

# B.S. IN MATHEMATICS - MATHEMATICAL FINANCE CONCENTRATION

*College of the Sciences and Mathematics*

## Curriculum

| Code   | Title                                      | Credits |
|--|--|---------|
| <b>GENERAL EDUCATION REQUIREMENTS</b> ( <a href="http://catalog.wcupa.edu/undergraduate/general-education-requirements/">http://catalog.wcupa.edu/undergraduate/general-education-requirements/</a> )        |  |         |
| <b>Academic Foundations</b>  |  |         |
| First Year Experience requirement  |  | 4       |
| English Composition requirement  |  | 6-7     |
| Mathematics requirement  |  | 3-4     |
| Interdisciplinary requirement  |  | 3       |
| Diverse Communities requirement  |  | 3       |
| Ethics requirement   |  | 3       |
| <b>Distributed Disciplinary Foundations</b>  |  |         |
| Science requirement  |  | 6-8     |
| Behavioral & Social Science requirement  |  | 6       |
| Humanities requirement   |  | 6       |
| Arts requirement   |  | 3       |
| <b>ADDITIONAL BACCALAUREATE REQUIREMENTS</b> ( <a href="http://catalog.wcupa.edu/undergraduate/general-education-requirements/">http://catalog.wcupa.edu/undergraduate/general-education-requirements/</a> ) |  |         |
| <b>University Requirements</b>   |  |         |
| Writing Emphasis requirement   |  | 9       |
| Speaking Emphasis requirement  |  | 9       |
| <b>Degree Requirements</b>   |  |         |
| Capstone requirement   |  | 1-15    |
| <b>MAJOR REQUIREMENTS</b>  |  |         |
| <b>Mathematics Core</b>  |  |         |
| 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 <sup>1</sup>                | 3       |
| <b>Concentration Requirements</b>  |  |         |
| MAT 125  | Introduction to Statistics and Probability | 3       |
| STA 200  | Introduction to Statistics II              | 3       |
| STA 319  | Applied Statistics                         | 3       |
| MAT 343  | Differential Equations                     | 3       |
| MAT 371  | Mathematics of Finance                     | 3       |
| MAT 421  | Mathematical Statistics I                  | 3       |
| MAT 422  | Mathematical Statistics II                 | 3       |
| MAT 423  | Applied Probability                        | 3       |
| MAT 443  | Applied Analysis I                         | 3       |
| <b>Cognate Requirements</b>  |  |         |
| Select one of the following: <sup>4</sup>  |  | 3       |
| ENG 368  | Business and Organizational Writing        |         |
| ENG 371  | Technical Writing                          |         |
| ENG 375  | Strategies for Writing in the Workplace    |         |
| ACC 201  | Financial Accounting                       | 3       |
| CSC 141  | Computer Science I <sup>2</sup>            | 3       |

|            |  |   |
|------------|--|---|
| ECO 111    | Principles of Economics (Macro) <sup>3</sup> | 3 |
| ECO 112    | Principles of Economics (Micro)              | 3 |
| FIN 325    | Corporate Finance                            | 3 |
| FIN 337    | Financial Markets and Institutions           | 3 |
| or FIN 344 | Investments                                  |   |

### Free Electives or Internship

|  |    |
|--|----|
| Complete 17 credits chosen under advisement. | 17 |
|--|----|

### Capstone Requirement

|         |                                     |   |
|---------|-------------------------------------|---|
| MAT 479 | Financial Calculus <sup>4,5,6</sup> | 3 |
|---------|-------------------------------------|---|

|                                       |            |
|---------------------------------------|------------|
| <b>Total Minimum Required Credits</b> | <b>120</b> |
|---------------------------------------|------------|

- <sup>1</sup> Indicates course satisfies the general education Mathematics requirement.  
<sup>2</sup> This course satisfies the general education Science requirement.  
<sup>3</sup> This course satisfies the general education Behavioral and Social Sciences requirement.  
<sup>4</sup> This course satisfies the University Writing Emphasis requirement  
<sup>5</sup> This course satisfies the University Speaking Emphasis requirement  
<sup>6</sup> This course fulfills the Capstone requirement and must be passed with a C or better

All math core and concentration 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](http://wcupa.edu/DegreeProgressReport) (<http://wcupa.edu/degreeprogressreport/>).

The following is a sample 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   |
|----------------------------|---|-----------|
| <b>Year One</b>            |   |           |
| <b>Fall</b>                |   |           |
| MAT 125                    | Introduction to Statistics and Probability              | 3         |
| MAT 161                    | Calculus I  | 4         |
| CSC 141                    | Computer Science I                                      | 3         |
| WRT 120                    | Effective Writing I                                     | 3         |
| or WRT 123                 | or Effective Writing with Supplemental Writing Workshop |           |
| FYE 100X                   | First Year Experience                                   | 4         |
| <b>Credits</b>             |   | <b>17</b> |
| <b>Spring</b>              |   |           |
| MAT 162                    | Calculus II   | 4         |
| MAT 200                    | The Nature of Mathematics                               | 3         |
| ECO 111                    | Principles of Economics (Macro)                         | 3         |
| STA 200                    | Introduction to Statistics II                           | 3         |
| Science Gen Ed             |   | 3         |
| <b>Credits</b>             |   | <b>16</b> |
| <b>Year Two</b>            |   |           |
| <b>Fall</b>                |   |           |
| MAT 261                    | Calculus III  | 4         |
| MAT 311                    | Linear Algebra  | 3         |
| ACC 201                    | Financial Accounting                                    | 3         |
| WRT 2XX                    | 200-Level WRT Course                                    | 3         |
| Free Elective <sup>1</sup> |   | 3         |
| <b>Credits</b>             |   | <b>16</b> |

|                                    |  |            |
|------------------------------------|--|------------|
| <b>Spring</b>                      |  |            |
| MAT 343                            | Differential Equations                         | 3          |
| STA 319                            | Applied Statistics                             | 3          |
| ECO 112                            | Principles of Economics (Micro)                | 3          |
| Humanities Gen Ed                  |  | 3          |
| Behavioral & Social Science Gen Ed |  | 3          |
| <b>Credits</b>                     |  | <b>15</b>  |
| <b>Year Three</b>                  |  |            |
| <b>Fall</b>                        |  |            |
| MAT 371                            | Mathematics of Finance                         | 3          |
| MAT 421                            | Mathematical Statistics I                      | 3          |
| FIN 325                            | Corporate Finance                              | 3          |
| JW Course                          |  | 3          |
| Free Elective <sup>1</sup>         |  | 3          |
| <b>Credits</b>                     |  | <b>15</b>  |
| <b>Spring</b>                      |  |            |
| MAT 422                            | Mathematical Statistics II                     | 3          |
| FIN 337                            | Financial Markets and Institutions             | 3          |
| or<br>FIN 344                      | or Investments                                 |            |
| I Course                           |  | 3          |
| Humanities Gen Ed                  |  | 3          |
| Free Elective <sup>1</sup>         |  | 3          |
| <b>Credits</b>                     |  | <b>15</b>  |
| <b>Year Four</b>                   |  |            |
| <b>Fall</b>                        |  |            |
| MAT 423                            | Applied Probability                            | 3          |
| MAT 491                            | Internship in Applied Mathematics <sup>2</sup> | 3          |
| or Free Elective <sup>1</sup>      |  |            |
| ENG 368                            | Business and Organizational Writing            | 3          |
| or<br>ENG 371                      | or Technical Writing                           |            |
| or<br>ENG 375                      | or Strategies for Writing in the Workplace     |            |
| Ethics Gen Ed <sup>1</sup>         |  | 3          |
| Arts Gen Ed                        |  | 3          |
| <b>Credits</b>                     |  | <b>15</b>  |
| <b>Spring</b>                      |  |            |
| MAT 443                            | Applied Analysis I                             | 3          |
| MAT 479                            | Financial Calculus                             | 3          |
| Free Elective <sup>1</sup>         |  | 3          |
| Free Elective <sup>1</sup>         |  | 3          |
| <b>Credits</b>                     |  | <b>12</b>  |
| <b>Total Credits</b>               |  | <b>121</b> |

<sup>1</sup> Must be approved by advisor.<sup>2</sup> May be taken for variable credit and repeated for credit.