Creation date: June 20, 2025
Revision date:

SAMPLE COURSE OUTLINE

Course Code, Number, and Title:

STAT 1100: Introduction to Data Science

Course Format:
[Course format may vary by instructor. The typical course format would be:]

Lecture 3.0 h + Seminar 0.0 h + Lab. 1.0 h

Credits: 3.0 **Transfer Credit:** For information, visit bctransferguide.ca

Course Description, Prerequisites, Corequisites:

Our next generation lives in a data-driven society and needs to be equipped with the knowledge and skills to keep up with the rapidly evolving digital world. In this hands-on introductory course, students learn about and practice data ethics, data wrangling, data classification, regression, clustering, supervised learning, and data visualization. Course assessments require students to apply data science techniques and workflows to real-world situations using industry-standard software.

The choice of programming language will be decided by the instructor. Contact the Department of Statistics & Data Analytics (statadvisor@langara.ca) for more details.

Note: It is recommended that students have access to a current laptop computer. More details of the specifications will be discussed on the first day of class.

Prerequisites One of the following: A minimum "C+" grade in Precalculus 12; a minimum "C-" grade in MATH 1152; or MDT 075. Prerequisites are valid for only three years.

Learning Outcomes:

Upon successful completion of this course, students will be able to…

- Identify the data-related issues in biases and privacy.
- Read data using computation from various sources (local and remote plain text files, spreadsheets, and databases).
- Wrangle data from their original format into a fit-for-purpose format.
- Identify the most common types of research/statistical questions and map them to the appropriate type of data analysis.
- Create, and interpret, meaningful tables from wrangled data.
- Create, and interpret, impactful figures from wrangled data.
- Collaborate with others using version control.
- Apply and interpret the output of simple classifier and regression models.

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- Make and evaluate predictions using a simple classifier and a regression model.
- Apply, and interpret the output of, a simple clustering algorithm.
- Use appropriate metrics to evaluate the performance of supervised learning models in regression and classification problems.
- Fine-tune model parameters to improve performance
- Identify the concepts of overfitting and underfitting.
- Use workflows and communication strategies that are sensible, clear, reproducible, and shareable.

Instructor(s): TBA
Office: TBA **Phone: (604) 323-XXXX**
Office Hours: TBA **Email: TBA**

Textbook and Course Materials:
[Textbook selection may vary by instructor. An example of texts and course materials for this course might be:]

For textbook information, visit https://mycampusstore.langara.bc.ca/buy_courselisting.asp?selTerm=3|8

Note: *This course may use an electronic (online) instructional resource that is located outside of Canada for mandatory graded class work. You may be required to enter personal information, such as your name and email address, to log in to this resource. This means that your personal information could be stored on servers located outside of Canada and may be accessed by U.S. authorities, subject to federal laws. Where possible, you may log in with an email pseudonym as long as you provide the pseudonym to me so I can identify you when reviewing your class work.*

Assessments and Weighting:
Final Exam 30%
Other Assessments
[An example of other assessments might be:]

Midterm Exam 30%
Assignments 10%
Lab Work 10%
Project 20%

Grading System:
Specific grading schemes will be detailed in each course section outline.

Information unavailable, please consult Department for details.

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Topics Covered:
[Topics covered may vary by instructor. An example of topics covered might be:]

Topics include:
- Mathematics Review
- Introduction to Data Ethics
- Data and Data Wrangling
- Data Classification
- Regression
- Clustering
- Supervised Learning
- Data Visualization

As a student at Langara, you are responsible for familiarizing yourself and complying with the following policies:

College Policies:

E1003 - Student Code of Conduct
F1004 - Code of Academic Conduct
E2008 - Academic Standing - Academic Probation and Academic Suspension
E2006 - Appeal of Final Grade
F1002 - Concerns about Instruction
E2011 - Withdrawal from Courses

Departmental/Course Policies:

Information unavailable, please consult Department for details.

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