

STATISTICS, DOCTORAL MINOR

REQUIREMENTS

GENERAL REQUIREMENTS FOR AN OPTION-A MINOR IN STATISTICS FOR GRADUATES:

Please carefully read the requirements below. Requests for further information should be addressed to the faculty member acting as minor program advisor in the Department of Statistics. **Note:** Candidates for an Option A Minor in statistics must be aware of the Graduate School "Minors" policy (<https://grad.wisc.edu/acadpolicy/#minors>).

STATISTICS MINOR OPTION FOR GRADUATES

For admission for an Option A Minor in statistics, the candidate must have had at least one year of calculus, and an introductory knowledge of statistics that is satisfactory to the department. Any of the following (or an equivalent course) is sufficient for this purpose:

Code	Title	Credits
STAT 301	Introduction to Statistical Methods	3
STAT 302	Accelerated Introduction to Statistical Methods	3
STAT 324	Introductory Applied Statistics for Engineers	3
STAT 371	Introductory Applied Statistics for the Life Sciences	3
STAT/F&W ECOL/ HORT 571	Statistical Methods for Bioscience I	4

Students must take at least four courses acceptable for the minor totaling at least 12 credits. Courses acceptable for the minor are:

Code	Title	Credits
STAT/MATH 309 & STAT/MATH 310	Introduction to Probability and Mathematical Statistics I and Introduction to Probability and Mathematical Statistics II	6
STAT/MATH 310	Introduction to Probability and Mathematical Statistics II	3
STAT 311 & STAT 312	Introduction to Theory and Methods of Mathematical Statistics I and Introduction to Theory and Methods of Mathematical Statistics II	6
STAT 312	Introduction to Theory and Methods of Mathematical Statistics II	3
STAT 327	Learning a Statistical Language	1
STAT 333	Applied Regression Analysis	3
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/M E 424	Statistical Experimental Design	3
STAT 456	Applied Multivariate Analysis	3
STAT 461	Financial Statistics	3
STAT/COMP SCI 471	Introduction to Computational Statistics	3
STAT 479	Special Topics in Statistics	1-3
STAT/B M I 542	Introduction to Clinical Trials I	3
STAT/F&W ECOL/ HORT 572	Statistical Methods for Bioscience II	4
STAT 575	Statistical Methods for Spatial Data	3
STAT 609 & STAT 610	Mathematical Statistics I and Introduction to Statistical Inference	7
STAT 610	Introduction to Statistical Inference	4
STAT/B M I 641	Statistical Methods for Clinical Trials	3
STAT 679	Special Topics in Statistics	1-3
STAT/MATH 709	Mathematical Statistics	4
STAT/MATH 710	Mathematical Statistics	4
STAT 732	Large Sample Theory of Statistical Inference	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 771	Statistical Computing	3
STAT/ECON/ GEN BUS 775	Introduction to Bayesian Decision and Control I	3
STAT/MATH 803	Experimental Design I	3
STAT 809	Non Parametric Statistics	3
STAT 811	Sample Survey Theory and Method	3
STAT 834	Empirical Processes and Semiparametric Inference	1-3
STAT 840	Statistical Model Building and Learning	3
STAT 841	Nonparametric Statistics and Machine Learning Methods	3
STAT 849	Theory and Application of Regression and Analysis of Variance I	3
STAT 850	Theory and Application of Regression and Analysis of Variance II	3
STAT 860	Estimation of Functions from Data	3
STAT/B M I 877	Statistical Methods for Molecular Biology	3
STAT 992	Seminar	1-3

A student can include at most one of 309, 609, and 709, and at most one of 310, 610, and 710. The courses taken by a particular student should depend on the student's major field or individual needs.

Besides these courses, up to three credits from the following list are acceptable for the minor (or some other course in the university of suitable statistical content **if approved** by the minor program advisor in the Department of Statistics):

Code	Title	Credits
MATH/STAT 431	Introduction to the Theory of Probability	3
MATH/COMP SCI/STAT 475	Introduction to Combinatorics	3
MATH/I SY E/OTM/STAT 632	Introduction to Stochastic Processes	3
MATH/STAT 833	Topics in the Theory of Probability	3
COMP SCI/I SY E/MATH/STAT 525	Linear Optimization	3
COMP SCI/I SY E/MATH/STAT 726	Nonlinear Optimization I	3

The student should have a program of study **approved** by the minor program advisor in the Department of Statistics and the student's major professor, **early in the student's graduate work**. The proposed program should be submitted to and approved by the minor program advisor in statistics **upon, or before, the completion of 6 credits**.

The student must achieve a 3.00 GPA in courses used to satisfy the minor requirement.

COURSES IN STATISTICS

Code	Title	Credits
Courses in Statistics		
<i>For majors in Mathematics & Statistics:</i>		
STAT/MATH 309 & STAT/MATH 310	Introduction to Probability and Mathematical Statistics I and Introduction to Probability and Mathematical Statistics II	6
<i>For majors in Engineering, & the Natural, Agricultural and Life Sciences:</i>		
STAT 311 & STAT 312	Introduction to Theory and Methods of Mathematical Statistics I and Introduction to Theory and Methods of Mathematical Statistics II	6
<i>For all majors:</i>		
STAT 327	Learning a Statistical Language	1
STAT 333	Applied Regression Analysis	3
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/M E 424	Statistical Experimental Design	3
STAT 456	Applied Multivariate Analysis	3
STAT 461	Financial Statistics	3
STAT/COMP SCI 471	Introduction to Computational Statistics	3
STAT 479	Special Topics in Statistics	1-3

STAT/B M I 542	Introduction to Clinical Trials I	3
STAT/F&W ECOL/HORT 572	Statistical Methods for Bioscience II	4
STAT 575	Statistical Methods for Spatial Data	3
STAT 609 & STAT 610	Mathematical Statistics I and Introduction to Statistical Inference ^(MS level)	7
STAT/B M I 641	Statistical Methods for Clinical Trials	3
STAT/B M I 642	Statistical Methods for Epidemiology	3
STAT 679	Special Topics in Statistics	1-3
STAT 701	Applied Time Series Analysis, Forecasting and Control I	3
STAT/MATH 709 & STAT/MATH 710	Mathematical Statistics and Mathematical Statistics ^(Ph.D. level)	8
STAT 732	Large Sample Theory of Statistical Inference	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 771	Statistical Computing	3
STAT/ECON/GEN BUS 775	Introduction to Bayesian Decision and Control I	3
STAT/MATH 803	Experimental Design I	3
STAT 809	Non Parametric Statistics	3
STAT 811	Sample Survey Theory and Method	3
STAT 834	Empirical Processes and Semiparametric Inference	1-3
STAT 840	Statistical Model Building and Learning	3
STAT 841	Nonparametric Statistics and Machine Learning Methods	3
STAT 849 & STAT 850	Theory and Application of Regression and Analysis of Variance I and Theory and Application of Regression and Analysis of Variance II	6
STAT 860	Estimation of Functions from Data	3
STAT/B M I 877	Statistical Methods for Molecular Biology	3
STAT 992	Seminar	1-3
Courses Jointly Listed in Statistics & Mathematics or Computer Science		
MATH/STAT 431	Introduction to the Theory of Probability	3
MATH/COMP SCI/STAT 475	Introduction to Combinatorics	3
MATH/I SY E/OTM/STAT 632	Introduction to Stochastic Processes	3
STAT/MATH 733	Theory of Probability I	3
MATH/STAT 734	Theory of Probability II	3

MATH/STAT 833	Topics in the Theory of Probability	3
COMP SCI/ISYE/ MATH/STAT 525	Linear Optimization	3
COMP SCI/ISYE/ MATH/STAT 726	Nonlinear Optimization I	3

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