## ACTUARIAL SCIENCE, COMPREHENSIVE MAJOR

## Liberal Arts (Code 182-001)

## 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/ | 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) ${ }^{\mathbf{2}}$

| 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 UWEau 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 <br> Restrictions |
| :--- | ---: |
| Satisfactory/Unsatisfactory |  |
| Total degree credit | maximum 12 |
| Major, Standard | maximum 1 |
| Major, Comprehensive | maximum 2 |
|  | courses |
| Minor | maximum 1 |
|  | course |


| Credit by Examination |  |
| :--- | ---: |
| Total degree credit | maximum $1 / 4$ of |
|  | total |
| Major or minor | maximum $1 / 2$ 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 <br> credit |
| :--- | ---: |
| Total Band, chorus, drama | maximum 12 <br> credits |
| Single course band, chorus, drama | maximum 4 <br> credits |
| Extension credits | no maximum |
| UW-System | maximum $1 / 4$ of |
| total |  |

## 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
Knowledge Goal
Knowledge Outcome 1 (K1): Natural Sciences (http://
catalog.uwec.edu/undergraduate/attribute-k1/)
One experience in laboratory science must be selected from
either K1 or K2.

Knowledge Outcome 2 (K2): Social Sciences (http:// Two (2) catalog.uwec.edu/undergraduate/attribute-k2/)
a minimum of 36 credits
Knowledge Goal
Knowledge Outcome 1 (K1): Natural Sciences (http://
Two (2)
learning
experiences
One experience in laboratory science must be selected from either K1 or K2.
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/)

Knowledge Outcome 4 (K4): Fine Arts (http://
catalog.uwec.edu/undergraduate/attribute-k4
Two (2)
learning
experiences

catalog.uwec.edu/undergraduate/attribute-k4/) | learning |
| ---: |
| experience |

Skills Goal

| Skills Outcome 1 (S1): Written and Oral Communication (http:// | Two (2) <br> learning |
| :--- | ---: |
| catalog.uwec.edu/undergraduate/attribute-S1/) | lexperiences |

One S1 must meet the University Writing Requirement (http://catalog.uwec.edu/undergraduate/graduationrequirements/\#header10)

Skills Outcome 2 (S2): Mathematics (http://catalog.uwec.edu/ \begin{tabular}{r}
One (1) <br>
undergraduate/attribute-S2/)

 

learning <br>
experience
\end{tabular}

One S2 to meet the University Mathematics Requirement (http://catalog.uwec.edu/undergraduate/graduationrequirements/\#header11)

| Skills Outcome 3 (S3): Creativity (http://catalog.uwec.edu/One (1) <br> learning |  |
| :--- | ---: |
| undergraduate/attribute-S3/) | experience |

## Responsibility Goal

| Responsibility Outcome 1 (R1): Equity, Diversity, and Inclusivity | Two (2) <br> (http://catalog.uwec.edu/undergraduate/attribute-R1/) |
| :--- | ---: |
|  | learning <br> experiences |

One R1 must satisfy Design for Diversity (http://
catalog.uwec.edu/undergraduate/attribute-DDIV/ \#header13)

Responsibility Outcome 2 (R2): Global Perspectives (http://
One (1)
catalog.uwec.edu/undergraduate/attribute-R2/) learning experience
Responsibility Outcome 3 (R3): Civic and Environmental Issues
One (1)
(http://catalog.uwec.edu/undergraduate/attribute-R3/)
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/
30 hours attribute-SL/\#header13)

## College Degree Requirements <br> 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/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 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 182-001)

This major prepares students for actuarial careers. Actuaries are business professionals who use mathematical models to evaluate the current financial impact of future contingent events. Actuaries work in a variety of settings including insurance companies, public accounting firms, government agencies, banks, and consulting firms.

Entry Requirements: To be admitted to this major students must:

1. Complete at least 15 credits of courses required for the major with a GPA in those courses of at least 3.0.
2. Complete MATH 346 and MATH 350 with a grade of $B$ - or better, or earn a passing grade on the corresponding actuarial professional exam(s)

| Code | Title | Credits |
| :---: | :---: | :---: |
| A minimum of 63 semester credits, including: |  |  |
| MATH 114 | Calculus I | 4 |
| MATH 150 | Introduction to the Actuarial Career | 1 |
| MATH 215 | Calculus II | 4 |
| MATH 216 | Calculus III | 4 |
| MATH 346 | Introduction to Probability | 4 |
| MATH 347 | Mathematical Statistics | 4 |
| MATH 350 | Introduction to Financial Mathematics | 4 |
| MATH 450 | Foundations of Actuarial Science | 4 |
| MATH 475 | Actuarial Foundations of Short-Term Coverages | 4 |
| MATH 312 <br> or MATH 324 | Differential Equations and Linear Algebra <br> Linear Algebra | 4 |
| ECON 103 or ECON 303 | Principles of Microeconomics Intermediate Microeconomic Theory | 3 |
| ECON 104 <br> or ECON 304 | Principles of Macroeconomics Intermediate Macroeconomic Theory | 3 |
| MATH 441 <br> or ECON 316 | Linear Regression Analysis, with Time Series <br> Econometrics | 3-4 |
| ACCT 201 | Introduction to Accounting | 3 |
| IS 240 | Information Systems in Business | 3 |
| BCOM 206 <br> or BCOM 207 | Business Writing <br> Business Presentations | 2 |
| FIN 320 | Principles of Finance | 3 |
| DS 140 or DS 150 | Basics of Data Analysis with R <br> Computing in Python: Fundamentals and Programming | $2-4$ <br> edural |
| MATH 442 or MATH 460 | Advanced Statistical Modeling Contingent Payment Analysis | 4 |

## 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.
- Apply probability methods to describe random behavior.
- Use interest theory techniques to value deterministic cash flows.
- Apply both probability and theory of interest concepts to model and solve actuarial problems involving contingent cash flows.


## Sample Degree Plan

## Actuarial Science, 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 LE11 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.

## FIRST YEAR

FIRST SEMESTER

| MATH 114 | Calculus I (LE-S2) | 4 |
| :--- | :--- | :--- |
| MATH 150 | Introduction to the Actuarial Career | 1 |

SECOND SEMESTER
MATH 215 Calculus II 4
SOMETIME IN THE FIRST YEAR

| WRIT 114 | Intensive Blugold Seminar in Critical | 5 |
| :--- | :--- | :--- |
| or WRIT 116 | Reading and Writing (LE-S1) |  |
| ECON 103 | Blugold Seminar in Critical Reading and Writing |  |
| ECON 104 | Principles of Microeconomics (LE-K2) | 3 |


| TOTAL FIRST YEAR |  | 32 |
| :---: | :---: | :---: |
| SECOND YEAR |  |  |
| FIRST SEMESTER |  |  |
| MATH 216 | Calculus III | 4 |
| MATH 346 | Introduction to Probability | 4 |
| DS 140 | Basics of Data Analysis with R | 2 |
| SECOND SEMESTER |  |  |
| MATH 347 | Mathematical Statistics | 4 |
| MATH 350 | Introduction to Financial Mathematics a | 4 |
| SOMETIME IN THE SECOND YEAR |  |  |
| ACCT 201 | Introduction to Accounting | 3 |
| IS 240 | Information Systems in Business | 3 |
| TOTAL SECOND YEAR |  | 32 |
| SOME TIME IN THE FIRST OR SECOND YEAR |  |  |
| LE Option: Knowledge 3 Responsibility 1 (LE-R1) | 3 (LE-K3) Humanities, LE Option: Equity, Diversity, and Inclusivity | 3 |
| LE Option: Knowledge 4 | 4 (LE-K4) Fine Arts | 3 |
| LE Option: Integration (L | (LE-I1) | 3 |
| Elective ${ }^{\text {b }}$ |  | 3 |
| LE Option: Knowledge 1 | 1 (LE-K1L) Natural Sciences | 3 |
| Bus. Comm Course (LE-S |  | 2 |
| LE Option: Responsibilit Inclusivity with Design for (LE-K3) Humanities | ity 1 (LE-R1, DDIV) Equity, Diversity, and for Diversity, LE Option: Knowledge 3 | 3 |
| LE Option: Skills 1 (LE-S1) | 1) Written and Oral Communication | 2 |
| THIRD YEAR |  |  |
| FIRST SEMESTER - Apply for Admission to Major |  |  |
| MATH 470 | Mathematical Models for Financial Economics ${ }^{\text {e }}$ | 4 |
| FIN 320 | Principles of Finance | 3 |
| SECOND SEMESTER |  |  |
| MATH 475 | Actuarial Foundations of Short-Term Coverages ${ }^{\text {a }}$ | 4 |
| FIN 327 | Long Term Financial Management | 3 |
| SOME TIME IN THE THIRD YEAR |  |  |
| LE Option: Integration (L | (LE-I1) | 3 |
| LE Option: Responsibilit Issues | ity 3 (LE-R3) Civic and Environmental | 3 |
| Elective ${ }^{\text {b }}$ |  | 3 |
| LE Option: Knowledge 1 | 1 (LE-K1L) Natural Sciences with Lab | 4 |
| LE Option: Responsibilit | ty 2 (LE-R2) Global Perspectives | 3 |
| LE Option: Skills 3 (LE-S3) | 3) Creativity | 3 |
| TOTAL THIRD YEAR |  | 33 |
| FOURTH YEAR |  |  |
| FIRST SEMESTER |  |  |
| MATH 450 | Foundations of Actuarial Science ${ }^{\mathrm{e}}$ | 4 |
| MATH 441 | Linear Regression Analysis, with Time Series ${ }^{f}$ | 4 |
| SECOND SEMESTER |  |  |
| MATH 460 | Contingent Payment Analysis ${ }^{\text {a }}$ | 4 |
| or |  |  |
| MATH 442 | Advanced Statistical Modeling |  |

MATH $312 \quad$| Differential Equations and Linear |
| :--- |
| Algebra ${ }^{\text {g }}$ |

SOME TIME IN THE FOURTH YEAR

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.

It is recommended that students participate in one or more summer internships. Participating in the Career Conference in fall semester starting in the first year is highly recommended. Study Abroad is also an available opportunity but should be completed very early in your college career.

## 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.
- I1 - 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 S 1 and the R2 experience.
- S2 - A math placement score that qualifies the student to enter Math 111, 112,113 or 114 fulfills the S 2 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.

