Statistics, M.S.

The M.S. degree program in statistics trains the candidate to become a practicing statistician. The M.S. degree in statistics with a named option in biostatistics trains the candidate to contribute substantially to the statistical analysis of biomedical problems.

The Department of Statistics offers a rich variety of courses and seminars in almost all branches of statistical theory and applications. The department offers the master of science (M.S.) and the doctor of philosophy in statistics (Ph.D.), and M.S. in statistics with a named option in biostatistics/ (http://guide.wisc.edu/graduate/statistics/statistics-ms/statistics-biostatistics-ms) Ph.D. in statistics with a named option in biostatistics (http://guide.wisc.edu/graduate/statistics/statistics-phd/statistics-biostatistics-phd). An M.S. in statistics with a named option in data science (http://guide.wisc.edu/graduate/statistics/statistics-ms/statistics-data-science-ms) is also available to students meeting the criteria (see the data science (http://www.stat.wisc.edu/ms-degree-data-science-option-ms-ds) page for more details). In addition, the department is closely involved with the Biometry M.S. (http://guide.wisc.edu/graduate/agricultural-life-sciences-college-wide/biometry-ms), and with the School of Medicine and Public Health Department of Biostatistics and Medical Informatics (http://guide.wisc.edu/graduate/biostatistics-medical-informatics), both listed separately in the Guide.

The statistics department provides extensive computing facilities, both hardware and software, to support instruction and research. Several computers and advanced graphic workstations are available for use in advanced courses enabling students to pursue the latest research directions in statistical computing and graphics. Common statistical packages and libraries are available on a variety of machines.

The department may be consulted for specific career information. A number of assistantships are available each year; see the department website (http://www.stat.wisc.edu) for application materials and deadlines. The master’s degree programs are described below.

Additional information about the master’s and Ph.D. programs, including time limits, can also be obtained from the department.

Admissions

Students holding a bachelor’s degree with a natural science, social science, or engineering major and strong mathematical background are encouraged to apply for admission to the graduate program in statistics. Students are advised to undertake graduate work in statistics only if their undergraduate grades in mathematics were uniformly high. Students cannot get credit for more than one of STAT 301 Introduction to Statistical Methods, STAT 324 Introductory Applied Statistics for Engineers, or STAT 371 Introductory Applied Statistics for the Life Sciences.

Graduate School Admissions

Graduate admissions is a two-step process between academic degree programs and the Graduate School. Applicants must meet requirements of both the program(s) and the Graduate School. Once you have researched the graduate program(s) you are interested in, apply online (https://grad.wisc.edu/admissions).

Funding

Graduate School Resources

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding) is available from the Graduate School. Be sure to check with your program for individual policies and processes related to funding.

Program Resources

Prospective students should see the program website (http://www.stat.wisc.edu/) for funding information.

Requirements

Minimum Graduate School Requirements

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/ #policiesandrequirementstext), in addition to the program requirements listed below.

Major Requirements

Mode of Instruction

<table>
<thead>
<tr>
<th>Mode of Instruction</th>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Mode of Instruction Definitions

**Evening/Weekend**: These programs are offered in an evening and/or weekend format to accommodate working schedules. Enjoy the advantages of on-campus courses and personal connections, while keeping your day job. For more information about the meeting schedule of a specific program, contact the program.

**Online**: These programs are offered primarily online. Many available online programs can be completed almost entirely online with all online programs offering at least 50 percent or more of the program work online. Some online programs have an on-campus component that is often designed to accommodate working schedules. Take advantage of the convenience of online learning while participating in a rich, interactive learning environment. For more information about the online nature of a specific program, contact the program.

**Hybrid**: These programs have innovative curricula that combine on-campus and online formats. Most hybrid programs are completed on-campus with a partial or completely online semester. For more information about the hybrid schedule of a specific program, contact the program.

**Accelerated**: These on-campus programs are offered in an accelerated format that allows you to complete your program in a condensed time-frame. Enjoy the advantages of on-campus courses with minimal disruption to your career. For more information about the accelerated nature of a specific program, contact the program.

Curricular Requirements

Minimum 30 credits

Credit

Requirement
Minimum Residence Credit Requirement: 16 credits

Minimum Graduate Coursework Requirement: Half of degree coursework (15 credits out of 30 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (https://registrar.wisc.edu/course-guide/).

Overall Graduate GPA Requirement: 3.00 GPA required.

Other Grade Requirements: A grade of B or better must be received in any course used to fulfill the required and elective course requirements.

Assessments and Examinations: Students must pass a competency test containing both a written and an oral component, demonstrating that they have the potential to be a practicing statistician.

Language Requirements: No language requirements.

### REQUIRED COURSES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 609</td>
<td>Mathematical Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>or STAT/ MATH 709</td>
<td>Mathematical Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT 610</td>
<td>Introduction to Statistical Inference</td>
<td>4</td>
</tr>
<tr>
<td>or STAT/ MATH 710</td>
<td>Mathematical Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT 849</td>
<td>Theory and Application of Regression and Analysis of Variance I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 850</td>
<td>Theory and Application of Regression and Analysis of Variance II</td>
<td>3</td>
</tr>
<tr>
<td>STAT 998</td>
<td>Statistical Consulting</td>
<td>3</td>
</tr>
<tr>
<td>Select 6 or more elective credits of Statistics courses 600 or higher, except those listed above and:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>STAT 699</td>
<td>Directed Study</td>
<td></td>
</tr>
</tbody>
</table>

The following will also be allowed to count toward the 30-credit minimum for the master's degree (with permission of the Curriculum and Degree Requirement Committee).

Up to 6 credits from Statistics Courses Numbered: 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 327</td>
<td>Learning a Statistical Language</td>
</tr>
<tr>
<td>STAT 349</td>
<td>Introduction to Time Series</td>
</tr>
<tr>
<td>STAT 351</td>
<td>Introductory Nonparametric Statistics</td>
</tr>
<tr>
<td>STAT 411</td>
<td>An Introduction to Sample Survey Theory and Methods</td>
</tr>
<tr>
<td>STAT 421</td>
<td>Applied Categorical Data Analysis</td>
</tr>
<tr>
<td>STAT 456</td>
<td>Applied Multivariate Analysis</td>
</tr>
<tr>
<td>STAT/ COMP SCI 471</td>
<td>Introduction to Computational Statistics</td>
</tr>
</tbody>
</table>

Total Credits: 28

### NAMED OPTIONS (SUB-MAJORS)

A named option is a formally documented sub-major within an academic major program. Named options appear on the transcript with degree conferral.


### POLICIES

**GRADUATE SCHOOL POLICIES**

The Graduate School’s Academic Policies and Procedures (https://grad.wisc.edu/acadpolicy) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

**MAJOR-SPECIFIC POLICIES**

**GRADUATE PROGRAM HANDBOOK**

The Graduate Program Handbook (http://www.stat.wisc.edu/sites/default/files/2016-17%20Complete%20PDF%20Handbook.pdf) is the repository for all of the program’s policies and requirements.

**PRIOR COURSEWORK**

**Graduate Work from Other Institutions**

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions toward the graduate degree credit and graduate coursework (50%) requirements. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

**UW–Madison Undergraduate**

With program approval, up to 6 statistics credits from a UW–Madison undergraduate degree at the 600 level or above are allowed to count toward minimum graduate degree credits. Coursework earned five or more years prior to admission to a master’s degree is not allowed to satisfy requirements.

**UW–Madison University Special**

With program approval, up to 15 statistics credits completed at UW–Madison while a University Special student at the 300 level or above are allowed to count toward minimum graduate degree and graduate residence credit requirements. Of these credits, those at the 700 level or above may also count toward the minimum graduate coursework (50%) requirement. Coursework earned five or more years prior to admission to a master’s degree is not allowed to satisfy requirements.

**PROBATION**

Three consecutive reviews in which a student fails to meet the minimum criteria for satisfactory progress will result in the student being dropped from the program. Contact the program for more information.
ADVISOR / COMMITTEE
Students are required to meet with their advisor near the beginning of each semester to discuss course selection and progress.

CREDITS PER TERM ALLOWED
15 credits

TIME CONSTRAINTS
The competency test must be passed within six semesters after entering the department.

OTHER
Students pursuing the general statistics and biostatistics options are considered for department financial support and may seek a dual degree if desired.

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES
Take advantage of the Graduate School's professional development resources (https://grad.wisc.edu/pd) to build skills, thrive academically, and launch your career.

LEARNING OUTCOMES

1. Demonstrates understanding of statistical theories, methodologies, and applications as tools in scientific inquiries.

2. Selects and utilizes the most appropriate statistical methodologies and practices.

3. Synthesizes information pertaining to questions in empirical studies.

4. Communicates data concepts and analysis results clearly.

5. Recognizes and applies principles of ethical and professional conduct.

PEOPLE

Faculty: Professors J. Zhu (chair), Ane, Chappell, Chien, Keles, Larget, Loh, Newton, Shao, Y. Wang, Yandell, C. Zhang, Z. Zhang; Associate Professor Rohe; Assistant Professors Garcia Trillos, Kang, Patel, Raschka, Raskutti, M. Wang, A Zhang