# MATHEMATICAL SCIENCES MAJOR (B.S.)

Mathematics is fundamental to concepts in a wide variety of fields, including data science, finance, economics, marketing, and operations management. Bentley Mathematical Sciences majors learn how to think critically, solve complex problems, apply mathematical models to real-world problems, and communicate results effectively. A Mathematical Sciences Major also prepares students for quantitatively-oriented graduate programs such as quantitative finance, economics, or data science by developing essential mathematics skills.

Fundamentals in calculus, linear algebra, probability, and statistics will be mastered in core courses. Students can then focus their interests by selecting elective courses from a variety of specialties such as mathematical modeling, quantitative finance, applied statistics, and actuarial science.

For further information about degree requirement policies and guidelines, see the Degree Requirements (catalog.bentley.edu/undergraduate/degree-requirements/) page.

## Major Requirements

| Course | Title | Credits |
|---|---|---|
| Required Courses: | | |
| MA 139 | Calculus II | 3 |
| or MA 139L | Calculus II with Lab | |
| MA 214 | Intermediate Applied Statistics | 3 |
| MA 233 | Calculus III | 3 |
| MA 239 | Linear Algebra | 3 |
| MA 252 | Regression Analysis | 3 |
| MA 263 | Continuous Probability for Risk Management | 3 |
| Select three additional 200-level or higher mathematical sciences electives. Students are advised to choose electives that create an area of specialty that they can market to future employers, such as actuarial science, modeling, mathematical finance, or statistics. | | 9 |
| **Total Credits** | | **27** |

## General Degree Requirements

### Foundations for Success (15 Credits)

| Course | Title | Credits |
|---|---|---|
| FDS 100 | Falcon Discovery Seminar | 3 |
| **Communications and Writing** | | |
| Select one from: | | |
| EMS 101 | Critical Reading and Writing | 3 |
| or EMS 101L | Critical Reading and Writing with Lab | |
| or EMS 102 | Critical Reading and Writing for Multilingual Students | |
| or EMS 102L | Critical Reading and Writing for Multilingual Students with Lab | |
| And one from: | | |
| EMS 104 | Multimodal Communication | 3 |
| or EMS 105 | Multimodal Communication for Multilingual Students | |
| **Information Technology** | | |
| CS 100 | Solving Business Problems with Information Technology | 3 |
| **Mathematical Sciences** | | |
| Select one from: | | |
| MA 105 | Mathematical Foundations for Business | 3 |
| or MA 105L | Mathematical Foundations for Business with Lab | |
| or MA 107 | Applied Calculus for Business | |
| or MA 107L | Applied Calculus for Business with Lab | |
| or MA 131 | Calculus I | |
| or MA 131L | Calculus I with Lab | |
| **Total Credits** | | **15** |

### Context and Perspectives (18 Credits)

| Course | Title | Credits |
|---|---|---|
| Students must take six courses, one in each category of Context and Perspectives: | | |
| | Culture, Change, and Behavior (catalog.bentley.edu/undergraduate/degree-requirements/context-and-perspectives/#culturechangeandbehavior) | |
| | Globalization (catalog.bentley.edu/undergraduate/degree-requirements/context-and-perspectives/#globalization) | |
| | Institutions and Power (catalog.bentley.edu/undergraduate/degree-requirements/context-and-perspectives/#institutionsandpower) | |
| | Race, Gender, and Inequality (catalog.bentley.edu/undergraduate/degree-requirements/context-and-perspectives/#racegenderandinequality) | |
| | Scientific Inquiry (catalog.bentley.edu/undergraduate/degree-requirements/context-and-perspectives/#scientificinquiry) | |
| | Values, Ethics, and Society (catalog.bentley.edu/undergraduate/degree-requirements/context-and-perspectives/#valuesethicsandsociety) | |
| **Total Credits** | | **18** |

### Business Dynamics/Business Administration Minor (18 Credits)

| Course | Title | Credits |
|---|---|---|
| All courses are required: | | |
| AC 115 | Introduction to Financial Reporting and Analysis | 3 |
| EC 111 | Principles of Microeconomics | 3 |
| FI 118 | Introduction to Finance | 3 |
| LA 100 | Business Law | 3 |
| MG 116 | Human Dynamics in Organizations | 3 |
| ST 113 | Business Statistics | 3 |
| **Total Credits** | | **18** |

### Communication Intensive

All students are required to take a three-credit course designated as a Communication Intensive. This requirement can be met within a variety of course subjects in both Arts & Sciences and Business. Communication Intensive courses are designated with a "Communication Intensive" course tag in Workday. *Transfer students with a minimum of 30 credits will be waived from the Communication Intensive requirement.*

Please note that certain majors have an additional three-credit Communication Intensive built into their major requirements, separate from the general CI requirement.

# Additional Requirements

## Unrestricted Electives (42 Credits)

| Course | Title | Credits |
|---|---|---|
| Select 14 elective courses | | 42 |
| **Total Credits** | | **42** |

# Total: 120 Credits