

B.S. IN MATHEMATICS - COMPUTATIONAL MATHEMATICS CONCENTRATION

College of the Sciences and Mathematics

Curriculum

(Note: As of Fall 2017, no new students are being admitted into this program or its accelerated counterpart. Interested students should see the B.S. in Mathematics - Applied and Computational Mathematics Concentration.)

General Education Requirements (<http://catalog.wcupa.edu/undergraduate/general-education-requirements>)

| | |
|--|---|
| English Composition requirements | 6 |
| Mathematics requirement | 3 |
| Public Speaking requirement | 3 |
| Science requirements | 6 |
| Behavioral & Social Science requirements | 6 |
| Humanities requirements | 6 |
| Arts requirement | 3 |
| Diverse Communities requirement | 3 |
| Interdisciplinary requirement | 3 |
| Student Electives | 9 |
| Writing Emphasis requirements | 9 |

Major Requirements

| | | |
|------------|---|---|
| MAT 151 | Introduction to Discrete Mathematics | 3 |
| MAT 161 | Calculus I | 4 |
| MAT 162 | Calculus II | 4 |
| MAT 200 | The Nature of Mathematics | 3 |
| MAT 261 | Calculus III | 4 |
| MAT 311 | Linear Algebra ¹ | 3 |
| MAT 319 | Applied Statistics | 3 |
| MAT 325 | Numerical Analysis I | 3 |
| MAT 343 | Differential Equations | 3 |
| MAT 413 | Computer Algebra | 3 |
| MAT 425 | Numerical Analysis II | 3 |
| MAT 427 | Introduction to Optimization Techniques | 3 |
| or MAT 493 | Mathematical Modeling | |
| MAT 443 | Applied Analysis I | 3 |

Related/Cognate Requirements

| | | |
|------------------------------|---|---|
| Select one of the following: | 3 | |
| ENG 368 | Business and Organizational Writing | |
| ENG 375 | Strategies for Writing in the Workplace | |
| ENG 371 | Technical Writing | |
| CSC 141 | Computer Science I ¹ | 3 |
| CSC 142 | Computer Science II | 3 |
| CSC 240 | Computer Science III | 3 |
| CSC 241 | Data Structures & Algorithms | 3 |
| CSC 242 | Computer Organization | 3 |
| or MAT 405 | Special Topics in Mathematics | |

Free Electives or Internship

| | |
|---|------------|
| Select 18 semester hours of electives and/or internship (chosen under advisement) | 18 |
| Total Minimum Credits Required | 120 |

Accelerated B.S. in Mathematics - Computational Mathematics and M.S. in Applied and Computational Mathematics Program

Major Requirements

| | | |
|-----------------------|-----------------------|---|
| MAT 493 | Mathematical Modeling | 3 |
| or MAT 548 or MAT 549 | | 3 |

Free Electives or Internship

| | |
|---|----|
| Graduate courses may be taken in place of four of the Free Electives. | 12 |
|---|----|

¹ Indicates course satisfies a general education requirement.

All math major courses must be passed with a C or better.

Sample Course Plan

To track their individual degree progress, students are advised to access their Degree Progress Report (DPR) via myWCU regularly. For more information, visit wcupa.edu/DegreeProgressReport.

The following is a suggested course sequence for this program; course offerings and availability are not guaranteed. Students should consult their academic advisor with any questions.

| Course | Title | Credits |
|--------------------------|--------------------------------------|---------|
| Year One | | |
| Semester One | | |
| MAT 151 | Introduction to Discrete Mathematics | 3 |
| MAT 161 | Calculus I | 4 |
| CSC 141 | Computer Science I ² | 3 |
| Gen Ed Arts Course | | 3 |
| Gen Ed Humanities Course | | 3 |
| Credits | | 16 |

Semester Two

| | | |
|---------|--|----|
| MAT 162 | Calculus II | 4 |
| MAT 200 | The Nature of Mathematics | 3 |
| CSC 142 | Computer Science II | 3 |
| WRT 120 | Effective Writing I | 3 |
| SPK 230 | Business and Professional Speech Communication | 3 |
| Credits | | 16 |

Year Two

Semester Three

| | | |
|-----------------|-------------------------------|----|
| MAT 261 | Calculus III | 4 |
| MAT 311 | Linear Algebra ¹ | 3 |
| CSC 240 | Computer Science III | 3 |
| WRT 200 | Critical Writing and Research | 3 |
| Gen Ed Elective | | 3 |
| Credits | | 16 |

Semester Four

| | | |
|---|------------------------------|----|
| MAT 319 | Applied Statistics | 3 |
| MAT 343 | Differential Equations | 3 |
| CSC 241 | Data Structures & Algorithms | 3 |
| Gen Ed Behavioral/Social Science Course | | 3 |
| Free Elective | | 3 |
| Credits | | 15 |

Year Three

Semester Five

| | | |
|---------------|----------------------|---|
| MAT 325 | Numerical Analysis I | 3 |
| MAT 413 | Computer Algebra | 3 |
| IW Course | | 3 |
| Free Elective | | 3 |

| | | |
|-----------------------|---|---------|
| Gen Ed Elective | | 3 |
| | Credits | 15 |
| Semester Six | | |
| MAT 443 | Applied Analysis I | 3 |
| MAT 405 | Special Topics in Mathematics (Cryptography) | 3 |
| | Gen Ed Behavioral/Social Science Course | 3 |
| | JW Course | 3 |
| | Free Elective | 3 |
| | Credits | 15 |
| Year Four | | |
| Semester Seven | | |
| MAT 425 | Numerical Analysis II | 3 |
| ENG 368 | Business and Organizational Writing (W) | 3 |
| | Gen Ed Humanities Course | 3 |
| | Gen Ed Elective | 3 |
| | Free Elective | 3 |
| | Credits | 15 |
| Semester Eight | | |
| MAT 493 | Mathematical Modeling | 3 |
| MAT 491 | Internship in Applied Mathematics | 2-4 |
| | Gen Ed Science Course | 3 |
| | Free Electives | 6-9 |
| | Credits | 14-19 |
| | Total Credits | 122-127 |

Three writing-emphasis courses are required. At least one must be at the 300 level or above. Transfer students entering with 40-70 semester hours must take two writing emphasis courses and those entering with more than 70 semester hours must take one.

- ¹ MAT 311, a **three** semester hour course, is used to fulfill **three** semester hours of the General Education Mathematics requirement.
- ² CSC 141, a **three** semester hour course, is used to fulfill **three** semester hours of the General Education Science requirement.