PROGRAM OVERVIEW

Apart from the specialized mathematical skills that students acquire, the degree also reflects general skills that are valued by many employers. These skills include problem solving, critical thinking, analysis, facility with data, the ability to process quantitative information, and perhaps most important of all, the ability to learn new skills and concepts quickly.

A bachelor’s degree in mathematics prepares students for jobs in statistics, actuarial sciences, mathematical modeling, mathematics education, as well as for graduate school leading to a research career in engineering, mathematics or statistics. A strong background in mathematics is also necessary for research in many areas of computer science and social science.

The Mathematics Applied (APM) option provides comprehensive training in applied mathematics and/or statistics through the study of mathematical concepts in the scope of general scientific concepts, principles, and phenomena that, because of their widespread occurrence and application, relate or unify various disciplines.

ACADEMIC ADVISING

The College of Liberal Arts and Sciences (CLAS) supports students to graduation using a dual-advising system. CLAS students have two academic advisors with whom they should meet regularly to discuss academic and degree progress: a CLAS Academic Advisor and a major/faculty advisor.

For questions related to CU Denver Core Curriculum, CLAS, general graduation requirements, university/college academic policies, or campus resources contact:

CLAS Academic Advising
clas_advising@ucdenver.edu
Find your CLAS Advisor here
North Classroom (NC) Building 1030
303-556-2555

For questions related to major requirements, major course prerequisites, or evaluation of transfer coursework in your major contact:

Henricus Bouwmeester
henricus.bouwmeester@ucdenver.edu
Visit the department website here
Student Commons Building (SCB) 4108
303-315-1737

GENERAL GRADUATION REQUIREMENTS & POLICIES

All CU Denver CLAS students are required to complete the following minimum general graduation requirements to be eligible to apply for graduation:

1. Complete a minimum of 120 semester hours passed
2. Achieve a minimum 2.0 CU cumulative grade point average (GPA)
3. Complete a minimum of 45 upper-division (3000- to 4000-level) semester hours
4. Complete all college and major requirements
5. Residency: complete a minimum of 30 CLAS hours as a declared CLAS student at CU Denver
6. Terminal Residency: complete a minimum of 21 CLAS hours in the final 30 semester hours as a declared CLAS student at CU Denver

Credits exceeding the following maximum hour restrictions will not be applied toward the minimum 120 hours required for graduation:

- 56 semester hours in major department/prefix courses
- 16 semester hours Pass/Fail
- 12 semester hours of Independent Study
- 9 semester hours of internship credit
- 8 semester hours of physical education credit

CAREER RESOURCES

The Mathematics (Applied Option) B.S. degree prepares students for a wide range of career choices. With a mathematics degree, students gain the skills to do well in finance, statistics, engineering, computers, teaching, or accountancy. Mathematics students develop such skills as critical thinking, oral and written communication, arguing logically and rigorously, thinking abstractly, formulating and solving problems, analyzing data, analyzing mathematical models, quantitative and computer proficiency, and the ability to work both alone and in groups. Related occupations for Mathematics major? Visit the CU Denver Career Center located in the Tivoli Student Union (TV) Suite 267 to speak with a career counselor. The Career Center also provides Career Briefs, overviews of careers related to specific CU Denver majors, which include related links and resources to the particular field and show potential jobs related to the major. Access Career Briefs here.

PROGRAM REQUIREMENTS & POLICIES

Students are responsible for meeting with the major/faculty advisor in the department to confirm major requirements. Students completing the Mathematics B.S. Degree are required to complete the following minimum program requirements:

1. Complete a total of at least 36 upper-division (3000- to 4000-level) MATH semester hours (typically 12 courses).
2. Complete at least 15 upper-division (3000- to 4000-level) semester hours in MATH in residence at CU Denver.
3. Achieve a grade of C- or better in all courses counted toward the MATH major.
4. Achieve a minimum GPA of 2.25 for all MATH courses applying to MATH requirements.
PROGRAM REQUIREMENTS (CONTINUED)

Courses                                Credits | Notes
Required Courses                        42

MATH1401 Calculus I                    4   *Prerequisite: Placement
MATH2411 Calculus II                   4   *Prerequisite: C- or better in MATH1401
MATH2421 Calculus III                  4   *Prerequisite: C- or better in MATH2411
MATH3000 Introduction to Abstract Mathematics 3   *Corequisite: MATH2421 or MATH3191
MATH3191 Applied Linear Algebra        3   *Prerequisite: B- or better in MATH2421 (recommended)
MATH4310 Introduction to Real Analysis 3   *Prerequisite: C- or better in MATH2421 and MATH3000
MATH3200 Elementary Differential Equations 3   *Prerequisite: B- or better in MATH2421 (recommended)
MATH4650 Numerical Analysis I          3   *Prerequisite: MATH2411
MATH4794 Optimiation Modeling          3   *Prerequisite: Consult Math Advisor
MATH3800 Probability and Statistics for Engineers or MATH4820 Introduction to Mathematical Statistics 3   *Prerequisite: B- or better in MATH2411 (for 3800) and C- or better in MATH3800 or MATH4810 (for 4820) (recommended)

Choose ONE of the following Proof Based courses:
MATH4101 Theory of Numbers or MATH4140 Intro to Modern Algebra or MATH4201 Topology or MATH4220 Higher Geometry II or MATH4320 Intro to Real Analysis II or MATH4408 Applied Graph Theory 3   *Check Individual Courses for Prerequisites

Choose TWO of the following Modeling courses:
MATH3301 Intro to Optimization in Operations Research or MATH3302 Simulation in Operations Research or MATH4387 Applied Regression Analysis or MATH4733 Partial Differential Equations or MATH4791 Continuous Modeling or MATH4792 Probabilistic Modeling or MATH4793 Discrete Math Modeling or MATH4794 Optimization Modeling 6   *Check Individual Courses for Prerequisites

Required Electives                      6
Choose two approved upper-division (3000- to 4000-level) mathematics electives excluding MATH3040, 3511, 4012, 4013, 4014, and 4015 6   *See Department for Approved List

Total Program Hours (excluding ACS Certified Degree Requirements): 48
36 semester hours must be upper-division

SAMPLE ACADEMIC PLAN OF STUDY

The following academic plan is a sample pathway to completing degree requirements for this major. Students should tailor this plan based on previously completed college coursework (e.g., AP, IB, CLEP, dual/concurrent enrollment, and transfer credit), course availability, and individual preferences related to course load, schedules, or add-on programs such as minors or double-majors.

<table>
<thead>
<tr>
<th>Year One</th>
<th>Milesstones</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>* Meet your advisors</td>
<td>ENGL1020 – Core Composition I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>* Introduce yourself to faculty in your department</td>
<td>MATH1401</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>* Create an academic plan and check your Degree Audit with your advisors</td>
<td>CU Core Social Science</td>
<td>3</td>
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<tr>
<td></td>
<td>* Visit campus resources</td>
<td>CU Core Arts</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Year Two</th>
<th>Milesstones</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td></td>
<td>* Meet with your advisors to complete a 60-hour check</td>
<td>MATH2421</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>* Join a student club or organization</td>
<td>MATH3000</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>* Begin to research internships</td>
<td>CLAS Biol/Phys Science with Lab</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>* Visit the Career Center</td>
<td>CU Core Humanities</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>* Explore additional major(s) or minors</td>
<td>CU Core Cultural Diversity</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Year Three</th>
<th>Milesstones</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>* Explore research opportunities in your major</td>
<td>MATH4310</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>* Apply for internships</td>
<td>MATH4650</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>* Begin to research professional or graduate programs</td>
<td>CLAS Foreign Language Semester I</td>
<td>5</td>
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<tr>
<td></td>
<td>* Explore independent studies in your major</td>
<td>CU Core International Perspectives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>* Submit professional or graduate program applications</td>
<td>General Elective</td>
<td>3</td>
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<table>
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<tr>
<th>Year Four</th>
<th>Milesstones</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td></td>
<td>* See advisors for a grad check the semester before you plan to graduate</td>
<td>MATH Modeling Course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>* Explore independent studies in your major</td>
<td>MATH Modeling Course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>* Submit professional or graduate program applications</td>
<td>Upper-Division MATH Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>* Graduation should be planned</td>
<td>CLAS Behavioral Science</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>* Graduation should be planned</td>
<td>Upper-Division General Elective</td>
<td>3</td>
</tr>
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</table>

* Major Course Available  ** Prerequisite Enforced  *** Prerequisite Recommended