Mathematical Economics BA (CLA)

Overview
The College of Liberal Arts' Department of Economics and the College of Science and Technology's Department of Mathematics jointly offer the Bachelor of Arts in Mathematical Economics as a platform for systematic concentration in the mathematical approach to economics. Economics has progressed in the last several decades by making extensive use of mathematical techniques. As a result, students who wish to pursue graduate study in economics, finance, accounting and other disciplines that make an extensive use of economics need a thorough grounding in both economics and mathematics. The Mathematical Economics curriculum provides this grounding with a broad selection of courses that cover all important areas of economics and the mathematical tools required for a critical, deep mastery of these areas. This program is especially recommended for those students who intend to pursue graduate studies in economics.

Campus Location: Main
Program Code: LA-MECN-BA

Residency Requirements
Students must satisfy general Temple University residency requirements.
At least 10 courses required for the major must be completed at Temple. At least 5 Mathematics courses and 4 Economics courses must be completed at Temple.

Distinction in Major
For distinction in Mathematical Economics, a student must have an overall GPA of 3.25 or higher. A student must also have a GPA of 3.50 or higher in the 3000+ Mathematics courses and a GPA of 3.60 or higher in the 3000+ Economics courses.

Contact Information
Michael Bognanno, Economics Department Chair
bognanno@temple.edu

Brian Rider, Mathematics Department Chair
mathematics@temple.edu

Dimitrios Diamantaras, Economics Advisor
215-204-8169
dimitrios.diamantaras@temple.edu

Boris Datskovsky, Mathematics Director of Undergraduate Studies
215-204-7847
mathadvising@temple.edu

Maria E. Lorenz, Mathematics Department Vice Chair
215-204-7852
mathadvising@temple.edu

Belinda Wilson, Administrator
215-204-0472
bwilson@temple.edu

Janice Vincent, Economics Department Coordinator
215-204-8880

Learn more about the Bachelor of Arts in Mathematical Economics.

These requirements are for students who matriculated in academic year 2023-2024. Students who matriculated prior to fall 2023 should refer to the Archives to view the requirements for their Bulletin year.
Summary of Degree Requirements

University Requirements

- MATH 0701 and/or ENG 0701, if required by placement testing.
- All Temple students must take a minimum of two writing-intensive courses as part of their major. All students must take ECON 3598 as their capstone experience. The following is a list of courses that can be used to satisfy the remaining writing-intensive requirement:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ECON 3596</td>
<td>Energy, Ecology, and Economy</td>
<td>3</td>
</tr>
<tr>
<td>ECON 3597</td>
<td>Health Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 3696</td>
<td>Behavioral Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 3697</td>
<td>The Economics of Sports</td>
<td>3</td>
</tr>
<tr>
<td>ECON 3698</td>
<td>Economic Inequality</td>
<td>3</td>
</tr>
<tr>
<td>MATH 3096</td>
<td>Introduction to Modern Algebra</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 3098</td>
<td>Modern Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 4096</td>
<td>Senior Problem Solving</td>
<td>3</td>
</tr>
</tbody>
</table>

- Students must complete the General Education (GenEd) requirements. Students who complete this major typically receive a waiver for 1 Quantitative Literacy (GQ) GenEd course.

College Requirements

Completion of a minimum of 123 credits, including:

- 90 credits within the College of Science & Technology (CST) or the College of Liberal Arts (CLA).
- 45 Upper-Level (2000+) credits within the College of Science & Technology (CST) or the College of Liberal Arts (CLA).
- Second (2nd) Level of a Foreign Language (1002).

Major Requirements (60-62 credits)

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>Computer &amp; Information Science</td>
<td>Select one of the following:</td>
<td>3-4</td>
</tr>
<tr>
<td>CIS 1051</td>
<td>Introduction to Problem Solving and Programming in Python</td>
<td></td>
</tr>
<tr>
<td>or CIS 1951</td>
<td>Honors Introduction to Problem Solving and Programming in Python</td>
<td></td>
</tr>
<tr>
<td>CIS 1057</td>
<td>Computer Programming in C</td>
<td></td>
</tr>
<tr>
<td>CIS 1068</td>
<td>Program Design and Abstraction</td>
<td></td>
</tr>
<tr>
<td>or CIS 1968</td>
<td>Honors Program Design and Abstraction</td>
<td></td>
</tr>
<tr>
<td>MATH 1033</td>
<td>Computing in MATLAB</td>
<td></td>
</tr>
<tr>
<td>&amp; MATH 1034</td>
<td>and Applications in MATLAB</td>
<td></td>
</tr>
</tbody>
</table>

Mathematics

- MATH 1041 | Calculus I                      | 4            |
- or MATH 1941 | Honors Calculus I              | |
- MATH 1042 | Calculus II                     | 4            |
- or MATH 1942 | Honors Calculus II             | |
- MATH 2043 | Calculus III                    | 4            |
- or MATH 2943 | Honors Calculus III            | |
- MATH 2101 | Linear Algebra                  | 3            |
- MATH 2111 | Basic Concepts of Math          | 3            |
- MATH 3031 | Probability Theory I            | 3            |
- MATH 3032 | Mathematical Statistics (S)     | 3            |

Select one of the following sequences: 6-7

- MATH 3043 | Numerical Analysis I            | |
- & MATH 3044 | and Numerical Analysis II      | |
MATH 3137 & MATH 3138
Real & Complex Analysis I
and Real & Complex Analysis II

MATH 3141 & MATH 3142
Advanced Calculus I
and Advanced Calculus II

One Mathematics elective at the 3000 level or above 1,2

3

Economics

ECON 1102 Microeconomic Principles
or ECON 1902 Honors Microeconomic Principles

ECON 3501 Intermediate Microeconomic Analysis
or ECON 3701 Intermediate Microeconomic Analysis with Calculus

ECON 3502 Intermediate Macroeconomic Analysis
or ECON 3702 Intermediate Macroeconomic Analysis with Calculus

ECON 3503 Introduction to Econometrics
or ECON 3703 Econometric Theory

ECON 3504 Mathematical Economics
or ECON 3704 Mathematical Economics

ECON 3598 Economics Writing Seminar

Two Economics electives at the 3000 level or above, with permission from advisor 2

6

Total Credit Hours 60-62

Code Title Credit Hours

(F) - Fall only course.
(S) - Spring only course.

1

MATH 2041, MATH 2941, MATH 2045, or MATH 2121 may be used to fulfill the Mathematics elective at the 3000 level or above.

2

One of the Mathematics or Economics electives must be a writing-intensive course in order to satisfy the University requirement that each student must fulfill two writing-intensive courses within the major.

Suggested Academic Plan

Bachelor of Arts in Mathematical Economics

Suggested Plan for New Students Starting in the 2023-2024 Academic Year

Year 1

Fall

Select one of the following:

Credit Hours

3-4

CIS 1051 Introduction to Problem Solving and Programming in Python
or CIS 1951 Honors Introduction to Problem Solving and Programming in Python

CIS 1057 Computer Programming in C

CIS 1068 Program Design and Abstraction
or CIS 1968 Honors Program Design and Abstraction

MATH 1033 Computing in MATLAB
& MATH 1034 and Applications in MATLAB

MATH 1041 Calculus I
or MATH 1941 Honors Calculus I

General Education/Elective Credits

1

8-7

Credit Hours

15

Spring

ECON 1102 Microeconomic Principles
or ECON 1902 Honors Microeconomic Principles

MATH 1042 Calculus II
or MATH 1942 Honors Calculus II

General Education/Elective Credits

9

Credit Hours

16
### Year 2
#### Fall
- **ECON 3501** or **ECON 3701**: Intermediate Microeconomic Analysis or Intermediate Microeconomic Analysis with Calculus 3
- **MATH 2043** or **MATH 2943**: Calculus III or Honors Calculus III 4
General Education/Elective Credits 9

| Credit Hours | 16 |

#### Spring
- **ECON 3502** or **ECON 3702**: Intermediate Macroeconomic Analysis or Intermediate Macroeconomic Analysis with Calculus 3
- **MATH 2111**: Basic Concepts of Math 3
General Education/Elective Credits 9

| Credit Hours | 15 |

### Year 3
#### Fall
- 3000+ Economics Elective, with permission from advisor 2 3
- **MATH 2101**: Linear Algebra 3
- **MATH 3031**: Probability Theory I 3
General Education/Elective Credits 6

| Credit Hours | 15 |

#### Spring
- **ECON 3504**: Mathematical Economics 3
- **MATH 3032**: Mathematical Statistics (S) 3
- 3000+ Mathematics Elective 2,3 3
General Education/Elective Credits 6

| Credit Hours | 15 |

### Year 4
#### Fall
- **ECON 3503** or **ECON 3703**: Introduction to Econometrics or Econometric Theory 3
- Select one of the following: 4 3-4
  - **MATH 3043**: Numerical Analysis I (F) 3
  - **MATH 3137**: Real & Complex Analysis I 3
  - **MATH 3141**: Advanced Calculus I 3
General Education/Elective Credits 10-9

| Credit Hours | 16 |

#### Spring
- **ECON 3598**: Economics Writing Seminar 3
- 3000+ Economics Elective, with permission from advisor 2 3
- Select one of the following: 4 3
  - **MATH 3044**: Numerical Analysis II 3
  - **MATH 3138**: Real & Complex Analysis II 3
  - **MATH 3142**: Advanced Calculus II 3
General Education/Elective Credits 6

| Credit Hours | 15 |

| Total Credit Hours | 123 |

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<tbody>
<tr>
<td>(F)</td>
<td>Fall only course</td>
<td></td>
</tr>
<tr>
<td>(S)</td>
<td>Spring only course</td>
<td></td>
</tr>
</tbody>
</table>
All students in the College of Liberal Arts are required to take a 1 credit seminar in professional development. CLA 1002 Professional Development for Liberal Arts Majors is the appropriate course option for this major. Other courses that fulfill this requirement are ENG 1801 Career Seminar and PSY 1002 Careers in Psychology.

One of the Mathematics or Economics electives must be a writing-intensive course in order to satisfy the University requirement that each student must fulfill two writing-intensive courses within the major.

MATH 2041, MATH 2941, MATH 2045, or MATH 2121 may be used to fulfill the Mathematics elective at the 3000 level or above.

You must complete the year-long sequence of either MATH 3043 and MATH 3044; or MATH 3137 and MATH 3138; or MATH 3141 and MATH 3142.