MATHEMATICS MINOR

Minor requirements
(Units depend on basic courses.)

The mathematics minor consists of basic courses and 6 upper-level courses.

Basic Courses
Students may count basic courses toward the requirements of more than one major, minor, or program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>MATH 220-1 &amp; MATH 220-2</td>
<td>Single-Variable Differential Calculus and Single-Variable Integral Calculus</td>
</tr>
<tr>
<td>or MATH 218-1 &amp; MATH 218-2 &amp; MATH 218-3</td>
<td>Single-Variable Calculus with Precalculus and Single-Variable Calculus with Precalculus and Single-Variable Calculus with Precalculus</td>
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<tr>
<td>MATH 226-0</td>
<td>Sequences and Series</td>
</tr>
<tr>
<td>MATH 230-1 &amp; MATH 230-2 &amp; MATH 240-0</td>
<td>Multivariable Differential Calculus and Multivariable Integral Calculus and Linear Algebra</td>
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<tr>
<td>or MATH 228-1 &amp; MATH 228-2 &amp; GEN_ENG 205-1</td>
<td>Multivariable Differential Calculus for Engineering and Multivariable Integral Calculus for Engineering and Engineering Analysis I</td>
</tr>
<tr>
<td>or ES_APPM 252-1 &amp; ES_APPM 252-2 &amp; GEN_ENG 206-1</td>
<td>Honors Calculus for Engineers and Honors Calculus for Engineers and Honor Engineering Analysis</td>
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<tr>
<td>or MATH 281-1 &amp; MATH 281-2 &amp; MATH 281-3</td>
<td>Accelerated Mathematics for ISP: First Year and Accelerated Mathematics for ISP: First Year and Accelerated Mathematics for ISP: First Year</td>
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<tr>
<td>or MATH 285-1 &amp; MATH 285-2 &amp; MATH 285-3</td>
<td>Accelerated Mathematics for MMSS: First Year and Accelerated Mathematics for MMSS: First Year and Accelerated Mathematics for MMSS: First Year</td>
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<tr>
<td>or MATH 290-1 &amp; MATH 290-2 &amp; MATH 290-3</td>
<td>MENU: Linear Algebra and Multivariable Calculus and MENU: Linear Algebra and Multivariable Calculus and MENU: Linear Algebra and Multivariable Calculus</td>
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<tr>
<td>or MATH 291-1 &amp; MATH 291-2 &amp; MATH 291-3</td>
<td>MENU: Intensive Linear Algebra and Multivariable Calculus and MENU: Intensive Linear Algebra and Multivariable Calculus and MENU: Intensive Linear Algebra and Multivariable Calculus</td>
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Upper-level Courses
Students must complete 6 upper-level mathematics courses. Upper-level courses are courses at the 300 level or above.

The 6 upper-level courses must include at least 1 of the following two-course sequences:

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MATH 310-1 &amp; MATH 310-2</td>
<td>Probability and Stochastic Processes and Probability and Stochastic Processes</td>
</tr>
<tr>
<td>MATH 311-1 &amp; MATH 311-2</td>
<td>MENU: Probability and Stochastic Processes and MENU: Probability and Stochastic Processes</td>
</tr>
<tr>
<td>MATH 320-1 &amp; MATH 320-2</td>
<td>Real Analysis and Real Analysis</td>
</tr>
<tr>
<td>MATH 321-1 &amp; MATH 321-2</td>
<td>MENU: Real Analysis and MENU: Real Analysis</td>
</tr>
<tr>
<td>MATH 330-1 &amp; MATH 330-2</td>
<td>Abstract Algebra and Abstract Algebra</td>
</tr>
</tbody>
</table>

With prior approval from the Director of Undergraduate Studies (https://www.math.northwestern.edu/undergraduate/advising/), the upper-level courses may include as many as 2 courses offered by other departments with substantial mathematical content or that focus on serious applications of mathematics. No such course may count simultaneously toward the requirements of another major or minor.