GEOSPATIAL ANALYSIS AND TECHNOLOGY, COMPREHENSIVE MAJOR

Liberal Arts (Code 141-001)

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 Universities 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
Community-Engaged Learning Goal	
Community-Engaged Learning (http://catalog.uwec.edu/undergraduate/attribute-cel/#header13)	

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); second language competency at the 102 level. Second language competency may be met in one of two ways: (1) Demonstrate a level of second language competency that qualifies the student to enter the 201-level course in a second language. (2) Earn a grade of at least C (not C-) or a mark of S in a 102-level second language course (or AIS 112 or AIS 122 or SLHS 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 141-001)

The Geospatial Analysis and Technology major will ground students in current geographic and geospatial traditions in a multidisciplinary learning approach. This comprehensive major integrates tools and skills with an engaging curriculum and high impact practices, such as internships and undergraduate research opportunities. It engages critical thinking both inside and outside the classroom. Specific areas of interest include Geographic Information Systems, Remote Sensing, LiDAR, Field Data Collection, Business Geographics, and Unmanned Aerial Systems.

Minimum of 60 semester credits including:

Code	Title	Credits
Core Requirements		
GEOG 104	Planet Earth: The Physical Environment	4
GEOG 111	Planet Earth: Human Geography	3
GEOG 135	Planet Earth: Our Digital Globe	3
GEOG 200	Foundations of Geography	3
DS 150	Computing in Python: Fundamentals and Procedural Programming	4
IS 240	Information Systems in Business	3
GEOG 335	Geographic Information Systems I	3
GEOG 336	Geospatial Field Methods	3
GEOG 337	Geographic Information Systems II	3
GEOG 338	Remote Sensing of the Environment	3
GEOG 370	Quantitative Methods in Geography	3
GEOG 435	Geographic Information Systems III	3
or GEOG 438	Remote Sensing Data Analytics	
GEOG 498	Geography Internship (3 credits required)	1-3
Any 300 or 400 level geography course not noted in major requirements		3
Subtotal		44
Remaining credits to be chosen from the following with at least 6 credits from outside Geography:		16
Geography Geospatial Electives		
GEOG 280	Introduction to Cartography and Visualization	
GEOG 339	Applied Cartography and Geovisualization	
GEOG 352	Business Geographics	
GEOG 358	LiDAR Analysis & Applications	
GEOG 363	Watershed Analysis	
GEOG 390	Geospatial Applications of UAS	
GEOG 395	Directed Studies [2]	
GEOG 399	Independent Study - Juniors [2]	
GEOG 435	Geographic Information Systems III [1]	
GEOG 438	Remote Sensing Data Analytics [1]	
GEOG 455	Web Geographic Information Systems	
GEOG 491	Advanced Special Topics [2]	
GEOG 499	Independent Study - Seniors [2]	
Other Elective Options (Minimum of 6 credits)		
IS 304	Fundamentals of Business Programming	
IS 307	Introduction to Business Analytics	
IS 310	Business Process Modeling	
IS 314	Advanced Business Programming	
IS 324	System Development Methodologies	
IS 344	Database Management Systems	
IS 345	Computer Networks	
CS 140	Introduction to Computer Science	
CS 150	Object-Oriented Programming	
CS 163	Introduction to Programming in C++	
CS 170	Computing for the Sciences and Mathematics	
CS 318	Fundamentals of Web Page Design	
CS 319	Introduction to Web Programming	
ART 108	Foundations: Two-Dimensional Design	
ART 312	Design Across the Disciplines	
DS 140	Basics of Data Analysis with R	
ENGL 312	Science Writing	
ENGL 313	Technical Writing	
ENT 371	Customer Discovery and Business Model Design	
ENT 373	New Venture Feasibility	
MATH 442	Advanced Statistical Modeling	
MATH 445	Survey Sampling	
MATH 447	Nonparametric Statistics	
Note: A maximum of six credits earned in GEOG 395, GEOG 399, and/or GEOG 499 may count toward the major.		

[1] If not taken for Core Requirements.
[2] If applicable and with consent of faculty advisor.

Program Learning Outcomes

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

- Content:
  - Geographic Foundation: Demonstrate geographical knowledge, understanding, and significance through analysis, explanation, and critique (Explain where things are located, why they are located where they are, what difference that location makes, and to whom).
- Skills:
  - Geographic Techniques: Effectively use and apply the tools of geographic inquiry (e.g., field and laboratory to gather quantitative and qualitative geographic data; GIS to acquire, manage, display, and analyze spatial data in digital form; cartography to display spatial information effectively; and spatial statistical methods to model and make inferences about spatial relationships and patterns).
  - Communication: Effectively explain how geographic approaches and perspectives are used to address socially/environmentally relevant questions and problems and why identifying the underlying spatial relationships is significant.
- Responsibility:

    - Equity, Diversity, and Inclusion (EDI): Use geographic knowledge and skills to evaluate assumptions, representations, and institutions in order to challenge existing structures in ways that respect diversity and foster social/environmental equity and inclusivity.
    - Ethics: Use geographic knowledge and skills to address social and environmental challenges in ways that maximize the benefits and minimize the harm to others.
- Dispositions:
    - Interdisciplinary perspective: Synthesize the information, concepts, and methods of the humanities and the natural and social sciences for geographic research and applications.
    - Relational perspective: Explain how people, places, and regions are linked by networks and processes across space and scale (such as local-global, within regions, globalization, trade, immigration, internet technology, climate).
- Comprehensive:
    - Geospatial: Expertly use geospatial information/data and technologies to address geographical issues.