

MAJOR IN MATHEMATICS, ACTUARIAL SCIENCE CONCENTRATION

TO PREPARE FOR FIRST SEMESTER: The curriculum for the Major in Mathematics, Actuarial Sciences Concentration assumes students enter college prepared to take calculus. Entering students who are not prepared to take calculus will need to fulfill pre-calculus requirements in the first semester: MATH 117, MATH 118, MATH 124, MATH 125, MATH 126. A minimum grade of C (3.000) is required in all mathematics, statistics, and computer science courses that are required for graduation.

Major Completion Map

Distinctive Requirements for Degree Program:

Freshman

| Semester 1 | | Critical | Recommended | AUCC | Credits |
|---|---|----------|-------------|------|-----------|
| CO 150 | College Composition (GT-CO2) | | | 1A | 3 |
| ECON 202 | Principles of Microeconomics (GT-SS1) | X | | 3C | 3 |
| MATH 160 | Calculus for Physical Scientists I (GT-MA1) | X | | 1B | 4 |
| MATH 192 | First Year Seminar in Mathematical Sciences | | | | 1 |
| Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities) | | | | 3B | 3 |
| Pre-Calculus Requirements must be completed by the end of Semester 1, if needed (MATH 117, MATH 118, MATH 124, MATH 125, MATH 126). | | X | | | |
| Total Credits | | | | | 14 |

| Semester 2 | | Critical | Recommended | AUCC | Credits |
|--|--|----------|-------------|------|-----------|
| ECON 204 | Principles of Macroeconomics (GT-SS1) | | X | 3C | 3 |
| MATH 161 | Calculus for Physical Scientists II (GT-MA1) | | X | 1B | 4 |
| Biological and Physical Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#biological-physical-sciences) | | | | 3A | 5 |
| Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion) | | | | 1C | 3 |
| Total Credits | | | | | 15 |

Sophomore

| Semester 3 | | Critical | Recommended | AUCC | Credits |
|--|--------------------------------------|----------|-------------|------|-----------|
| ACT 210 | Introduction to Financial Accounting | | X | | 3 |
| MATH 261 | Calculus for Physical Scientists III | | X | | 4 |
| Biological and Physical Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#biological-physical-sciences) | | | | 3A | 5 |
| Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives) | | | | 3D | 3 |
| ECON 204, MATH 161 must be completed by the end of Semester 3. | | X | | | |
| Total Credits | | | | | 15 |

| Semester 4 | | Critical | Recommended | AUCC | Credits |
|---|--|----------|-------------|------|---------|
| FIN 310 | Financial Markets and Institutions | | | | 3 |
| Select one course from the following: | | | | | 2-4 |
| CS 220 | Discrete Structures and their Applications | | | | |
| MATH 235 | Introduction to Mathematical Reasoning | | | | |
| MATH 369 | Linear Algebra I | X | | 4A | 3 |
| STAT 315 | Intro to Theory and Practice of Statistics | | | | 3 |
| Select four credits from the following: | | | | | 4 |
| CS 150A | Culture and Coding: Java (GT-AH3) | | | 3B | |
| CS 150B | Culture and Coding: Python (GT-AH3) | | | 3B | |
| CS 152 | Python for STEM | | | | |
| CS 158/ MATH 158 | Mathematical Algorithms in C | | | | |
| CS 163 | CS1—No Prior Programming Experience | | | | |
| CS 164 | CS1—Computational Thinking with Java | | | | |

| | | | | | |
|---|--|-----------------|--------------------|-------------|----------------|
| MATH 151 | Mathematical Algorithms in Matlab I | | | | |
| MATH 152 | Mathematical Algorithms in Maple | | | | |
| STAT 158 | Introduction to R Programming | | | | |
| ACT 210, MATH 261 must be completed by the end of Semester 4. | | | | X | |
| Total Credits | | | | | 15-17 |
| <i>Junior</i> | | | | | |
| Semester 5 | | Critical | Recommended | AUCC | Credits |
| FIN 300 | Principles of Finance | | X | | 3 |
| JTC 300 | Strategic Writing and Communication (GT-CO3) | | X | 2 | 3 |
| STAT 420 | Probability and Mathematical Statistics I | | X | | 3 |
| Select one course from the following: | | | | | 4 |
| MATH 340 | Intro to Ordinary Differential Equations | | | | |
| MATH 345 | Differential Equations | | | | |
| Elective | | | | | 2 |
| Total Credits | | | | | 15 |
| Semester 6 | | Critical | Recommended | AUCC | Credits |
| ECON 335/ AREC 335 | Introduction to Econometrics | | | | 3 |
| MATH 317 | Advanced Calculus of One Variable | X | | 4B | 3 |
| STAT 421 | Introduction to Stochastic Processes | | | | 3 |
| STAT 430 | Probability and Mathematical Statistics II | | X | | 3 |
| Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities) | | | | | 3 |
| MATH 317 and FIN 300 must be completed by the end of Semester 6. | | | | | X |
| Total Credits | | | | | 15 |
| <i>Senior</i> | | | | | |
| Semester 7 | | Critical | Recommended | AUCC | Credits |
| FIN 342 | Risk Management and Insurance | X | | | 3 |
| FIN 370 | Financial Management-Theory and Application | | X | | 3 |
| Select one course from the following: | | | | | 3 |
| Must take either MATH 417 (Fall) or MATH 435 (Spring) as a capstone. | | | | | |
| MATH 417 | Advanced Calculus I | | | 4C | |
| Elective | | | | | |
| Electives | | | | | 6 |
| STAT 420 must be completed by the end of Semester 7. | | | | | X |
| Total Credits | | | | | 15 |
| Semester 8 | | Critical | Recommended | AUCC | Credits |
| BUS 205 | Legal and Ethical Issues in Business | X | | | 3 |
| MATH 495 | Independent Study | X | | | 1 |
| Select one course from the following: | | | | | 3 |
| Must take either MATH 417 (Fall) or MATH 435 (Spring) as a capstone. | | | | | |
| MATH 435 | Projects in Applied Mathematics | | | 4C | |
| Elective | | | | | |
| Electives | | | | | 6-8 |
| The benchmark courses for the 8th semester are the remaining courses in the entire program of study. | | | | | X |
| Total Credits | | | | | 13-15 |
| Program Total Credits: | | | | | 120 |