 - Survey of Remote Sensing Applications PN	3		X					

Course Name	Credits	
GIST 4130 - Applied Remote Sensing	3	UW Course
GIST 4211 - Advanced Remote Sensing	3	UW Course
GIST 4410 - UAS Sensors and Platforms	1	UW Course
GIST 4420 - UAS Mission Planning	1	UW Course
GIST 4430 - UAS Regulations and Safety	1	UW Course
GIST 4440 - UAS Ground School and Operations	2	UW Course
GIST 4450 - UAS Data Acquisition and Processing	3	UW Course

Professional Development (1 Credit Min. S/U Grading Only)

Course Name	Credits	
ESS 4970 - Internship in Earth System Science	1-6	UW Course

Satisfactory completion of a professional and applied experience required prior to enrollment. No more than 6 total credits of ENR 4970, ESS 4970, or ORTM 4970 can be applied across multiple Haub programs. All prefixes are interchangeable and are accepted for any Haub program.

Capstone

Course Name	Credits	
ESS 4950 - Environmental Systems Synthesis C3	3	UW Course

18+ Credit Hours in an Approved Minor or Concurrent Major

18+ credit hours in an approved* minor or concurrent major as an area of specialization: Agroecology, Agronomy, Anthropology, Astronomy, Biology, Botany, Chemistry, Environment & Natural Resources, Forest Resources, Geography, Geology, GIS & Remote Sensing, Horticulture, Insect Biology, Land Surveying, Paleoenvironmental Studies, Physics, Plant Protection, Rangeland Ecology & Watershed Management, Reclamation & Restoration Ecology, Secondary Earth Science Education, Soil Science, Statistics, Sustainability, Wildlife & Fisheries Biology & Management, or Zoology

* other options available; subject to advisor approval

6+ Credit Hours of Haub School Requirements Courses
Students earning a B.S. in ESS with their degree awarded from the Haub School must additionally complete 6 credit hours of Haub School Requirements:

1. US Cultures and Communities (choose one course)

2. Global Awareness (choose one course)

Additional Requirements
Students complete additional credit hours in consultation with advisor if needed to meet minimum 120 credits, including 42 upper division credits, to earn a bachelor's degree from the University of Wyoming.

Additionally, students must:

earn a C or better in all courses fulfilling program requirements - in-cluding Haub School U.S. Diversity and Global Awareness courses, and degree, major, and/or minor courses;
earn 12 credits unique to each program when enrolled in multiple Haub School programs;
meet University of Wyoming requirements for earning a bachelor's degree, including, but not limited to, completion of University Studies Program and maintaining minimum 2.0 GPA for good academic standing and graduation.

Notes:
Note 1:

- AECL 1000 is equivalent to UW PLNT 1000.
- All WYCCs offer BIOL 1010 which is equivalent to LIFE 1010.
- BIOL 1080 is equivalent to ENR 1200.

Note 2:

- Casper, CWC, and LCCC offer GEOG 1010.
- All WYCCs offer GEOL 1100.
- Casper offers ENR/GEOL 1330.

Note 3: GIST 2310 is offered at CWC, LCCC, Sheridan, and Northwest.
Note 4: BIOL 2022 is offered at Casper, CWC, LCCC, Sheridan, and Western.
Note 5: BIOL 2023 is offered at Casper, LCCC, Sheridan, Northwest, and Western.
Note 6: REWM 2100 is equivalent RNEW 2100.
Note 7: BIOL 2400 is approved to satisfy the LIFE 3400 requirement.
Note 8: All Wyoming community colleges offer STAT 2050 or STAT 2070 or both. SOC 2070 is only offered at UW.

ENR 1200 = ENR 1200
Note 4 GEOG 1010 = GEOG 1010
Note 5 GEOL 1100 = GEOL 1100
Note 6 ENR/GEOL 1330 = ENR/GEOL 1330
Note 7 GIST 2310
Note 8 LIFE 2022 = Biol 2022
Note 9 LIFE 2023 = BIOL 2023
Note 10 LIFE 3400 = BIOL 2400

COURSE SUBSTITUTIONS: WyoTAGs reflect published equivalencies. UW academic departments occasionally arrange for course substitutions when indirect equivalencies exist. Please contact your UW Academic Advisor for details.

EFFECTIVE DATE: This document is in effect as of the 2026-2027 catalog year; it reflects the published UW curriculum as of that date. Any changes to the UW curriculum or the WYCC course equivalents will require this document to be updated. To request an updated document, faculty should contact transfer@uwyo.edu via email.