The mathematics named option programs allow students to develop a deep understanding of how the subject relates to other areas of human inquiry. The requirements for these programs feature mathematics courses with topics inspired by and commonly applied to problems in these associated fields. Though often paired with a second major in a related area, these programs function well alone and are suited to any mathematics student with a variety of interests. Students interested in a named option program are recommended to meet with an advisor to navigate the various plans and courses available to them. Advising information can be found on the BA or BS pages (http://guide.wisc.edu/undergraduate/letters-science/mathematics/mathematics-ba/#advisingandcareerstext). The named options do not support honors in the major.

REQUIREMENTS

The Mathematics Major with Economics and Finance focus requires 10 distinct courses for at least 30 credits as described below. Note that while some courses may be used to fulfill more than one requirement it is still considered only a single course and may only contribute once to the total course count. Finally, only one course from each of the following groupings may be used to fulfill course and credit requirements: Intro Linear Algebra (MATH 320, MATH 340, MATH 341, MATH 375), Intro Differential Equations (MATH 319, MATH 320 or MATH 376), and Intro Probability (MATH/STAT 309 or MATH/STAT 431).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Core Math Requirement (minimum of six distinct MATH courses for at least 18 credits)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear Algebra</td>
<td></td>
<td>3-5</td>
</tr>
<tr>
<td>MATH 320</td>
<td>Linear Algebra and Differential Equations</td>
<td></td>
</tr>
<tr>
<td>or MATH 340</td>
<td>Elementary Matrix and Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>or MATH 341</td>
<td>Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>or MATH 375</td>
<td>Topics in Multi-Variable Calculus and Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>Differential equations</td>
<td></td>
<td>0-5</td>
</tr>
<tr>
<td>MATH 319</td>
<td>Techniques in Ordinary Differential Equations</td>
<td></td>
</tr>
<tr>
<td>or MATH 320</td>
<td>Linear Algebra and Differential Equations</td>
<td></td>
</tr>
<tr>
<td>or MATH 376</td>
<td>Topics in Multi-Variable Calculus and Differential Equations</td>
<td></td>
</tr>
<tr>
<td>Intermediate Mathematics Requirement (complete at least one)</td>
<td></td>
<td>0-6</td>
</tr>
<tr>
<td>MATH 321</td>
<td>Applied Mathematical Analysis</td>
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</tr>
<tr>
<td>&amp; MATH 322</td>
<td>and Applied Mathematical Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH 341</td>
<td>Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 375</td>
<td>Topics in Multi-Variable Calculus and Linear Algebra</td>
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</tbody>
</table>

Economics/Finance Requirement (Four Courses distinct from the above for at least 12 credits)

Select one of the following introductory sequences: 6-8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ECON 311</td>
<td>Intermediate Microeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>&amp; ECON 312</td>
<td>- Advanced Treatment</td>
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</tr>
<tr>
<td>MATH 341</td>
<td>Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>ECON 301</td>
<td>Intermediate Microeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>&amp; ECON 302</td>
<td>- Advanced Treatment</td>
<td></td>
</tr>
</tbody>
</table>
ECON/FINANCE 300
Introduction to Finance and Investment Theory

ECON/FINANCE 320

ECON 400
Introduction to Applied Econometrics

ECON 410
Introductory Econometrics

ECON/A AE 421
Economic Decision Analysis

ECON 435
The Financial System

ECON 441
Analytical Public Finance

ECON 442
Macroeconomic Policy

ECON 448
Human Resources and Economic Growth

ECON 450
Wages and the Labor Market

ECON 451
The Economic Approach to Human Behavior

ECON 455
Behavioral Economics

ECON 458
Industrial Structure and Competitive Strategy

ECON 460
Economic Forecasting

ECON 461
International Macroeconomics

ECON 464
International Trade

ECON 468
Industrial Organization and Imperfect Competition

ECON 475
Economics of Growth

ECON/FINANCE 503
Markets with Frictions

ECON 508
Wealth and Income

ECON 521
Game Theory and Economic Analysis

ECON 525
Economics of Education: Theory and Measurement

ECON/A AE 526
Quantitative Methods in Agricultural and Applied Economics

ECON 606
Mathematical Economics II

ECON 664
Issues in International Trade

ECON 666
Issues in International Finance

FINANCE 305
Financial Markets, Institutions and Economic Activity

FINANCE 325
Corporation Finance

FINANCE 330
Derivative Securities

FINANCE 340
Fixed Income Securities

FINANCE/INTL BUS 445
Multinational Business Finance

Total Credits 30

RESIDENCE AND QUALITY OF WORK

• 2.000 GPA on all MATH courses and courses eligible for the major.

• 2.000 GPA on at least 15 credits of upper level credit in the major.

• 15 credits in MATH in the major taken on the UW-Madison campus.

FOOTNOTES

1 Some courses which follow may have prerequisites outside of the courses approved for this named option.

2 Any MATH course from the elective list above may be used in lieu of any of the following courses.

3 This includes any MATH courses (and those cross-listed with MATH) regardless of appearing in the tables above as well as only those non-MATH courses which are explicitly listed in the tables above.

4 This includes any MATH courses (and those cross-listed with MATH) numbered 307 and above, regardless of appearing in the tables above, as well as only those non-MATH course explicitly listed in the tables above which carry the advanced LAS designation.

5 This includes any MATH courses (and courses cross-listed with MATH) numbered 307 and above regardless of appearing in the tables above.

FOUR-YEAR PLAN

SAMPLE FOUR-YEAR PLAN

This Sample Four-Year Plan is a tool to assist students and their advisor(s). Students should use it—along with their DARS report, the Degree Planner, and Course Search & Enroll tools—to make their own four-year plan based on their placement scores, credit for transferred courses and approved examinations, and individual interests. As students become involved in athletics, honors, research, student organizations, study abroad, volunteer experiences, and/or work, they might adjust the order of their courses to accommodate these experiences. Students will likely revise their own four-year plan several times during college.

In general, your four year plan in mathematics should be organized along the following sequence: 1) Calculus, 2) Linear Algebra, 3) Required Intermediate level course, 4) Additional intermediate level courses as needed, 5) Required advanced level course, 6) Additional advanced level courses.

Freshman

Fall Credits Spring Credits
MATH 221 5 MATH 222 4

Literature Breadth

3 Literature Breadth 3

Communication A

3 Ethnic Studies 3

Foreign Language if required

4 Foreign Language (if required) 4

15 14

Sophomore

Fall Credits Spring Credits
MATH 2341 4 MATH Linear Algebra 3

Humanities Breadth

3 MATH Differential Equations 3

Communication B

3-5 Humanities Breadth 3

Physical Science

3 Physical Science Breadth 3

Elective

3 Elective 3

16-18 15
<table>
<thead>
<tr>
<th></th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
<th></th>
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<tbody>
<tr>
<td><strong>Junior</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH Required Intermediate Course</td>
<td>3</td>
<td>MATH Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Economics/ Finance intro course 1</td>
<td>3-4</td>
<td>Economics/Finance intro course 2</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Biological Sciences Breadth</td>
<td>3</td>
<td>Biological Sciences Breadth</td>
<td>3</td>
<td></td>
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<tr>
<td>Social Science Breadth</td>
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<td>Physical Science Breadth</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td>Elective</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>15-16</td>
<td>15-16</td>
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<tr>
<td><strong>Senior</strong></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
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</tr>
<tr>
<td>MATH 521</td>
<td>3</td>
<td>Advanced MATH Elective</td>
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<tr>
<td>Econ/Finance Elective</td>
<td>3-4</td>
<td>Econ/Finance elective</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Social Science Breadth</td>
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<td>Social Science Breadth</td>
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<td>Elective</td>
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<td></td>
<td>15-16</td>
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<tr>
<td><strong>Total Credits</strong></td>
<td>120-126</td>
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</tbody>
</table>

Students must declare a major by the time they reach Senior standing (86 credits).

Please refer to the Requirements tab in Guide for additional College of Letters & Science Breadth and Degree Requirements as well as Residence and Quality of Work requirements for the major.

1 Students should declare the math major upon successful completion of this course.