# **GEOLOGY, DUAL DEGREE GEOLOGICAL ENGINEERING EMPHASIS,** COMPREHENSIVE MAJOR

Liberal Arts (Code 160-014)

## **University Requirements**

### **GRADUATION REQUIREMENTS FOR BACCALAUREATE** DEGREE

Credit Requirements	
Minimum total for graduation <sup>1</sup>	120
Upper division credits (courses numbered 300 and higher)	39
Liberal Education Core (http://catalog.uwec.edu/	36
undergraduate/graduation-requirements/#header1)	
Academic Concentrations (http://catalog.uwec.edu/	
undergraduate/graduation-requirements/#header16)	
Grade Point Requirements (http://catalog.uwec.edu/ undergraduate/graduation-requirements/#header14) <sup>2</sup>	
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	

#### **Procedures Required for Graduation**

Obtain admission to the degree program and/or the College offering it.

Apply for graduation on CampS.

### **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		

Certain programs exceed this minimum.

<sup>&</sup>lt;sup>2</sup> See special requirements in each College.

30 hours

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.

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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

Integration Goal	
Integration Outcome 1 (I1): Integration (http://	Two (2)
catalog.uwec.edu/undergraduate/attribute-I1/)	learning
	experiences
Service-Learning Goal	

## College Degree Requirements **Bachelor of Arts or Bachelor of Science Degree** (B.A./B.S.)

Service-Learning (http://catalog.uwec.edu/undergraduate/

attribute-SL/#header13)

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/graduationrequirements/).

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 / LANG 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

experience

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

## **Major Requirements**

Liberal Arts (Code 160-014)

The objective of the comprehensive major in geology is to prepare students for graduate programs in geological sciences or for careers as professional geologists, hydrogeologists, or geological engineers. 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 follow	ving:	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	Computers in Geology	1
GEOL 470	Field Geology I	3
CHEM 115	Chemical Principles (or equivalent)	6
Capstone Experience (	required for all majors)	0-2

For liberal arts majors, the capstone options may include: GEOL 395 (for a minimum of two credits) or GEOL 471. The capstone will consist of student selection of one of the following options: faculty/student collaborative research, preparation and presentation of a department seminar, internship, field experiences, or other approved experiences. Students working with their adviser will submit a proposal to the department faculty outlining their choice of the capstone experience and explicitly stating how the capstone fits into their personal career goals. The proposal for a capstone experience must be submitted to the chair of the department no later than the second week of the first semester of the senior year.

### **Dual Degree Geological Engineering Emphasis**

This emphasis combines the benefits of a traditional geology degree with those of a formal engineering education. In this program students receive a UW-Eau Claire geology degree in conjunction with a bachelor's degree in engineering from the University of Minnesota. Students will typically complete most of the UW-Eau Claire University requirements and Dual Degree geology requirements while at UW-Eau Claire before transferring to the engineering school. Students should visit the department office for a sample course schedule that would allow them to complete three full years at UW-Eau Claire and be prepared to transfer to the University of Minnesota for an additional one to two years.

Students must complete a minimum of 84 semester credits before transferring to the engineering school, 56 of which must be taken in residence at UW-Eau Claire.

This emphasis requires completion of the Comprehensive Geology Major Core plus the required credits as listed below. Successful completion of GEOL 470 with a grade of C or above will constitute completion of the capstone experience. Students must fulfill the liberal education requirements of both UW-Eau Claire and the University of Minnesota. This can be accomplished in a reasonable manner with careful course selection. Please see Geology advisor.

Code	Title	Credits
Minimum 60 semester	credits, including:	
Required Courses		
GEOL 315	Hydrogeology I	4
GEOL 330	Structural Geology	4
GEOL 345	Geomorphology and Aerial Photography Interpretation	3
or GEOL 420	Glacial Geology	
GEOL 461	Applied Geophysics	4
MATH 215	Calculus II	4
MATH 216	Calculus III	4
PHYS 231	University Physics I	5
PHYS 232	University Physics II	5
PHYS 255	Statics	3

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: For students planning to practice as professional engineers, GEOG 335; GEOL 416 at UW-Eau Claire or equivalent courses at University of Minnesota are strongly recommended.

NOTE 3: Students should plan on taking MATH 311 (UW-Eau Claire; Differential Equations) or Math 2243 (University of Minnesota; Differential Equations and Linear Algebra) prior to the first semester at University of Minnesota. Differential Equations is a prerequisite for the fluid mechanics course which is to be taken during the first semester at UM.

## **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 an applied geology interpretation based on observations.

## Sample Degree Plan

## **Geology, Dual Degree Geological Engineering Emphasis, Comprehensive Major, B.S.**

The following is a sample degree plan, based on the 2023-2024 catalog. It is based on the 120-credit graduation requirement and assumes no transferred credits, no requirements waived by placement tests, no courses taken in the

summer or winter, no repeated courses, and no remedial courses that may be required. This sample degree plan is intended for first-year students entering UW-Eau Claire in the fall semester. Your own degree plan may differ depending on the course of study selected (second major, minor, etc.). UW-Eau Claire cannot guarantee all courses will be offered as shown, but will provide a range of courses that may enable prepared students to fulfill their requirements in a timely period. This sample degree plan is just a guide. Please consult your advisor, your degree audit, and the catalog to create your own degree plan. Note: In order to earn the required minimum of 120 credits for the degree in four years, you should plan to take 15 credits each semester or 30 credits each year.

To earn a degree, students must fulfill all University Graduation Requirements, including the Liberal Education (LE) Core. LE Core course work in the following sample degree plan uses abbreviations such as LE-K1, LE-S2, LE-R3, and LE-11 to represent the learning outcomes students will meet via completion of their liberal education course work. Please click (https://catalog.uwec.edu/ undergraduate/graduation-requirements/)here for a description of the Liberal Education Core outcomes and requirements. Note that the LE Core may be completed through both course and non-course experiences.

Students in this major have the option to pursue either a Bachelor of Arts (B.A.) or a Bachelor of Science (B.S.) degree. The degrees are distinguished by foreign language competency for the B.A. and a higher level of mathematics competency for the B.S.

Earth Science (LE-I1, LE-K1, LE-K1L)

#### SOME TIME IN THE FIRST YEAR

GEOL 106

GEOL 110	Physical Geology (LE-I1, LE-K1, LE-K1L)	
GEOL 115	Environmental Geology (LE-K1, LE-K1L, LE-R3)	
GEOL 118	Societal Issues in Earth Science (LE-I1, LE-K1L)	
MATH 114	Calculus I (LE-S2)	4
CHEM 105	General Chemistry I Lecture	3
CHEM 106	General Chemistry I Laboratory	2
•	dge 3 (LE-K3) Humanities and LE Option: -R1, DDIV) Equity, Diversity, and Inclusivity ersity <sup>1</sup>	3
CHEM 109	General Chemistry II with Lab	4
MATH 215	Calculus II	4
WRIT 114	Intensive Blugold Seminar in Critical Reading and Writing (LE-S1)	5
OR		
WRIT 116	Blugold Seminar in Critical Reading and Writing (LE-S1)	
BIOL 180	Environmental Biology and Conservation (LE-R3, LE-I1)	3
AND		
BIOL 181	Environmental Biology and Conservation Lab <sup>2</sup>	1
TOTAL FIRST YEAR	₹	30
SECOND YEAR		
FIRST SEMESTER		
GEOL 312	Mineralogy and Petrology I	5
GEOL 491	Advanced Special Topics	1
GEOL 315	Hydrogeology I	4
SECOND SEMESTE	R	

CEOL 225		
GEOL 320	Sedimentology and Stratigraphy <sup>3</sup>	4
GEOG 335	Geographic Information Systems I 4	3
GEOL 416	Hydrogeology II <sup>3</sup>	4
SOME TIME IN THE		
MATH 216	Calculus III	4
LE Option: Knowled	lge 4 (LE-K4) Fine Arts - MUSI 110	3
MATH 312	Differential Equations and Linear Algebra	4
TOTAL SECOND YI	EAR	32
THIRD YEAR		
FIRST SEMESTER		
GEOL 345	Geomorphology and Aerial Photography Interpretation	3
OR		
GEOL 420	Glacial Geology <sup>3</sup>	
GEOL 468	Computers in Geology <sup>4</sup>	1
SOME TIME IN THE	THIRD YEAR	
PHYS 231	University Physics I (LE-K1)	5
LE Option: Skills 1 (I e.g. CJ 203	LE-S1) Written and Oral Communication,	3
PHYS 232	University Physics II	5
MATH 345	Introduction to Probability and Mathematical Statistics	4
•	E Option: Knowledge 3 (LE-K3) Humanities and LE Option: desponsibility 2 (LE-R2) Global Perspectives e.g. ENGL 130	
LE Option: Knowledge 3 (LE-K3) Humanities and LE Option: Responsibility 2 (LE-R2) Global Perspectives		
TOTAL THIRD YEA	•	31
WINTERIM AND SU	JMMER DURING/AFTER THIRD YEAR	
GEOL 470	Field Geology I (LE-S3, LE-I1) <sup>5</sup>	3
TOTAL		3
FOURTH YEAR		
FIRST SEMESTER		
GEOL 461	Applied Geophysics <sup>6</sup>	4
PHYS 255	Statics	3
SECOND SEMESTE	R	
GEOL 330	Structural Geology <sup>8</sup>	4
SOME TIME IN THE	FOURTH YEAR	
Skills 1 (LE-S1) Writt	dge 2 (LE-K2) Social Sciences +/- LE Option: ten and Oral Communication or LE Option: -R2) Global Perspectives	3
LE Option - Possibly	-	3
	riting, public speaking, GIS, etc.	3
Technical Elective -		4
LE Options of Intere		7-9
TOTAL FOURTH Y		30

#### Minimum total for the baccalaureate degree = 120 credits

<sup>1</sup> Many geological issues involve working with people from other cultures. Liberal education electives can help broaden students' perspectives. A valuable class counting toward this requirement, R1 and Design for Diversity (DD) is AIS 101. Courses such as HIST 114 and HIST 115 also fulfill the same LE requirements at UWEC and UMN.

- <sup>2</sup> UMN's LE requirement must be fulfilled, as well as UWEC's LE requirement. To satisfy UMN LE, students must take a BIOL lab course.
- Keep the syllabus and all written reports (including the description of the writing assignment, rough drafts, instructor comments, etc.) as documentation. A student might be able to petition that this course meets the "writing intensive" designation at UMN if the student can prove their case. A student needs four of these courses beyond WRIT 114/WRIT 116, so documenting writing experiences could save a student much time fulfilling UMN requirements.
- GEOL 468 prepares students for GEOL 470 offered during Winterim. GEOG 335 should be taken prior to GEOL 468.
- A grade of C or above in GEOL 470 meets the Geology capstone requirement.
- GEOL 461 is required in the major, but currently this class is not offered on a regular basis. It might be necessary for students to substitute another appropriate 300-level Geology course to fulfill this requirement. If so, speak to the Geology Dept. Chair.
- Electives must be selected to ensure that a student's degree comprises at least 39 credits of upper-division courses (300-400 level). Students are encouraged to take additional courses in chemistry, ecology, physics, math, GIS, and written and oral communication, but electives can be selected from any discipline as long as the course prerequisites are met. The degree also must have 120 credits.
- Fulfills a technical elective at UMN.

Students will typically spend four years at UWEC and 1.5 years at UMN. Students must satisfy LE requirements for UWEC and UMN, and also must achieve a satisfactory GPA to be accepted at UMN (floating, but generally >3.2). Graduates of this program will receive a Geology degree from UWEC and a Geoengineeering degree from UMN.

Note: All students must complete the 30-hour Service-Learning Requirement via a non-credit or credit option (see University Graduation Requirements (http://catalog.uwec.edu/undergraduate/graduation-requirements/)).

#### **RECOMMENDATIONS FOR HIGH IMPACT PRACTICES (HIPs)**

The University of Wisconsin-Eau Claire encourages all students to participate in High Impact Practices. The following information identifies any specific recommendations that faculty in this major have concerning which HIPs might be most beneficial to students, and any recommendations about when those HIPs best fit into the degree plan. Students should also consult their faculty advisor for information on HIPs. There are many additional high impact opportunities available. Talk to your academic advisor for more information about incorporating HIPs like Study Abroad, (https:// studyabroad.apps.uwec.edu/) Intercultural Immersion, (https://www.uwec.edu/ immersion/) Internship (https://www.uwec.edu/career-services/info-students/ internships/), and/or Student/Faculty Collaborative Research (https:// www.uwec.edu/orsp/students/student-faculty-collaborative-research-guide/) into your time at UW-Eau Claire.

### **Liberal Education (LE) Core Guidance**

#### **Liberal Education Core (LE Core)**

The LE Core comprises 17 learning experiences across 11 learning outcomes. Students must complete a minimum of 36 credits in courses approved for the LE Core.

- K1 Natural Sciences; two experiences (one lab science experience is required in K1 or K2).
- K2 Social Sciences; two experiences (one lab science experience is required in K1 or K2).

- K3 Humanities; two experiences.
- K4 Fine Arts; one experience.
- S1 Written and Oral Communication; two experiences (one experience must satisfy the University writing requirement).
- S2 Mathematics; one experience (must satisfy the University math competency requirement).
- S3 Creativity; one experience (can be fulfilled in a student's major).
- R1 Equity, Diversity, and Inclusivity; two experiences (one experience must meet the UW System Design for Diversity (DD) requirement).
- R2 Global Perspectives; one experience.
- R3 Civic and Environmental Issues; one experience.
- 11 Integration; two experiences (one experience can be fulfilled in a student's major).
- · SL—Service Learning; 30 hours

#### **Additional LE Core Information**

- Most LE Core learning experiences are course based, and many courses meet more than one learning outcome (e.g., K3 and R2 or K1 and R3).
- Some learning experiences can also be met outside of a traditional course (e.g., undergraduate research (S3), study abroad (I1)).
- · S1 An English placement score that fulfills the University writing requirement fulfills one S1 experience.
- S1 A foreign Language placement score that qualifies the student to enter the 102 level satisfies one S1 experience.
- S1, R2 A foreign language placement score that qualifies the student to enter the 202 level satisfies one experience in S1 and the R2 experience.
- S2 A math placement score that qualifies the student to enter Math 111, 112, 113 or 114 fulfills the S2 experience.
- S3 Completion of two credits from any approved music ensemble fulfills the S3 experience.
- I1 Any semester long study abroad program can fulfill one I1 experience.