GEOLOGY, HYDROGEOLOGY AND WATER CHEMISTRY EMPHASIS, COMPREHENSIVE MAJOR

Liberal Arts (Code 160-013)

University Requirements

GRADUATION REQUIREMENTS FOR BACCALAUREATE DEGREE	
Credit Requirements	
Minimum total for graduation [1]	120
Upper division credits (courses numbered 300 and higher)	39
Liberal Education Core (http://catalog.uwec.edu/undergraduate/graduation-requirements/#header1)	36
Academic Concentrations (http://catalog.uwec.edu/undergraduate/graduation-requirements/#header16)	
Grade Point Requirements (http://catalog.uwec.edu/undergraduate/graduation-requirements/#header14) [2]	
Total	2.00 average
Resident	2.00 average
Major	2.00 average
Minor	2.00 average
Certificate	2.00 average
University Residency Requirements (http://catalog.uwec.edu/undergraduate/graduation-requirements/#header15)	
Minimum total	30
Senior year	23
Major, Standard, upper division in residence	12
Major, Comprehensive, upper division in residence	21
Certificate	25 percent of credits
Procedures Required for Graduation	
Obtain admission to the degree program and/or the College offering it.	
Apply for graduation on CampS.	

[1] Certain programs exceed this minimum.
[2] See special requirements in each College.

Applicability of Credits Toward Graduation

Junior College or Two-Year College Credits. A maximum of 72 semester credits earned in a junior college or two-year college will be accepted as degree credits at UW-Eau Claire.

Extension Credits. Credits earned in credit outreach courses offered by UW-Eau Claire are treated as resident credits. Credits earned in extension courses offered by other units of the University of Wisconsin System are treated as transfer credits. All other (non-UW) extension and correspondence credits are normally limited to one-fourth of the total required for graduation from any curriculum.

WTCS Credits. A maximum of 72 semester credits earned in college parallel programs at Madison Area Technical College, Milwaukee Area Technical College, Nicolet Area Technical College, or Chippewa Valley Technical College may be accepted as degree credits at UW-Eau Claire. A set number of general education courses will be accepted from other technical schools. Occupational and technical courses may also be considered for transfer if the quality and content of the course work from the technical college is judged to be comparable to course work at UW-Eau Claire. Refer to the Transfer Credit Wizard (https://my.uwec.edu/psp/PUBLIC/EMPLOYEE/HRMS/c/EAU_SS_CUSTOM.EAU_TRNCRDWZ.GBL) or contact the UW-Eau Claire Admissions Office for information about the current transfer policy.

USAFI Credit. UW-Eau Claire will accept up to 32 semester credits for work done through the United States Armed Forces Institute, under the provision for non-UW correspondence credit (see Extension Credits above).

Activity Credit (band, chorus, drama, KINS 100-184 courses) Students may count toward graduation no more than one credit of KINS 110-184 courses. Students may count toward graduation no more than four credits earned in any single activity course and no more than 12 credits resulting from any combination of activity courses (excluding KINS 110-184 courses).

Other Restricted Credits. For other University restrictions, see the following: Cooperative Education; Credit by Examination; Satisfactory/Unsatisfactory Registration; Transfer of Credits. College or departmental restrictions may also be placed on Independent Study (399-499 courses), Directed Study (395-495), and other types of credits.

APPLICABILITY OF CREDITS TOWARD GRADUATION	Credit Restrictions
Satisfactory/Unsatisfactory	
Total degree credit	maximum 12
Major, Standard	maximum 1 course
Major, Comprehensive	maximum 2 courses
Minor	maximum 1 course
Credit by Examination	
Total degree credit	maximum ¼ of total
Major or minor	maximum ½ of total
Two-Year College Credits	
Total degree credit	maximum 72 credits
Activity credit (band, chorus, drama, KINS 100-184)	
Total KINS 100-184	maximum 1 credit
Total Band, chorus, drama	maximum 12 credits
Single course band, chorus, drama	maximum 4 credits
Extension credits	
UW-System	no maximum
Other extension/correspondence	maximum ¼ of total

USAFI	
USAFI	maximum 32 credits

Liberal Education Core

The University of Wisconsin-Eau Claire measures learning outcomes to ensure that its graduates have achieved a liberal education and prepared themselves to contribute to a complex society. Upon graduation, each undergraduate will have met the five learning goals of our liberal education core and the 12 learning outcomes they comprise.

LIBERAL EDUCATION CORE REQUIREMENTS	a minimum of 36 credits
Knowledge Goal	
Knowledge Outcome 1 (K1): Natural Sciences (http://catalog.uwec.edu/undergraduate/attribute-k1/)	Two (2) learning experiences
One experience in laboratory science must be selected from either K1 or K2.	
Knowledge Outcome 2 (K2): Social Sciences (http://catalog.uwec.edu/undergraduate/attribute-k2/)	Two (2) learning experiences
One experience in laboratory science must be selected from either K1 or K2.	
Knowledge Outcome 3 (K3): Humanities (http://catalog.uwec.edu/undergraduate/attribute-k3/)	Two (2) learning experiences
Knowledge Outcome 4 (K4): Fine Arts (http://catalog.uwec.edu/undergraduate/attribute-k4/)	One (1) learning experience
Skills Goal	
Skills Outcome 1 (S1): Written and Oral Communication (http://catalog.uwec.edu/undergraduate/attribute-S1/)	Two (2) learning experiences
One S1 must meet the University Writing Requirement (http://catalog.uwec.edu/undergraduate/graduation-requirements/#header10)	
Skills Outcome 2 (S2): Mathematics (http://catalog.uwec.edu/undergraduate/attribute-S2/)	One (1) learning experience
One S2 to meet the University Mathematics Requirement (http://catalog.uwec.edu/undergraduate/graduation-requirements/#header11)	
Skills Outcome 3 (S3): Creativity (http://catalog.uwec.edu/undergraduate/attribute-S3/)	One (1) learning experience
Responsibility Goal	
Responsibility Outcome 1 (R1): Equity, Diversity, and Inclusivity (http://catalog.uwec.edu/undergraduate/attribute-R1/)	Two (2) learning experiences
One R1 must satisfy Design for Diversity (http://catalog.uwec.edu/undergraduate/attribute-DDIV/#header13)	
Responsibility Outcome 2 (R2): Global Perspectives (http://catalog.uwec.edu/undergraduate/attribute-R2/)	One (1) learning experience
Responsibility Outcome 3 (R3): Civic and Environmental Issues (http://catalog.uwec.edu/undergraduate/attribute-R3/)	One (1) learning experience
Integration Goal	
Integration Outcome 1 (I1): Integration (http://catalog.uwec.edu/undergraduate/attribute-I1/)	Two (2) learning experiences
Service-Learning Goal	
Service-Learning (http://catalog.uwec.edu/undergraduate/attribute-SL/#header13)	30 hours

College Degree Requirements

Bachelor of Arts or Bachelor of Science Degree (B.A./B.S.)

University Graduation Requirements. All candidates for degrees must fulfill the requirements for credits, curriculum, GPA, and University residency as specified in the section of this catalog titled University Graduation Requirements (http://catalog.uwec.edu/undergraduate/graduation-requirements/).

College Graduation Requirements: Grade Point Averages. All candidates for degrees in the College of Arts and Sciences must earn minimum resident and total GPAs of 2.00 in the major, the minor, and the certificate. The resident and total GPAs for the major are computed using all attempted credits applicable to the major including those offered by departments other than the major department. The resident and total GPAs for the minor and the certificate are computed similarly.

Major-Minor and Major-Certificate Requirements. A standard major (a minimum of 36 credits) must be supplemented by a minor (a minimum of 24 credits) or by a certificate (12 to 18 credits) to meet graduation requirements for completing a first and second degree program. No minor or certificate is required with a Comprehensive Major (60 or more credits) or with two majors of 36 or more credits each.

Certain degree programs, which include Comprehensive Majors, may require more than the minimum of 120 credits for graduation.

Acceptable academic program combinations are determined at the college level. A major and a minor or a major and certificate or two majors (if available) may not be elected in the same department or program, except in the approved combinations listed here (http://catalog.uwec.edu/undergraduate/arts-sciences/#academicprogramstext).

College Credits. Earn at least 90 credits in courses offered by the College of Arts and Sciences.

Bachelor of Arts Degree in the College of Arts and Sciences (B.A.)

Fulfillment of all University Graduation Requirements (which includes the Liberal Education Core); all College-level degree requirements (major and minor/certificate emphases, GPAs, earning at least 90 credits in Arts and Sciences course work); foreign language competency at the 102 level. Foreign language competency may be met in one of two ways: (1) Achieve a score on the foreign language placement test that qualifies the student to enter the 201-level course in a foreign language. (2) Earn a grade of at least C (not C-) or a mark of S in a 102-level foreign language course (or AIS 112 or AIS 122 or CSD 103).

Bachelor of Science Degree in the College of Arts and Sciences (B.S.)

Fulfillment of all University Graduation Requirements (which includes the Liberal Education Core); all College-level degree requirements (major and minor/certificate emphases, GPAs, earning at least 90 credits in Arts and Sciences course work); mathematics competency at the MATH 111, MATH 112 or MATH 113 level. Mathematics competency can be met in one of three ways: (1) Achieve a score on the mathematics placement test that qualifies the student to enter MATH 114. (2) Earn a grade of at least C (not C-) or a mark of S in MATH 111, MATH 112, or MATH 113. (3) Achieve a satisfactory score on the MATH 112 competency test. This test may be attempted no more than two times.

Major Requirements

Liberal Arts (Code 160-013)

The objective of the comprehensive major in geology is to prepare students for graduate programs in geological sciences or geological engineering, or for careers as professional hydrogeologists or geologists. The liberal arts comprehensive major requires completion of the Core and one of the four Emphases.

NOTE: Communication classes, both written and oral, are strongly recommended to fulfill liberal education requirements in any of the emphases.

Core Requirements for all Liberal Arts Emphases in the Comprehensive Geology Major

Code	Title	Credits
23-25 credits		
Select one of the following:		4
GEOL 106	Earth Science	
GEOL 110	Physical Geology	
GEOL 115	Environmental Geology	
GEOL 118	Societal Issues in Earth Science	
Required:		
GEOL 312	Mineralogy and Petrology I	5
GEOL 320	Sedimentology and Stratigraphy	4
GEOL 468	Geological Field Methods	1
GEOL 470	Field Geology I	3
CHEM 115	Chemical Principles (or equivalent)	6
Capstone Experience (required for all majors)		0-2

All Geology majors are required to complete a capstone experience. Approved capstone experiences include 1) successful completion of GEOL 470 and GEOL 471 with a grade of C or above in both courses, 2) student-faculty collaborative research that includes the student giving a public presentation of the research and being listed as the first author of the research presentation, 3) a department-approved internship, 4) other department-approved experiences. Working with their advisor, students submit a proposal to the department faculty outlining their capstone experience choice and explicitly stating how the capstone fits into their personal career goals. The capstone experience proposal must be submitted to the Chair of the Department no later than the second week of the fall semester of the senior year.

Hydrogeology and Water Chemistry Emphasis

Recommended for students planning careers in geology such as hydrogeology, geochemistry, and environmental geology. This program is designed to fulfill requirements for admission to graduate programs in hydrogeology, geochemistry, and environmental geology. This program also meets 1998 Wisconsin Department of Natural Resources' academic requirements for classification as a hydrogeologist.

This emphasis requires completion of the Comprehensive Geology Major Core plus the required and elective credits as listed below.

Code	Title	Credits
Minimum 60 semester credits, including:		
Required Courses		
GEOL 308	Water Resources	3
GEOL 315	Hydrogeology I	4
GEOL 330	Structural Geology	4
or GEOL 418	Earth History	
GEOL 336	Introduction to Geochemistry	3
GEOL 345	Geomorphology and Aerial Photography Interpretation	3
GEOL 416	Hydrogeology II	4
GEOL 350	Engineering Geology	3
or GEOL 461	Applied Geophysics	
MATH 215	Calculus II	4
PHYS 211	General Physics	5
or PHYS 231	University Physics I	
CS 170	Computing for the Sciences and Mathematics	3
or GEOG 335	Geographic Information Systems I	
Plus electives to total at least 60 credits selected from the following:		
CHEM 213	Quantitative Analysis	
CHEM 218	Introduction to Inorganic Chemistry	
CHEM 325	Organic Chemistry I with Laboratory	
CHEM 401	Inorganic Chemistry	
CHEM 426	Modern Organic Chemistry	
CHEM 433	Physical Chemistry I	
GEOG 350	Soils and the Environment	
GEOG 363	Watershed Analysis	
GEOG 364	Fluvial Processes and Landforms	
GEOG 435	Geographic Information Systems III	
MSE 315	Materials Characterization	
or any geology course numbered 300 or higher		

NOTE 1: No degree credit may be earned under the Satisfactory/Unsatisfactory option in any required courses in a geology major or minor.

NOTE 2: Students should be advised that a second semester of physics is usually required for entrance to graduate school.

Program Learning Outcomes

Students completing this program will be expected to meet the following learning outcomes:

- Explain Earth processes.
- Use mathematics and computational methods to analyze scientific and geological data.
- Read, write, and critically evaluate geological papers.

- Construct an internally consistent geological map utilizing field data, topographic maps, geological maps, air photos, geographic information systems (GIS) data, and geological cross sections.
- Develop geologic models and effectively communicate a hydrogeologic interpretation based on observations.