STATISTICS: APPLIED STATISTICS, M.S.

This is a named option in the Statistics M.S. (http://guide.wisc.edu/graduate/statistics/statistics-ms/) The Statistics department recognizes that many students wish to have significant training within statistics, but apply their knowledge paired with a domain field in which they will utilize their statistical knowledge. This option within the MS Statistics provides the opportunity to do this. It is expected that many students will wish to pursue this program as a double, dual, or joint MS degree (https://grad.wisc.edu/academic-policies/) or also pursue a PhD in their domain field.

The Applied Statistics option is distinct from the other M.S. statistics options in its interdisciplinary emphasis with domain specific electives and research/project and its corresponding reduced depth in statistics. Students interested in training with statistical consulting as the primary focus should apply for the MS Statistics: Statistics (http://guide.wisc.edu/graduate/statistics/statistics-ms/).

ADMISSIONS

Please consult the table below for key information about this degree program's admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program's website.

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

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Deadline</td>
<td>March 15</td>
</tr>
<tr>
<td>Spring Deadline</td>
<td>November 1</td>
</tr>
<tr>
<td>Summer Deadline</td>
<td>The program does not admit in the summer.</td>
</tr>
<tr>
<td>GRE (Graduate Record</td>
<td>Not required.</td>
</tr>
<tr>
<td>Examinations)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>English Proficiency</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every applicant whose native language is not English or whose undergraduate instruction was not in English must provide an English proficiency test score and meet the Graduate School minimum requirements (<a href="https://grad.wisc.edu/apply/requirements/#english-proficiency">https://grad.wisc.edu/apply/requirements/#english-proficiency</a>).</td>
<td></td>
</tr>
</tbody>
</table>

| Other Test(s) (e.g., | n/a                                         |
| GMAT, MCAT)          |                                             |
| Letters of           | 3                                           |
| Recommendation       | Required                                    |

Applicants to the MS Statistics: Applied Statistics program may fall into two categories:

1. Joint, double, or dual degree with another program on campus. For students who fall in to this category they may apply either while they are applying to their domain program or once they are on campus. It is strongly advised that students indicate their domain program in their statement of interest. For applicants already on campus, please contact admissions@stat.wisc.edu for information on how to apply.

2. Stand-alone program students. For students who fall in to this category, it is strongly advised to include information in your statement regarding your specific domain area, ideas for collaboration within the domain field, and address why this option versus the traditional MS Statistics: Statistics.

Applicants to the MS Statistics: Applied Statistics program should have completed the following courses equivalent to the UW-Madison courses listed below:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 221</td>
<td>Calculus and Analytic Geometry 1</td>
<td>5</td>
</tr>
<tr>
<td>MATH 222</td>
<td>Calculus and Analytic Geometry 2</td>
<td>4</td>
</tr>
<tr>
<td>MATH 234</td>
<td>Calculus--Functions of Several Variables</td>
<td>4</td>
</tr>
</tbody>
</table>

Statistics

Complete one sequence below

Option 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT/F&amp;W ECOL/HORT 571 &amp; STAT/ F&amp;W ECOL/HORT 572</td>
<td>Statistical Methods for Bioscience I and Statistical Methods for Bioscience II</td>
<td></td>
</tr>
</tbody>
</table>

Option 2

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 301</td>
<td>Introduction to Statistical Methods</td>
<td></td>
</tr>
<tr>
<td>or STAT 324 or STAT 371</td>
<td>Introductory Applied Statistics for Engineers</td>
<td></td>
</tr>
<tr>
<td>STAT 303</td>
<td>R for Statistics I</td>
<td></td>
</tr>
<tr>
<td>STAT 333</td>
<td>Applied Regression Analysis</td>
<td></td>
</tr>
</tbody>
</table>

Option 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI SCI 812 &amp; POLI SCI 813</td>
<td>Introduction to Statistical Methods in Political Science and Multivariable Statistical Inference for Political Research</td>
<td></td>
</tr>
</tbody>
</table>

Option 4 or another similar introductory statistics sequence

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 restrictions related to funding.

PROGRAM INFORMATION

Students admitted to the MS Statistics: Applied Statistics option will have the opportunity to apply for teaching assistantships within the Statistics department. In many cases, students applying to the program
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.

NAMED OPTION REQUIREMENTS

MODE OF INSTRUCTION

<table>
<thead>
<tr>
<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>No</td>
<td>NO</td>
</tr>
</tbody>
</table>

Mode of Instruction Definitions

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students are able to complete a program with minimal disruptions to careers and other commitments.

Evening/Weekend: Courses meet on the UW-Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW-Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Credit Requirement</td>
<td>30 credits</td>
</tr>
<tr>
<td>Minimum Residence Credit Requirement</td>
<td>16 credits</td>
</tr>
<tr>
<td>Minimum Graduate Coursework Requirement</td>
<td>15 credits (50% of 30) must be graduate-level coursework. Details can be found in the Graduate School's policy: <a href="https://policy.wisc.edu/library/UW-1244">https://policy.wisc.edu/library/UW-1244</a> (<a href="https://policy.wisc.edu/library/UW-1244/">https://policy.wisc.edu/library/UW-1244/</a>).</td>
</tr>
<tr>
<td>Overall Graduate GPA Requirement</td>
<td>3.00 GPA required. This program follows the Graduate School's policy. <a href="https://policy.wisc.edu/library/UW-1203">https://policy.wisc.edu/library/UW-1203</a> (<a href="https://policy.wisc.edu/library/UW-1203/">https://policy.wisc.edu/library/UW-1203/</a>).</td>
</tr>
<tr>
<td>Other Grade Requirements</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Assessments and Examinations

Candidates must complete a project with an emphasis on the integration of statistics and science. A final oral examination is also required upon completion of the coursework and project.

Language Requirements

No language requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Introductory Mathematical Statistics</strong></td>
<td></td>
</tr>
<tr>
<td>Complete using one of the following sequences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT/MATH 309 &amp; STAT/MATH 310</td>
<td>Introduction to Probability and Mathematical Statistics I</td>
<td>6</td>
</tr>
<tr>
<td>STAT/MATH 311 &amp; STAT 312</td>
<td>Introduction to Theory and Methods of Mathematical Statistics I and Introduction to Probability and Mathematical Statistics II</td>
<td>6</td>
</tr>
</tbody>
</table>

Or equivalent one-year sequence

Domain Area Electives

9

Statistics Graduate Electives: 1

Statistics 600-level or above

6

Statistics 500-level or above

3

Applied Experience:

STAT 678 Introduction to Statistical Consulting

3

Research or Project (see details below)

3

Total Credits

30

1 Excluding STAT/F&W ECOL/HORT 571, STAT/F&W ECOL/HORT 572, STAT/B M 641, STAT 698, STAT 699, STAT 990 and any courses/sections reserved for MS Statistics: Data Science or Statistics-VISP students. Credits from suitable quantitative courses taught in other departments (e.g., mathematics) may be substituted.

Selecting Program Coursework

All students in the MS Statistics: Applied Statistics option will work directly with their Statistics advisor prior to initial enrollment and will need to work with their Statistics advisor, domain committee member/co-advisor, and 3rd committee member to select appropriate coursework during their first year of enrollment. This will be done by completing the MSAS course plan form (which is found in the program handbook).

Students are strongly encouraged to have all coursework pre-approved and multiple options of courses, in the case of the domain electives, to ensure that they are able to complete appropriate courses approved by their committee.

Domain coursework that covers statistical methodology is limited to a maximum of 3 credits. Independent study or internship credits cannot be included in domain coursework. Students will need to have a central theme to their domain coursework that can be selected from multiple, related departments. Here are some examples of themes and courses:
Policies set by the academic degree program can be found below.

**ECONOMICS:** ECON 652 Microeconomics, ECON 702 Macroeconomics

**Statistics:** STAT 701 Statistical Methods I, STAT 730 Advanced Probability and Statistics

**Environmental Science:** ENVS 505 Environmental Assessment, ENVS 700 Advanced Environmental Science

**Geology:** GEOG 511 Field Geology, GEOG 700 Advanced Geology

**Computer Science:** COMPSCI 401 Introduction to Computer Science, COMPSCI 701 Advanced Data Structures

**Chemistry:** CHEM 501 General Chemistry, CHEM 700 Advanced Chemistry

**Biology:** BIOL 501 Introduction to Biology, BIOL 700 Advanced Biology

**Psychology:** PSYCH 501 Introduction to Psychology, PSYCH 700 Advanced Psychology

**Epidemiology:** EPIDEM 700 Introduction to Epidemiology, EPIDEM 800 Advanced Epidemiology

**Public Health:** POPHLTH 501 Introduction to Public Health, POPHLTH 700 Advanced Public Health

**Epidemiologic Methods:** POPHLTH/SOC 797 Introduction to Epidemiology

**Advanced Methodology:** POLisci 501 Introduction to Political Science, POLisci 800 Advanced Political Science

**Plant Pathology:** PL PATH 501 Introduction to Plant Pathology, PL PATH 700 Advanced Plant Pathology

**Population Health:** POP HLTH 501 Introduction to Population Health, POP HLTH 700 Advanced Population Health

**Molecular Ecology:** GENETICS/ZOOLOGY 624 Molecular Ecology

**Conservation Biology:** F&W ECOL/ZOOLOGY 651 Conservation Biology

**Ecology:** F&W ECOL/ZOOLOGY 660 Climate Change Ecology, F&W ECOL/BOTANY/ENVIR ST/ZOOLOGY 651 Conservation Biology

**Entomology:** ENTOM 450 Basic and Applied Insect Ecology, ENTOM/GENETICS/ZOOLOGY 624 Molecular Ecology, ENTOM 701 Advanced Taxonomy

**Information:** LI S 615 Systems Analysis and Project Management for Information Professionals, LI S 711 Data Management for Information Professionals

**Plant Breeding and Plant Genetics:** HORT/AGRONOMY 501 Principles of Plant Breeding, HORT/AGRONOMY 811 Biometrical Procedures in Plant Breeding, HORT/GENETICS 550 Molecular Approaches for Potential Crop Improvement

**Plant Pathology:** PL PATH 300 Introduction to Plant Pathology, PL PATH/BOTANY/ENTOM 505 Plant-Microbe Interactions: Molecular and Ecological Aspects, PL PATH 602 Ecology, Epidemiology and Control of Plant Diseases

**Political Science:** POLisci 817 Empirical Methods of Political Inquiry, POLisci 818 Maximum Likelihood Estimation, POLisci 919 Seminar-Advanced Methodology

**Population Health:** POP HLTH 795 Principles of Population Health Sciences, POP HLTH 796 Introduction to Health Services Research, POP HLTH/SOC 797 Introduction to Epidemiology, POP HLTH 798 Epidemiologic Methods

The course plan will be reviewed by the student services coordinator prior to the requesting of the MS warrant to ensure that the correct and approved courses have been completed.

**Research or Project**
Each student must complete a project that represents an original contribution to applied statistics as the goal of this named option is to train statisticians who will work in a collaborative research environment. Examples of such contributions may include the creation and evaluation of a useful experimental design, the development and/or comparison of statistical methods, or a novel analysis of some interesting data related to their domain area. All students in the MS Statistics: Applied Statistics option will work directly with their Statistics advisor and domain committee member/co-advisor to identify an appropriate project.

The project results are to be presented in a manuscript with emphasis on the integration of statistics and science that is approved by the student’s 3-member committee. This requirement will be formalized by enrolling in at least three credits of “Research” or “Directed Study” (for example, independent study or research courses numbered 699, 799, or 999 in Statistics or in another department).

**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.

**NAMED OPTION-SPECIFIC POLICIES**

**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 towards the graduate degree credit and graduate coursework (50%) requirements. Coursework earned five or more years prior to admission to the master’s degree is not allowed to satisfy requirements.

**UW-Madison Undergraduate**

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

**UW-Madison University Special**

No credits earned while a UW-Madison University Special student are allowed to count toward the degree.

**PROBATION**
Candidates who fail to meet satisfactory progress criteria in two consecutive reviews will be dropped from the program. See the Graduate School’s Probation policy (https://policy.wisc.edu/library/UW-1217/).

**ADVISOR / COMMITTEE**

Students are required to meet with their advisor near the beginning of each semester to discuss course selection and progress. See the Graduate School’s Advisor policy (https://policy.wisc.edu/library/UW-1232/) and Committees policy. (https://policy.wisc.edu/library/UW-1201/)

**CREDITS PER TERM ALLOWED**

15 credits

**TIME LIMITS**

If the student is enrolled in a concurrent Ph.D. degree, the student should make application for both the master’s and Ph.D. degrees during the semester in which they defend. In other words, the Masters Statistics: Applied Statistics degree should be completed by the semester in which the concurrent Ph.D. degree is completed. It is expected that all enrolled students will complete the program within three years.

**GRIEVANCES AND APPEALS**

These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (https://dosostudents.wisc.edu/bias-or-hate-reporting/)
- Graduate Assistantship Policies and Procedures (https://hr.wisc.edu/policies/gapp/#grievance-procedure)
- Hostile and Intimidating Behavior Policies and Procedures (https://hr.wisc.edu/hib/)
  - Office of the Provost for Faculty and Staff Affairs (https://facstaffprovost.wisc.edu/)
  - Dean of Students Office (https://dosostudents.wisc.edu/) for all students to seek grievance assistance and support
  - Employee Assistance (http://www.eao.wisc.edu/) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)

- Employee Disability Resource Office (https://employeedisabilities.wisc.edu/) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (https://grad.wisc.edu/) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (https://compliance.wisc.edu/) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office of Student Conduct and Community Standards (https://conduct.students.wisc.edu/) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (http://www.ombuds.wisc.edu/) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (https://compliance.wisc.edu/titleix/) (for concerns about discrimination)

Students should contact the department chair or program director with questions about grievances. They may also contact the L&S Academic Divisional Associate Deans, the L&S Associate Dean for Teaching and Learning Administration, or the L&S Director of Human Resources.

OTHER
n/a

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.

PROGRAM RESOURCES

Students in the MS Statistics: Applied Statistics program are encouraged to participate in program specific professional development events and work directly, one-on-one, with advisors as well. Information about events and resources will be made available to currently enrolled students via email.

PEOPLE

Faculty:
Cecile Ane, Professor
Brian Yandell, Professor
Jun Zhu, Professor

Staff:
John Schuppel, Graduate Program Coordinator