

# Applied Statistics

## Minor in Applied Statistics - 5 Units

The minor in applied statistics is open to students in all majors. It aims to give students a background in statistical methods that will sharpen their analytic skills and help them pursue careers in a number of quantitatively oriented areas. Fields such as quality and productivity, financial analysis, marketing research, demographics, and auditing are increasingly looking for people with an understanding of statistical tools. Students considering pursuing graduate studies, whether in the social and natural sciences, business, education, or the humanities, will also find special value in the minor, as research methodologies increasingly utilize statistical techniques.

Code	Title	Units
<b>Required Courses</b>		
SOBA 201	Fundamentals of Financial Analysis	1
STAT 301Q	Business Statistics <sup>1</sup>	1
STAT 440Q	Forecasting	1
or STAT 460Q	Experimental Design and Advanced Data Analysis	
<b>Electives</b>		
Select two of the following:		2
STAT 382	Survey Research Methods	
STAT 440Q	Forecasting	
STAT 460Q	Experimental Design and Advanced Data Analysis	
STAT 482	Quality	
STAT 490	Special Topics in Decision Science	
BSAN 383	Descriptive Analytics and Visualization	
BSAN 465	Predictive Analytics	
BSAN 481	Social Media Analytics	
Total Units		5

<sup>1</sup> Students majoring outside the School of Business Administration may be able to use the required introductory statistics course in their major to meet this prerequisite requirement. See Dr. John Rasp about this possibility.

## Courses

**STAT 285. Independent Study. 0.5 or 1 Units.**

**STAT 301Q. Business Statistics. 1 Unit.**

A survey of statistical topics useful in support of managerial decision-making and focuses on estimation of parameters from one- and two normally distributed populations, statistical inference of one- and two-sample tests for means and proportions, the chi-square test, advanced regression and correlation analysis, and introduction to cluster and stratified sampling techniques. Computer applications are included. The course fosters application of knowledge to the contemporary business environment. Prerequisite: MATH 125Q or BSAN 111 or SOBA 201 and MATH 122Q.

**STAT 382. Survey Research Methods. 1 Unit.**

This course covers how to write and administer a good survey, and how to analyze and report on the resulting data. Sampling and non-sampling error. Questionnaire design and survey administration, with particular focus on potential problems that can bias survey results. Simple random, stratified, and cluster sampling. Emphasis is on practical application. Prerequisite: STAT 301Q or equivalent.

**STAT 385. Independent Study. 0.5 or 1 Units.**

**STAT 390. Special Topics in Decision Science. 1 Unit.**

**STAT 440Q. Forecasting. 1 Unit.**

This course focuses on statistical techniques useful in modeling and forecasting data, simple linear regression models, multiple regression, including model diagnostic procedures, and model selection and validation. Analysis of time series data, including Box-Jenkins techniques. Use of computer software packages in data analysis. Emphasis is on real-world applications. Prerequisite: STAT 301Q or equivalent, a Calculus course, or permission of instructor.

**STAT 460Q. Experimental Design and Advanced Data Analysis. 1 Unit.**

This course focuses on planning large-scale statistical studies and analyzing the resulting data. One- and two-sample hypothesis testing techniques, with special emphasis on underlying assumptions, nonparametric alternatives, and power analysis. Analysis of variance, including factorial experiments. Multivariate methods. Focus will be on analysis of large real-world data sets, using a major statistical software package. Prerequisite: STAT 301Q or equivalent, or permission of instructor.

**STAT 482. Quality. 1 Unit.**

This course presents the basic managerial and technical issues that are important to understand, implement and manage quality in business. Focus will be given to the global significance, strategic importance, and economic impacts of quality; various quality philosophies; employee involvement; statistical concepts relevant to designing quality in manufacturing and service organizations; process control for variable and attribute data; process capabilities; diagnosis and analysis of control charts. Case studies will be used. Prerequisite: STAT 301Q or equivalent.

**STAT 485. Independent Study. 0.5 or 1 Units.**

**STAT 490. Special Topics in Decision Science. 1 Unit.**

This course allows for in-depth study of a specialized area in statistics. Topics will vary with instructor and student interests. Prerequisite: STAT 301Q or permission of instructor.