MATHEMATICS, BACHELOR OF SCIENCE

General Requirements

- All mathematics majors must complete the mathematics core curriculum: MATH 126 Calculus and Analytic Geometry I (5 c.h.), MATH 224 Calculus and Analytic Geometry II (5 c.h.), MATH 307 Introduction to Linear Algebra (4 c.h.), MATH 325 Intermediate Calculus (4 c.h.), MATH 350 Probability (3 c.h.), MATH 421 Introduction to Analysis (4 c.h.), and MATH 427 Abstract Algebra (4 c.h.). Majors are expected to complete core courses numbered above MATH 325 Intermediate Calculus (4 c.h.) at CSU-Pueblo.
- All majors must complete a physics course numbered 200 or above.
- Mathematics majors and minors must complete the mathematics courses in their program with grades of C or better.
- MATH 337 Differential Equations I (3 c.h.) is a required elective for all mathematics majors not pursuing secondary education endorsement.
- All majors are required to complete an approved two-term sequence in a laboratory science (CHEM 121 General Chemistry I (4 c.h.)/CHEM 121L General Chemistry Lab I (1 c.h.) and CHEM 122 General Chemistry II (4 c.h.)/CHEM 122L General Chemistry Lab II (1 c.h.), or PHYS 221 General Physics I (4 c.h.)/PHYS 221L General Physics I Lab (1 c.h.) and PHYS 222 General Physics II (4 c.h.)/PHYS 222L General Physics II Lab (1 c.h.)).
- Mathematics majors must demonstrate proficiency in “an approved” computer language. It is strongly recommended that students complete this requirement within the first 60 credit hours.

Institutional and General Education

Please refer to the General Education Requirements in the Academic Policies section of this catalog or refer to the individual department’s curriculum sheet.

The general education requirement for graduation includes a total of 35 semester credits in two categories: Skills Component and Knowledge Component. Please see the General Education Requirement section under Academic Policies for more information.

Specific Requirements for the Mathematics Major

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<tr>
<td>MATH 126</td>
<td>Calculus and Analytic Geometry I</td>
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<td>MATH 421</td>
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<tr>
<td>Electives</td>
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Select 6 credits in Upper-division MATH Electives 1

Other Requirements

- Select 10 credits in a Laboratory Science Sequence 10
- Select 4 credits in Computer Programming 4

General Education

- General Education credits 24

Electives

- Select 41 credits 41

Total Credits 120

1 Excluding MATH 360 Elementary Mathematics Concepts I (3 c.h.), MATH 361 Elementary Mathematics Concepts II (3 c.h.), MATH 477 Methods for Teaching Secondary Math (4 c.h.).

Program Goals

- Educate students to effectively use quantitative and analytical methods and the language of mathematics.
- Prepare students for professional careers and graduate studies in areas requiring advanced analytical skills, including actuarial science, computer science, engineering, operations research, biomathematics, cryptography, finance, pure and applied mathematics and teaching.
- Promote a scholarly attitude of mind that enables students to effectively use mathematics with the ability to think critically, synthesize their knowledge and move to higher levels of independent thinking.

Expected Student Outcomes

Upon successful completion of the mathematics major, students will:

- Learn, understand and apply mathematics from the core mathematical disciplines of calculus, abstract algebra, analysis, modeling, differential equations, geometry, probability, and statistics.
- Formulate and solve problems using mathematical tools, while working alone or in groups on routine problems, non-routine and open-ended problems, problems involving applications to other fields, problems involving real-world data, and abstract problems within mathematics.
- Create, analyze and apply mathematical abstraction to real problems by understanding and producing formal mathematical arguments with an appreciation for the mathematical standards of rigor, elegance, and beauty.
- Learn independently, locate and use appropriate sources of technical material, and make use of modern computational tools.
- Produce convincing, precise verbal and written communications of technical material.

Outcomes Assessment Activities

- Faculty advisers meet individually with students on a regular basis to help with schedule planning and to discuss the student’s progress toward educational and career goals. Advisers maintain a record of each student’s performance in his/her program of study.
- During the senior year, each major takes the Mathematics Field Achievement Test. This test measures a student’s achievement level in comparison with students throughout the country.