



FACULTY OF SCIENCE

STATISTICS: DATA SCIENCE

Data scientists analyze, interpret, and model data using statistics, math, and computer science. They also interpret the results to predict future trends and propose action plans.

By popular demand, the Department of Mathematics and Statistics now offers **BSc 4-year** and **BA 4-year** degrees in Statistics (Data Science Stream). This stream involves a combination of statistics, mathematics and applied computer science courses. Learn more about this exciting new program here: [Data Science Program | Mathematics and Statistics | The University of Winnipeg \(uwinnipeg.ca\)](https://uwinnipeg.ca/data-science-program)

In today's market, a data scientist position is the hottest job and qualified candidates are in high demand in private and public sectors. CareerCast.com ranked "Data Scientist" as the best career in 2019. (They rank jobs according to four core criteria: environment, income, outlook and stress.)

In the program at UWinnipeg, students acquire the essential skills and knowledge to work in different sectors as a data scientist or data analyst. Students learn how to analyze huge and unstructured data, interpret results, and contribute significantly to the decision-making and strategic planning of an organization.

SAMPLE CAREERS

Data scientists are in high demand, earn high salaries, and have satisfying careers. A wide range of career options exist in medicine, business, government, public health, and marketing.

Graduates apply their expertise in data science to 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 data scientists find employment with private corporations or government departments and agencies. Statistics Canada representatives visit our campus regularly looking for statistics and data scientist 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.

Introduction to Statistical Computing 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 gain experience in data manipulation, data management, and data visualization via graphical techniques using a statistical package (e.g. R) and learn programming skills for efficient use of each of this software package.

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 and II
- Applied Regression Analysis
- 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 of Biostatistics at McGill University, and Canada Research Chair (Tier 1) in Statistical Methods for Precision Medicine.

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

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In any case where the University’s Academic Calendar and this fact sheet differ; the current Calendar takes precedence.