STATISTICS, B.A.

REQUIREMENTS

UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world.

Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements (http://guide.wisc.edu/undergraduate/#requirementsforundergraduatetext) section of the Guide.

General Education

- Breadth—Humanities/Literature/Arts: 6 credits
- Breadth—Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits
- Breadth—Social Studies: 3 credits
- Communication Part A & Part B *
- Ethnic Studies *
- Quantitative Reasoning Part A & Part B *

* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

COLLEGE OF LETTERS & SCIENCE DEGREE REQUIREMENTS: BACHELOR OF ARTS (B.A.)

Students pursuing a bachelor of arts degree in the College of Letters & Science must complete all of the requirements below. The College of Letters & Science allows this major to be paired with either a bachelor of arts or a bachelor of science curriculum.

BACHELOR OF ARTS DEGREE REQUIREMENTS

Mathematics

- Complete the University General Education Requirements for Quantitative Reasoning A (QR-A) and Quantitative Reasoning B (QR-B) coursework.

Foreign Language

- Complete the fourth unit of a foreign language; OR
- Complete the third unit of a foreign language and the second unit of an additional foreign language.

L&S Breadth

- 12 credits of Humanities, which must include 6 credits of literature; and
- 12 credits of Social Science; and
- 12 credits of Natural Science, which must include one 3+ credit Biological Science course and one 3+ credit Physical Science course.

Liberal Arts and Science Coursework

Depth of Intermediate/Advanced work

Major

Total Credits

UW-Madison Experience

Quality of Work

NON-L&S STUDENTS PURSING AN L&S MAJOR

Non-L&S students who have permission from their school/college to pursue an additional major within L&S only need to fulfill the major requirements. They do not need to complete the L&S Degree Requirements above.

REQUIREMENTS FOR THE MAJOR

MATHEMATICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculus 1 (Complete one):</td>
<td></td>
<td>5-10</td>
</tr>
<tr>
<td>MATH 221</td>
<td>Calculus and Analytic Geometry 1 ¹</td>
<td></td>
</tr>
<tr>
<td>MATH 171</td>
<td>Calculus with Algebra and Trigonometry I</td>
<td></td>
</tr>
<tr>
<td>MATH 217</td>
<td>Calculus with Algebra and Trigonometry II ¹</td>
<td></td>
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<tr>
<td>MATH 275</td>
<td>Topics in Calculus I ¹</td>
<td></td>
</tr>
<tr>
<td>Calculus 2 (Complete one):</td>
<td></td>
<td>4-5</td>
</tr>
<tr>
<td>MATH 222</td>
<td>Calculus and Analytic Geometry 2 ¹</td>
<td></td>
</tr>
<tr>
<td>MATH 276</td>
<td>Topics in Calculus II ¹</td>
<td></td>
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<tr>
<td>Calculus 3 (Complete one):</td>
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<td>4-5</td>
</tr>
<tr>
<td>MATH 234</td>
<td>Calculus–Functions of Several Variables ¹</td>
<td></td>
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<tr>
<td>MATH 375</td>
<td>Topics in Multi-Variable Calculus and Linear Algebra¹</td>
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<tr>
<td>Linear Algebra (Complete one):</td>
<td></td>
<td>3-5</td>
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<tr>
<td>MATH 340</td>
<td>Elementary Matrix and Linear Algebra</td>
<td></td>
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<tr>
<td>MATH 320</td>
<td>Linear Algebra and Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MATH 341</td>
<td>Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 376</td>
<td>Topics in Multi-Variable Calculus and Differential Equations</td>
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Total Credits: 16-25

COMPUTER PROGRAMMING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete one of:</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>COMP SCI 200</td>
<td>Programming I</td>
<td></td>
</tr>
<tr>
<td>COMP SCI 220</td>
<td>Data Science Programming I</td>
<td></td>
</tr>
</tbody>
</table>
## STATISTICS

### Code | Title | Credits
--- | --- | ---
**Introductory Statistics & Basic Statistical Language:** | | 4-5
STAT 302 | Accelerated Introduction to Statistical Methods | 4
or STAT 301 | Introduction to Statistical Methods | 4
or STAT 324 | Introductory Applied Statistics for Engineers | 4
or STAT 371 | Introductory Applied Statistics for the Life Sciences | 4
or STAT 240 | Introduction to Data Modeling I | 4
STAT 303 | R for Statistics I | 3

**Statistical Models:** | | 6-7
STAT 333 | Applied Regression Analysis | 3
or STAT 340 | Introduction to Data Modeling II | 3
STAT/MATH 424 | Statistical Experimental Design | 3

**Probability (Complete one):** | | 3
STAT/MATH 309 | Introduction to Probability and Mathematical Statistics I | 3
STAT 311 | Introduction to Theory and Methods of Mathematical Statistics I | 3
STAT/MATH 431 | Introduction to the Theory of Probability | 3

**Inference:** | | 3
STAT/MATH 310 | Introduction to Probability and Mathematical Statistics II | 3

**Electives:** | | 15
STAT 304 | R for Statistics II | 3
STAT 305 | R for Statistics III | 3
STAT 327 | Learning a Statistical Language | 3
STAT 349 | Introduction to Time Series | 3
STAT 351 | Introductory Nonparametric Statistics | 3
STAT 360 | Topics in Statistics Study Abroad | 3
STAT 411 | An Introduction to Sample Survey Theory and Methods | 3
STAT 421 | Applied Categorical Data Analysis | 3
STAT 433 | Data Science with R | 3
STAT 443 | Classification and Regression Trees | 3
STAT 451 | Introduction to Machine Learning and Statistical Pattern Classification | 3
STAT 453 | Introduction to Deep Learning and Generative Models | 3
STAT 456 | Applied Multivariate Analysis | 3
STAT 461 | Financial Statistics | 3
STAT/COMP SCI 471 | Introduction to Computational Statistics | 3

### Total Credits
3-4

## RESIDENCE & QUALITY OF WORK
- 2.000 GPA in all STAT and major courses
- 2.000 GPA on 15 Upper-Level Major credits, taken in Residence
- 15 credits in STAT courses, taken on the UW-Madison campus

## HONORS IN THE MAJOR

Students may declare Honors in the Statistics Major in consultation with the Statistics major advisor(s). To be admitted to the Honors Program in Statistics, students must have declared Statistics, must have a 3.500 University GPA, and must have completed STAT 302, STAT/MATH 309, and STAT 333 (or other courses with the approval of the advisor) with a GPA of 3.500 or higher in these three classes.

### HONORS IN THE STATISTICS MAJOR: REQUIREMENTS

To earn Honors in the Major in Statistics, students must satisfy both the requirements for the major (above) and the following additional requirements:

- Earn a 3.500 University GPA
- Earn a 3.500 GPA for all STAT courses
- Complete two STAT major courses (excluding 699) for Honors credit (http://honors.ls.wisc.edu/SiteContent.aspx?prev=1&id=370) or Take an additional 3-credit STAT elective
- STAT 681 -STAT 682, for a total of 6 credits, under the supervision of a member of the Statistics faculty.

### FOOTNOTES

1. A grade of C or higher is required for this course to meet the requirement.
2. STAT 479 and STAT 679 can be repeated for elective credit when enrolled for different topics.
3. Courses that are considered Upper-Level in the major are STAT 303, STAT 304, STAT 305, STAT/MATH 309, STAT/MATH 310, STAT 311, STAT 312, STAT 327, STAT 333, STAT 340, STAT 349, STAT 351, STAT 360, STAT 411, STAT/MATH 424, STAT/MATH 431, STAT 433, STAT 443, STAT 451, STAT 453, STAT 456, STAT 461, STAT/COMP SCI 471, STAT/COMP SCI/MATH 475, STAT 479, STAT 575, STAT/I SY E/MATH/OTM 632, STAT/B M I 641 STAT/B M I 642 and STAT 699.
### UNIVERSITY DEGREE REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirement</th>
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</thead>
<tbody>
<tr>
<td><strong>Total Degree</strong></td>
<td>To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.</td>
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<tr>
<td><strong>Residency</strong></td>
<td>Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. &quot;In residence&quot; means on the UW–Madison campus with an undergraduate degree classification. &quot;In residence&quot; credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.</td>
</tr>
<tr>
<td><strong>Quality of Work</strong></td>
<td>Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.</td>
</tr>
</tbody>
</table>