



Statistics

Statistics is concerned with the development of critical reasoning skills needed in understanding our quantitative world. As a central part of a liberal arts education, statistics focuses on the process of learning: how to ask the appropriate question, how to collect information effectively and efficiently, how to summarize information, and how to draw inferences and understand their limitations.

As a crucial aid for planning and analyzing, statistics provides concentrators with a solid background that may be applied in the social, behavioral, natural, and health sciences as well as in humanistic research. This guide discusses some of the characteristic skills developed by statistics concentrators and highlights a variety of occupational paths open to them.

SKILLS & ABILITIES

Statistics majors strengthen their abilities in collecting, summarizing, and evaluating information. They learn to analyze the need for information, design a method for acquiring information, and interpret the resulting data. Concentrators bring with them a foundation in analysis and

organization that serves them well in a variety of occupational settings. For example, public opinion researchers, biostatisticians, and quality control engineers all depend on their ability to evaluate the reliability of a body of data. A sampling of representative skills and abilities follows.

Analysis

- Applying methods to problems
- Projecting from data
- Reasoning critically
- Categorizing data
- Developing theories
- Designing systems for processing data

Quantitative Techniques

- Programming
- Mathematical modeling
- Designing questionnaires
- Developing sample forms
- Analyzing mathematically
- Operating computer simulations
- Applying statistical packages
- Interpreting data from tables/charts

Research

- Writing reports
- Evaluating collected data
- Identifying areas for research
- Determining cost/benefit offsets
- Presenting alternative explanations
- Designing charts/graphs
- Translating theory into research plans

Problem Solving

- Formulating problems
- Applying logic to problems
- Assessing needs
- Distinguishing relevant/extraneous information

OCCUPATIONAL OPPORTUNITIES

Statistics majors are prepared to apply their knowledge to a wide range of occupations. The following is a selected list of occupations compiled from information on University of Michigan graduates and from national data. For

some of the occupations listed below, such as actuary, additional skills or related training are desirable. Graduate study is generally required for those occupations marked with a • on the following list.

Government

- Federal Reserve Bank economist
- State disability insurance analyst
- Agricultural statistician
- Social Security claims reviewer
- Community injury control specialist, Indian Health Services
- Legislative researcher
- Employment specialist
- Census Bureau statistical analyst

Research/Education

- Biostatistician
- Professor
- Statistical software designer
- College student services administrator
- Documents librarian
- Simulation/modeling laboratory manager
- Teacher
- Demographer

Business/Industry

- Precision quality control officer
- Actuary
- Production manager
- Transportation system statistician
- Investment manager
- Opinion pollster
- Sales forecaster
- Gaming statistician
- Operations research analyst

Health Services

- Hospital risk management office manager
- Disaster planning coordinator
- Experimental drug program statistician
- Health insurance rate analyst
- Physician
- Science/health writer/reporter
- Lobbyist, disease-related association/society

CURRICULUM REQUIREMENTS

The concentration requires a minimum of 30 credits including advanced level courses in applied and theoretical statistics, computational statistics, and probability. The

department offers a range of electives in areas such as biostatistics and survey analysis. Consult the LS&A Bulletin for additional information.

FOR MORE INFORMATION

For more information about choosing a career, about graduate/professional school, internships, or job descriptions; and for library resources:

The Career Center
3200 Student Activities Building
(734) 764-7460
<http://www.careercenter.umich.edu>

American Statistical Association
<http://www.amstat.org/careers/>

For information about choosing a major and about concentration and degree requirements:

Statistics Department
439 West Hall
(734) 763-3519

LS&A Academic Advising Center
1255 Angell Hall
(734) 764-0332