FACULTY OF SCIENCE

STATISTICS

Statistics deals with the collection, analysis, presentation, and interpretation of numerical data.

Today's society is awash with information and data; the Internet has the capacity to flood us with raw information. Politicians, interest groups, and the media cite numbers, ratios, and percentages to bolster points of view. Whose numbers can we believe? Does a certain pesticide cause cancer? Is the economy really up? Is that new medical treatment effective? Statistics offers the tools to answer these kinds of questions. It has an almost limitless scope of application.

Many people use statistics poorly. Our courses in statistics give students the background to use statistics carefully and correctly, with integrity and confidence. Theoretical courses emphasize the development of statistical methods, while our applied courses focus on applying statistical methods to interpreting data. Students will also learn how to use computer software to analyze large data sets.

This program leads to either a **Bachelor of Science degree (3-year or 4-year)** or a **Bachelor of Arts degree (3-year or 4-year) with a major in statistics or a 4-year Bachelor of Science or Arts in Statistics, Data Science Stream.** Students taking a degree in another major may choose to enhance their degree by adding a **minor** in statistics as a secondary area of interest.

By popular demand we now offer a Statistics degree with a Data Science Stream. Learn more about this program on this factsheet: Statistics-Data Science

SAMPLE CAREERS

Graduates apply their expertise in data science, biostatistics, medicine, government, Cancer Care, agricultural research, health care research, quality control and actuarial work. They work with specialists such as economists, biologists, chemists, and doctors to assist in the design of experiments and sampling plans and the analysis of research data. Most statisticians find employment with private corporations or government departments and agencies. Statistics Canada representatives visit our campus regularly looking for statistics graduates to fill highly desirable jobs.

SAMPLE COURSES

Statistical Analysis I and II are first-year courses that introduce students to statistical analysis and its applications. These courses include elements of probability, statistical inference (hypothesis testing and confidence intervals) on one and two samples, analysis of variance, contingency tables, and regression analysis.

Statistical Computing I is a second-year course that provides students with computing skills for statistical analysis of data typically arising in data sciences such as health and medical research, as well as in business. Students gather experience in data manipulation, data management, and data visualization via graphical techniques using statistical packages such as R and learn programming skills for efficient use of each of the software packages.

Statistics for Epidemiology focuses on the design and statistical analysis of data typically gathered from epidemiological studies. Epidemiologists are concerned with identifying risk factors for diseases. In practice, epidemiological data presents statistical challenges, such as predicting the disease status of members of a population from a set of risk factors. Students will learn to analyze epidemiological data using statistical software such as R.

MORE SAMPLE COURSES

- Elementary Biological Statistics I & II
- Statistical Computing I & II
- Business and Management Statistics
- Survey Sampling I & II

- Applied Regression Analysis
- Analysis of Variance & Covariance
- Time Series & Forecasting
- Statistical Learning

SAMPLE FIRST YEAR

STAT-1301(3) Statistical Analysis I *and* **STAT-1302(3) Statistical Analysis II** OR
STAT-1501(3) Elementary Biological Statistics I *and* **STAT-2001(3) Elementary Biological Statistics II** OR
STAT-1401(3) Statistical Analysis I for Business and Economics
MATH-1103 (3) Introduction to Calculus I AND MATH-1104(3) Introduction to Calculus II
MATH-1201(3) Linear Algebra I
RHET-1103(3) Academic Writing: Science or any other section of Academic Writing (if required)
12 - 15 credit hours Electives

NOTE: This sample first year is representative of the courses you may take. For many of our programs, you may choose another set of courses and still be well on your way to a degree. Also, for most programs you do not have to take 30 credit hours (five full courses) in your first year.

"I've had so much encouragement from my professors. I think there is an effort to encourage women in mathematics and science, which is important. The message has been that I can do anything I put my mind to."

- Erica Moodie (BA & gold medallist in Statistics at UWinnipeg), Professor, Department of Epidemiology, Biostatistics & Occupational Health, McGill University

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REQUIRED HIGH SCHOOL COURSES

Students must meet The University of Winnipeg's general admission requirements, and must also have **Pre-Calculus Mathematics 40S or Applied Mathematics 40S**. Students lacking the prerequisite Pre-Calculus Mathematics 40S or Applied Mathematics 40S should enroll in MATH-0041 AND MATH-0042, Mathematics Access I and II, which together serve as a prerequisite replacement for Pre-Calculus Mathematics 40S.

HOW TO APPLY

For details on application requirements, deadlines, and to apply online, please visit: **uwinnipeg.ca/apply**

For more information contact a student recruitment officer at welcome@uwinnipeg.ca or 204.786.9844.

CONTACT US

Department of Mathematics & Statistics
P 204.786.9834
E mathstats@uwinnipeg.ca
W **uwinnipeg.ca/mathstats**

In any case where the Academic Calendar and this factsheet differ, the current Calendar takes precedence.