Why the Applied Statistics Minor?

With the advent of faster and faster computers and telecommunications systems, the amount of information available through the internet, the traditional media, and other sources continues to grow exponentially. The ability to analyze and explain available information is becoming increasingly important to employers

"An understanding of statistical principles and how to apply them correctly is essential for success in today's marketplace." - John H. Phillips, Engineering Senior, Environmental Quality Office, Ford Motor Company

Statistics is a collection of principles and techniques for collecting and effectively processing information. A minor in applied statistics equips you with skills that complement fields such as Business Administration, Computer Science, Economics, Engineering, Psychology, and the Biology, Physical and Social Sciences. These skills include the ability to:

- Think critically about data collection and the collected data,
- Use appropriate graphical and numerical summaries for data
- Apply standard statistical inference procedures,
- Draw conclusions from sample data, and
- Communicate findings to a non-mathematical audience.
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Where can you use the Applied Statistics minor?

The Applied Statistics minor provides you with the necessary skills to seek solutions to society's most pressing problems. Examples include:

- predicting population growth,
- forecasting economic and business trends,
- analyzing market research data on the viability of a new product,
- evaluating new teaching methods in education,
- examining cause and effect in the behavioral sciences,
- analyzing the efficacy of a new drug treatment,
- assessing public opinions on social problems through sample surveys,
- monitoring and controlling the quality of a manufacturing process,
- quantifying the effects of environmental pollution, and
- aiding business managers in their decision-making process.

In fact, any discipline that employs the scientific method in the decision-making process can benefit from the application of statistical techniques.

A review of job listings posted on the Amstat News website (http://www.amstat.org) on April 3, 2000 shows the following areas with percentages of postings: Education (40%), Medicine (14%), Pharmaceuticals (10%), Consulting (6%), Government (7%), Business (16%), Insurance (5%), Other (2%).

What will you learn?

Not only will you receive instruction in the theory and application of statistical methods, but also you will obtain hands-on experience in the analysis of real-life data. You will improve your oral and written communication through instruction by the Statistics faculty and interaction with researchers outside of the Department of Statistics.

The Minor in Applied Statistics is a non-calculus based program that focuses on applications of statistics. The minor requires 21 hours, as follows:

All minors must complete the following statistics core courses (6 credits):
STA 215 Introductory Applied Statistics

STA 216 Intermediate Applied Statistics

All minors must complete five additional courses (at least 15 credits). Three of these must be statistics courses. Offerings include:

STA 310 Introduction to Biostatistics

STA 311 Introduction to Survey Sampling

STA 313 Probability and Stochastic Processes

STA 314 Statistical Quality Methods

STA 315 Design of Experiments

STA 317 Nonparametric Statistical Analysis

STA 318 Statistical Computing

STA 319 Statistics Project

STA 321 Applied Regression Analysis

STA 416 Multivariate Data Analysis

The other two courses may be chosen from the previous list or come from outside the statistics course listings. Examples of courses from outside the Statistics department that count towards the Applied Statistics minor include:

SS 300 Research Methods in the Social Sciences

PSY 300 Research Methods in Psychology

EGR 367 Manufacturing Processes

ECO 480 Econometrics and Forecasting

CS 262 Computer Science II

BMS 301 Introduction to Research in the Biomedical Sciences

STA 345 Statistics in Sports

Statistics Course Listings that Count Towards the Applied Minor

STA 215 Introductory Applied Statistics - A technique-oriented approach to statistical problems with emphasis on applications.
STA 216 Intermediate Applied Statistics - Project-oriented introduction to major statistical techniques using a statistical package such as SAS or SPSS.
STA 310 Introduction to Biostatistics - An introduction to the statistical methods commonly encountered in medical, biological, and health science problems using a statistical package.
STA 311 Introduction to Survey Sampling - A project-oriented overview of topics related to survey sampling.
STA 312 Probability and Statistics - Introduction to the basic concepts of probability and statistics using calculus.
STA 313 Probability and Stochastic Processes - Introduction to probability and stochastic processes for engineering applications.
STA 314 Statistical Quality Methods - Statistical techniques applicable to problems of product quality.
STA 315 Design of Experiments - Application-oriented overview of designed experiments.
STA 317 Nonparametric Statistical Analysis - Applied statistical analysis when the distributions of the populations are unknown.
STA 318 Statistical Computing - A detailed study of the advanced features of major statistical packages used in statistical computing.
STA 319 Statistics Project - Students will learn a systematic approach to statistical consulting.
STA 321 Applied Regression Analysis - Multivariate regression analysis with emphasis on application using a statistical software package.
STA 412 Mathematical Statistics I - A theoretical study of selected statistical topics.
STA 415 Mathematical Statistics II (capstone) - Continued theoretical study of statistical topics.
STA 416 Multivariate Data Analysis - Multivariate analysis with emphasis on application using a statistical package.
Click on Course List under Curriculum on the Statistics Department webpage for further information on the courses offered by the department.

FOR MORE INFORMATION WRITE OR TELEPHONE

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