

# STATISTICS: APPLIED STATISTICS, MS

## REQUIREMENTS

### MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum degree requirements (<https://guide.wisc.edu/graduate/#requirements>) and policies (<https://guide.wisc.edu/graduate/#policies>), in addition to the program requirements listed below.

### NAMED OPTION REQUIREMENTS

#### MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
Yes	No	No	No	No

#### Mode of Instruction Definitions

**Accelerated:** Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

**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

Requirements	Detail
Minimum Credit Requirement	30 credits
Minimum Residence Credit Requirement	16 credits
Minimum Graduate Coursework Requirement	15 credits must be graduate-level coursework. Refer to the Graduate School: Minimum Graduate Coursework (50%) Requirement 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> ).
Overall Graduate GPA Requirement	3.00 GPA required. Refer to the Graduate School: Grade Point Average (GPA) Requirement 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> ).

Other Grade Requirements n/a

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

Code	Title	Credits
<b>Introductory Mathematical Statistics</b>		
Complete using one of the following sequences		6
STAT/MATH 309 & STAT/MATH 310	Introduction to Probability and Mathematical Statistics I and Introduction to Probability and Mathematical Statistics II	
STAT 311 & STAT 312	Introduction to Theory and Methods of Mathematical Statistics I and Introduction to Theory and Methods of Mathematical Statistics II	
STAT 609 & STAT 610	Mathematical Statistics I and Introduction to Statistical Inference	
Or equivalent one-year sequence		
<b>Domain Area Electives</b>		<b>9</b>
<b>Statistics Graduate Electives<sup>1</sup></b>		
STAT courses numbered 600 or above		6
STAT courses numbered 500 or above		3
<b>Applied Experience</b>		
STAT 678	Introduction to Statistical Consulting	3
Research or Project (see details below)		3
<b>Total Credits</b>		<b>30</b>

<sup>1</sup> Excluding STAT/F&W ECOL 571, STAT/F&W ECOL 572, STAT/B M I 541, 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 (MSAS) option will work directly with their Statistics advisor prior to initial enrollment. Students will also need to work with their Statistics advisor, and their domain committee member/co-advisor to select appropriate coursework during their first year of enrollment. This will be done by completing the MSAS course plan form (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:

- **Ecology:** F&W ECOL/BOTANY/ENVIR ST/ZOOLOGY 516 Conservation Biology, F&W ECOL/ZOOLOGY 660 Climate Change Ecology, ZOOLOGY/BOTANY 725 Ecosystem Concepts
- **Entomology:** ENTOM 450 Basic and Applied Insect Ecology, ENTOM/GENETICS/ZOOLOGY 624 Molecular Ecology, ENTOM 701 Advanced Taxonomy
- **Information:** L I S 615 Systems Analysis and Project Management for Information Professionals L I S 711 Data Management for Information Professionals, L I S 751 Database Design for Information Professionals
- **Plant Breeding and Plant Genetics:** PLANTSCI 501 Principles of Plant Breeding , PLANTSCI 811 Biometrical Procedures in Plant Breeding , PLANTSCI 550 Molecular Approaches for 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:** POLI SCI 817 Empirical Methods of Political Inquiry, POLI SCI 818 Maximum Likelihood Estimation, POLI SCI 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 requesting the MS warrant to ensure that the correct and approve 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 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).