# Statistics Option

This option is offered within the following major(s):

- Mathematics - College of Science (http://catalog.oregonstate.edu/college-departments/science/mathematics/mathematics-bs-hbs)

The Statistics option offers Mathematics majors an opportunity to concentrate their senior level course work in the area of statistics and probability after completing core junior and lower-division mathematics requirements. This degree option is designed to allow a focus on the study of the mathematical theory underlying statistics while simultaneously developing expertise in statistical applications.

A grade of at least C– and a GPA of 2.25 are required in all mathematics courses used to fulfill degree requirements. No course used to fulfill requirements for the mathematics major or any of its options may be taken S/U.

The lower-division requirements for the Statistics option are the same as those for the Mathematics BS degree. The upper-division requirements are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part A. Required Mathematics Core Classes</strong></td>
<td></td>
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</tr>
<tr>
<td>MTH 311</td>
<td>ADVANCED CALCULUS</td>
<td>8</td>
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<tr>
<td>&amp; MTH 312</td>
<td>and ADVANCED CALCULUS</td>
<td></td>
</tr>
<tr>
<td>MTH 341</td>
<td>LINEAR ALGEBRA I</td>
<td>3</td>
</tr>
<tr>
<td>MTH 342</td>
<td>LINEAR ALGEBRA II</td>
<td>4</td>
</tr>
<tr>
<td>MTH 343</td>
<td>INTRODUCTION TO MODERN ALGEBRA</td>
<td>3</td>
</tr>
<tr>
<td>MTH 355</td>
<td>DISCRETE MATHEMATICS</td>
<td>3</td>
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<tr>
<td>Select one of the following writing intensive courses (WIC):</td>
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<tr>
<td>MTH 323</td>
<td>*MATHEMATICAL MODELING</td>
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<tr>
<td>MTH 333</td>
<td>*FUNDAMENTAL CONCEPTS OF TOPOLOGY</td>
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<tr>
<td>MTH 338</td>
<td>*NON-EUCLIDEAN GEOMETRY</td>
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<tr>
<td><strong>Part B. Statistics and Probability Core Classes</strong></td>
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<td></td>
</tr>
<tr>
<td>MTH 463</td>
<td>PROBABILITY I</td>
<td>3</td>
</tr>
<tr>
<td>MTH 464</td>
<td>PROBABILITY II</td>
<td>3</td>
</tr>
<tr>
<td>ST 411</td>
<td>METHODS OF DATA ANALYSIS</td>
<td>4</td>
</tr>
<tr>
<td>ST 412</td>
<td>METHODS OF DATA ANALYSIS</td>
<td>4</td>
</tr>
<tr>
<td>ST 421</td>
<td>INTRODUCTION TO MATHEMATICAL STATISTICS</td>
<td>4</td>
</tr>
<tr>
<td>ST 422</td>
<td>INTRODUCTION TO MATHEMATICAL STATISTICS</td>
<td>4</td>
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<tr>
<td><strong>Part C. Depth in Statistics or Probability</strong></td>
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<tr>
<td>Select one of the following:</td>
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<td>3-4</td>
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<tr>
<td>MTH 465</td>
<td>PROBABILITY III</td>
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<tr>
<td>MTH 467</td>
<td>ACTUARIAL MATHEMATICS</td>
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<tr>
<td>ST 413</td>
<td>METHODS OF DATA ANALYSIS</td>
<td></td>
</tr>
<tr>
<td>ST 415</td>
<td>DESIGN AND ANALYSIS OF PLANNED EXPERIMENTS</td>
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<tr>
<td>ST 431</td>
<td>SAMPLING METHODS</td>
<td></td>
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<tr>
<td>ST 439</td>
<td>SURVEY METHODS</td>
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<tr>
<td>ST 441</td>
<td>PROBABILITY, COMPUTING, AND SIMULATION IN STATISTICS</td>
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<tr>
<td>ST 443</td>
<td>APPLIED STOCHASTIC MODELS</td>
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<tr>
<td><strong>Part D. Breadth in Mathematics</strong></td>
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<tr>
<td>Select one from each of two of the following five areas:</td>
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<td>6</td>
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</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MTH 440</td>
<td>COMPUTATIONAL NUMBER THEORY</td>
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<tr>
<td>MTH 441</td>
<td>APPLIED AND COMPUTATIONAL ALGEBRA</td>
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<tr>
<td><strong>Analysis</strong></td>
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<tr>
<td>MTH 411</td>
<td>REAL ANALYSIS</td>
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<tr>
<td>MTH 483</td>
<td>COMPLEX VARIABLES</td>
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<tr>
<td><strong>Applied Mathematics</strong></td>
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<tr>
<td>MTH 420</td>
<td>MODELS AND METHODS OF APPLIED MATHEMATICS</td>
<td></td>
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<tr>
<td>MTH 427</td>
<td>INTRODUCTION TO MATHEMATICAL BIOLOGY</td>
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<tr>
<td>MTH 480</td>
<td>SYSTEMS OF ORDINARY DIFFERENTIAL EQUATIONS</td>
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<tr>
<td>MTH 481</td>
<td>APPLIED ORDINARY DIFFERENTIAL EQUATIONS</td>
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<tr>
<td><strong>Geometry and Topology</strong></td>
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<tr>
<td>MTH 430</td>
<td>METRIC SPACES AND TOPOLOGY</td>
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<td>MTH 434</td>
<td>INTRODUCTION TO DIFFERENTIAL GEOMETRY</td>
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<tr>
<td><strong>Numerical Analysis</strong></td>
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<tr>
<td>MTH 351</td>
<td>INTRODUCTION TO NUMERICAL ANALYSIS</td>
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<td>MTH 451</td>
<td>NUMERICAL LINEAR ALGEBRA</td>
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<tr>
<td>MTH 452</td>
<td>NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS</td>
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</table>

Total Hours: 55-56

1. MTH 321 INTRODUCTORY APPLICATIONS OF MATHEMATICAL SOFTWARE can be substituted for one of the two area classes.

^ Writing Intensive Course (WIC)

Option Code: 658