MATHEMATICS, STATISTICS AND APPLIED MATHEMATICS EMPHASIS, MAJOR

Liberal Arts (Code 180-209)

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 180-209)

The statistics and applied mathematics emphasis is appropriate for students interested in either scientific or engineering applications of mathematics, careers in business, industry or statistics, data science, or graduate work in areas such as engineering, operations research, optimization, or statistics. Because of the variety of courses available, students are encouraged to consult a mathematics advisor early and frequently while pursuing this emphasis.

For those students focusing on applied mathematics, MATH 312 is strongly recommended. For those students focusing on statistics, MATH 347 is strongly recommended.

A minimum of 36 credits from mathematics courses must be earned as described below.

Code	Title	Credits
Core Requirements:		
MATH 114	Calculus I	4
MATH 215	Calculus II	4
MATH 216	Calculus III	4
MATH 316	Introduction to Real Analysis	3
MATH 324	Linear Algebra	4
MATH 425	Abstract Algebra I	3

Elective Requirements

Code	Title	Credits
At least ten credits from the following list. MATH 312 or MATH 347 must be taken.		
MATH 307	Mathematics and Music	
MATH 312	Differential Equations and Linear Algebra	
MATH 313	Digital Signal Processing	
MATH 318	Introduction to Complex Variables	
MATH 345	Introduction to Probability and Mathematical Statistics	
MATH 346	Introduction to Probability	
MATH 347	Mathematical Statistics	
MATH 351	Numerical Analysis I	
MATH 354	Introduction to Mathematical Modeling	
MATH/PHYS 440	Digital Image Processing	
MATH 441	Linear Regression Analysis, with Time Series	
MATH 442	Advanced Statistical Modeling	
MATH 443	Experimental Design and Analysis	
MATH 445	Survey Sampling	
MATH 447	Nonparametric Statistics	

| DS 250 | Data Structures and Algorithms in Bioinformatics | |

Plus additional upper division mathematics courses to reach 36 credits. Credits from MATH 302, MATH 303, MATH 304, MATH 322, MATH 365, MATH 451, and MATH 498 may not be counted towards the required 36 credits. At most 2 credits of MATH 397 may be counted towards the required 36 credits.

Code	Title	Credits
Minimum three credits required, not counted toward credits in major, from the following:		
PHIL 250	Symbolic Logic	
CS 140	Introduction to Computer Science	
CS 163	Introduction to Programming in C++	
DS 150	Computing in Python: Fundamentals and Procedural Programming	
Another computer science course approved by the Mathematics Department		

Program Learning Outcomes

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

- Apply a broad range of perspectives, including numerical, graphical, algebraic, analytical and verbal, to effectively connect and communicate mathematical ideas.
- Use mathematics to model and solve appropriate problems.
- Write mathematical proofs.
- Work independently and collaboratively on mathematical problems.
- Use mathematics to solve problems for the natural, social, or actuarial sciences.
- Select appropriate methods and apply them using technology to solve problems.