Butler University  www.butler.edu/math-actuarial

Mathematics

The mathematics major is designed for students who are interested in employment in government or industry, who plan to attend graduate or professional school, or who plan to teach. In addition to the department requirements below, a student must complete the University Core Curriculum (including enrollment in FYS throughout the freshman year), the College of Liberal Arts and Sciences language requirement (at least 200-level two courses, almost always taken in the freshman year), and other general requirements. A BS degree is available in Natural Science and Mathematics for majors who complete a total of at least 60 credits in both areas (e.g., 43 in MA and 17 in natural science).

Requirements for the Major
MA106, 107, 208, Calculus and Analytic Geometry I, II, III
MA200, Basics of Advanced Mathematics
MA205, Discrete Mathematics
MA215, Linear Algebra
MA312, Modern Algebra I
MA326-W, Real Analysis I
MA330, Complex Analysis
MA490, Senior Seminar
Choose one of MA313, Modern Algebra II or MA327, Real Analysis II
Programming course numbered CS142 or higher
Three upper division electives to be chosen from MA301, MA305, courses numbered between MA310 and MA399, or numbered MA473

Requirements for the Minor
MA106, 107, Calculus and Analytic Geometry I, II
MA200, Basics of Advanced Mathematics
MA205, Discrete Mathematics
MA215, Linear Algebra
Choose one of MA305, Graph Theory or MA208, Calculus and Analytic Geometry III
One additional upper division elective to be chosen from MA301, MA305, courses numbered between MA310 and MA399 or MA473

Suggested Four-Year Schedule for Majors Starting in Calculus I (Many other versions are possible)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>MA106 Science Course</td>
<td>MA107 Programming Course</td>
</tr>
<tr>
<td>Second</td>
<td>MA200</td>
<td>MA205/MA215</td>
</tr>
<tr>
<td>Third</td>
<td>MA326-W* and/or MA313 and/or MA Elective</td>
<td>MA327 and/or MA312* and/or MA Elective</td>
</tr>
<tr>
<td>Fourth</td>
<td>MA326-W* and/or MA Elective or MA313</td>
<td>MA312* or MA327 and/or MA Elective</td>
</tr>
</tbody>
</table>

Notes: *MA326 is offered every fall and MA312 is offered every spring.
Courses coded in green are offered each term.
Additional Schedule Options Listed on Reverse Sheet
### Suggested Four-Year Schedule for Majors Starting in Calculus II (Many other versions are possible)

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
</table>
| First Year | **MA107**
|         | *Science Course*                         | **MA200**
|         |                                          | *Programming Course*                  |
| Second Year | **MA205**
|         | **MA208**                                | **MA215**
|         |                                          | and/or **MA 312***                    |
| Third Year | **MA326-W*** and/or **MA313**
|         | *and/or **MA Elective**                  | **MA327** and/or **MA 312***
|         |                                          | **MA330** and/or **MA Elective**      |
| Fourth Year | **MA326-W*** and/or **MA Elective** or **MA313**
|         |                                          | **MA312*** or **MA327**
|         |                                          | *and/or **MA Elective**               |
|         |                                          | **MA490**                             |

Notes: *MA326 is offered every fall and MA312 is offered every spring. Courses coded in green are offered each term.

### Suggested Four-Year Schedule for Majors Starting in Calculus III (Many other versions are possible)

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
</table>
| First Year | **MA208**
|         | *Science Course*                         | **MA200**
|         |                                          | *Programming Course*                  |
| Second Year | **MA205**
|         | **MA215** and/or **MA326-W***
|         |                                          | **MA 312***
|         |                                          | and/or **MA215**                      |
| Third Year | **MA326-W*** and/or **MA313**
|         | *and/or **MA Elective**                  | **MA327** and/or **MA 312***
|         |                                          | **MA330** and/or **MA Elective**      |
| Fourth Year | **MA326-W*** and/or **MA Elective** or **MA313**
|         |                                          | **MA312*** or **MA327**
|         |                                          | *and/or **MA Elective**               |
|         |                                          | **MA490**                             |

Notes: *MA326 is offered every fall and MA312 is offered every spring. Courses coded in green are offered each term.