

STATISTICS: 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

Requirement 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: https://policy.wisc.edu/library/UW-1244 (https://policy.wisc.edu/library/UW-1244/).
Overall Graduate GPA Requirement	3.00 GPA required. Refer to the Graduate School: Grade Point Average (GPA) Requirement policy: https://policy.wisc.edu/library/UW-1203 (https://policy.wisc.edu/library/UW-1203/).

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

Code	Title	Credits
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Core		
Students must complete the following courses.		
STAT 849	Advanced Statistical Methods	4
STAT 998	Statistical Consulting	3

<i>Mathematical Statistics I</i>		
Students must complete one of the following courses for at least 3 credits.		
STAT 609	Mathematical Statistics I	3
or STAT/ MATH 709	Mathematical Statistics I	

<i>Mathematical Statistics II</i>		
Students must complete one of the following courses for 4 credits.		
STAT 610	Introduction to Statistical Inference	4
or STAT/ MATH 710	Mathematical Statistics II	

Methods		
Students must complete 3 credits of methods. Refer to the "Methods Courses" table for courses that satisfy this requirement.		
		3

Statistics Electives		
Students must complete 6 credits of statistics electives. Refer to the "Statistics Electives Courses" table for courses that satisfy this requirement. Students cannot apply the same course towards both the methods requirement and statistics electives requirement.		
		6

Additional Electives		
Students must complete 7 credits of additional electives to meet the minimum credit requirement. Students may apply courses from the "Statistics Electives Courses" table to satisfy this requirement. Refer to the "Additional Electives Courses" table for more course options. Note: Students cannot apply the same course towards more than one of the category requirements.		
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Total Credits		30
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Methods Courses		
Code	Title	Credits
STAT 351	Introductory Nonparametric Statistics	3
STAT 411	An Introduction to Sample Survey Theory and Methods	3
STAT 421	Applied Categorical Data Analysis	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 772	Linear Randomized Algorithms for Data Science	3
STAT 456	Applied Multivariate Analysis	3	STAT/ECON/ GEN BUS 775	Bayesian Statistics	3
STAT 461	Financial Statistics	3	STAT 780	Introduction to Quantum Data Science	3
STAT/B M I 542	Introduction to Clinical Trials I	3	STAT 801	Advanced Financial Statistics	3
STAT 575	Statistical Methods for Spatial Data	3	STAT/MATH 803	Experimental Design I	3
STAT/B M I 620	Statistics in Human Genetics	3	STAT 809	Non Parametric Statistics	3
STAT/B M I 641	Statistical Methods for Clinical Trials	3	STAT/B M I 828	Semiparametric Methods in Data Science	3
STAT/B M I 642	Statistical Methods for Epidemiology	3	STAT/MATH 833	Topics in the Theory of Probability ¹	3
STAT/B M I 643	Clinical Trial Design, Implementation, and Analysis	3	STAT 841	Nonparametric Statistics and Machine Learning Methods	3
STAT/B M I 727	Theory and Methods of Longitudinal Data Analysis	3	STAT/COMP SCI/ E C E 861	Theoretical Foundations of Machine Learning	3
STAT/B M I 741	Survival Analysis Theory and Methods	3	STAT/B M I 877	Statistical Methods for Molecular Biology	3
STAT 761	Decision Trees for Multivariate Analysis	3	STAT/E C E/ MATH 888	Topics in Mathematical Data Science ¹	1-3
STAT/B M I 768	Statistical Methods for Medical Image Analysis	3	STAT 992	Seminar ¹	1-3
STAT/ECON/ GEN BUS 775	Bayesian Statistics	3			
STAT/MATH 803	Experimental Design I	3			
STAT/B M I 828	Semiparametric Methods in Data Science	3			
STAT 841	Nonparametric Statistics and Machine Learning Methods	3			
STAT/B M I 877	Statistical Methods for Molecular Biology	3			

¹ Students may not apply multiple special topics courses with the same topic title towards their degree.

Statistics Electives Courses

Code	Title	Credits
STAT/B M I 620	Statistics in Human Genetics	3
STAT/B M I 641	Statistical Methods for Clinical Trials	3
STAT/B M I 642	Statistical Methods for Epidemiology	3
STAT/B M I 643	Clinical Trial Design, Implementation, and Analysis	3
STAT 701	Applied Time Series Analysis, Forecasting and Control I	3
STAT/COMP SCI/ I S Y E/MATH 726	Nonlinear Optimization I	3
STAT/B M I 727	Theory and Methods of Longitudinal Data Analysis	3
STAT 732	Large Sample Theory of Statistical Inference	3
STAT/MATH 733	Theory of Probability I	3
STAT/MATH 734	Theory of Probability II	3
STAT/B M I 741	Survival Analysis Theory and Methods	3
STAT 760	Multivariate Analysis I	3
STAT 761	Decision Trees for Multivariate Analysis	3
STAT/B M I 768	Statistical Methods for Medical Image Analysis	3

Additional Electives Courses

Code	Title	Credits
Statistics Courses Numbered 300-599		
Students may choose to apply up to 6 credits from the following courses.		
STAT 303	R for Statistics I	1
STAT 304	R for Statistics II	1
STAT 305	R for Statistics III	1
STAT 349	Introduction to Time Series	3
STAT 351	Introductory Nonparametric Statistics	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
STAT/COMP SCI/ MATH 475	Introduction to Combinatorics	3
STAT 479	Special Topics in Statistics ¹	1-3
STAT/COMP SCI/ I S Y E/MATH 525	Linear Optimization	3
STAT 575	Statistical Methods for Spatial Data	3

Non-Departmental Courses

Students may choose to apply up to 6 credits of graduate courses outside of Statistics (STAT), chosen in consultation with advisor.

Directed Study

Students may choose to apply up to 6 credits from the following course, chosen in consultation with advisor.

STAT 699	Directed Study	1-6
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¹ Students may not apply multiple special topics courses with the same topic title towards their degree.

Additional Elective Courses Requirement: Statistics Courses Numbered 300-599

Courses that cover the same or similar topic at the undergraduate- and graduate-level may both be used towards the MS requirements. If both courses are to be used, the undergraduate level course must be completed first for both courses to be counted. Otherwise, only the graduate level course will be counted.

Please note that this policy does not preclude students from taking just the undergraduate or just the graduate version of a topic. These combinations would include STAT 349 and STAT 701; STAT 351 and STAT 809; STAT 456 and STAT 760; STAT 443 and STAT 761; STAT 451 and STAT 615; and STAT/COMP SCI 471 and STAT 771. This will also apply to special topics courses that have similar topics between the undergraduate and graduate level.