



THE UNIVERSITY OF BRITISH COLUMBIA

Department of Computer Science, Mathematics, Physics and Statistics  
Okanagan Campus

## DATA 101-101 Making Predictions with Data W2022 – T-2

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**Instructor:** Lengyi Spectrum Han

**E-mail:** lengyi.han@ubc.ca

**Classroom Schedule:** Tuesday and Thursday 9:30- 11:00

**Location:** EME 0050

**Office Hours:** TBA

**Course Website:** Canvas

**TA Name:** Alex Mao  
Yao Chang

**TA E-mail:** alexmau@mail.ubc.ca  
[fujiac2001@gmail.com](mailto:fujiac2001@gmail.com)

### Calendar Course Description

#### DATA101 (3) Making Predictions with Data

Introduction to the tech 050niques and software for handling real-world data. Topics include R language, data cleaning, visualization, basic modelling, and prediction making. [3-1-0]

### Course Overview

This course will introduce students to the basic tools and concepts of data science using R as its platform. After covering the basic syntax of R, graphical and computational methods for visualizing data and making predictions will be introduced. Regression and tree-based models will be the main focus Elements of programming and scripting will also be introduced as a foundation for more advanced data science education.

### Learning Outcomes:

Upon completion of this course, the student will be

- familiar with R
- acquainted with the basic concept of data science.
- able to manipulate data, visualize the data and program in R
- able to build a regression model and make predictions.

### Materials Required:

**Required Textbook:** A First Course in Statistical Programming with R, 3rd edition (2021), by W. Braun and D. Murdoch

**Suggested Textbook:** Simple and Multiple Regression with R. Supplementary material which will be posted on canvas.



## Tentative Course Schedule and Required Reading:

Weeks	Topics	Required Readings
1 week	Introduction	Chapter 1
2 weeks	Basic syntax	Chapter 2
2 weeks	Plotting graphics	Chapter 3
3 weeks	Programming	Chapter 4
1 week	Data frames	Chapter 5
3 weeks	Simulation & Distributions	Chapter 6
1 week	Prediction	Supplementary material: regression & tree based modelling

## Evaluation

**Quizzes:** There will be 5 quizzes online. Each quiz will be open until one hour before the final exam. You can try the quizzes many times you want and we will use the highest mark for you. Each quiz will be open in the week scheduled below.

Quiz 1	In the week of Jan 23
Quiz 2	In the week of Feb 6
Quiz 3	In the week of Feb 20
Quiz 4	In the week of Mar 13
Quiz 5	In the week of Mar 27

**Midterm Exam:** The midterm exam will be 80 minutes in lecture class with closed book, no cheat sheet and a calculator (but not graphing calculator).

Test	Date
Midterm exam	In the class on Feb 28



**Assignments:** There will be 5 assignments. Posting time will be adjusted based on the actual pace of the course. They will be scheduled tentatively as below:

Assignment	Post
Assignment 1	In the week of Jan 16
Assignment 2	In the week of Jan 30
Assignment 3	In the week of Feb 13
Assignment 4	In the week of Mar 13
Assignment 5	In the week of Mar 27

**Final Exam:** There will be one 2.5-hour-long final exam in-person. You will be allowed one two-sided page of a cheat sheet including formula, your notes etc. The exam time will be announced by the registrar's office.

**Evaluation Weights:**

Assignments (5)	25%
Quizzes (5)	10%
Tests (2)	25%
Final Exam	40%

Final grades will be based on the evaluations listed above if you pass your final exam (50% final exam) and the final grade will be assigned according to the standardized grading system outlined in the UBC Okanagan Calendar.

**Late Policy:**

Late assignments will not be accepted, unless you have communicated with me ahead of time. However, if you are not able to contact me ahead of time but have a reasonable exception, please contact me as soon as possible so we can discuss alternative solutions.

**Passing Criteria:**

In order to pass the course:

- Students MUST pass the final exam (that is, a grade of 50% or more )

**Expectations:**

- Attend all lectures and Labs, as long as you don't have any unexpected issues.
- Spend at least 2-3 hours on review each week.
- Come to the office hour to solve the questions you have.
- Working in a study group is encouraged.
- If you miss any classes it will be your own responsibility to catch up.

**GRADING PRACTICES**

Faculties, departments, and schools reserve the right to scale grades in order to maintain equity among sections and conformity to University, faculty, department, or school norms. Students should therefore note that an unofficial grade given by an instructor might be changed by the faculty, department, or school. Grades are not official until they appear on a student's academic record.

<http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,41,90,1014>

**FINAL EXAMINATIONS**

The examination period for W2-2022 is Monday April 17th, 2023, to Friday April 28th, 2023. Except in the case of examination clashes and hardships (three or more formal examinations scheduled within a 24-hour period) or unforeseen events, students will be permitted to apply for out-of-time final examinations only if they are representing the University, the province, or the country in a competition or performance; serving in the Canadian military; observing a religious rite; working to support themselves or their family; or caring for a family member. Unforeseen events include

(but may not be limited to) the following: ill health or other personal challenges that arise during a term and changes in the requirements of an ongoing job.

Further information on Academic Concession can be found under Policies and Regulation in the Okanagan Academic Calendar <http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,48,0,0>

**ACADEMIC INTEGRITY**

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or



cheating

may

result in a mark of zero on the assignment or exam and more serious consequences may apply if the

matter is referred to the President's Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences.

A more detailed description of academic integrity, including the University's policies and procedures, may be found in the Academic Calendar at: <http://okanagan.students.ubc.ca/calendar/index.cfm?tree=3,54,111,0>.

## COOPERATION VS. CHEATING

Working with others on assignments is a good way to learn the material and we encourage it. However, there are limits to the degree of cooperation that we will permit. Any level of cooperation beyond what is permitted is considered cheating.

When working on programming assignments, you must work only with others whose understanding of the material is approximately equal to yours. In this situation, working together to find a good approach for solving a programming problem is cooperation; listening while someone dictates a solution is cheating. You must limit collaboration to a high-level discussion of solution strategies, and stop short of actually writing down a group answer. Anything that you hand in, whether it is a written problem or a computer program, must be written by you, from scratch, in your own words. If you base your solution on any other written solution, you are cheating. If you provide your solution for others to use, you are also cheating.

## COPYRIGHT DISCLAIMER

Diagrams and figures included in lecture presentations adhere to Copyright Guidelines for UBC Faculty, Staff and Students <http://copyright.ubc.ca/requirements/copyright-guidelines/> and UBC Fair Dealing Requirements for Faculty and Staff <http://copyright.ubc.ca/requirements/fair-dealing/>. Some of these figures and images are subject to copyright and will not be posted to Canvas. All material uploaded to Canvas that contain diagrams and figures are used with permission of the publisher; are in the public domain; are licensed by Creative Commons; meet the permitted terms of use of UBC's library license agreements for electronic items; and/or adhere to the UBC Fair Dealing Requirements for Faculty and Staff. Access to the Canvas course site is limited to students currently registered in this course. Under no circumstance are students permitted to provide any other person with means to access this material. Anyone violating these restrictions may be subject to legal action. Permission to electronically record any course materials must be granted by the instructor. Distribution of this material to a third party is forbidden.

## GRIEVANCES AND COMPLAINTS PROCEDURES

A student who has a complaint related to this course should follow the procedures summarized below:

- The student should attempt to resolve the matter with the instructor first. Students may talk first to someone other
- than the instructor if they do not feel, for whatever reason, that they can directly approach the instructor.
- If the complaint is not resolved to the student's satisfaction, the student should e-mail the Associate Head, Dr. Sylvie Desjardins at [sylvie.desjardins@ubc.ca](mailto:sylvie.desjardins@ubc.ca) or the Department Head, Dr. John Braun at [cmpps.depthhead@ubc.ca](mailto:cmpps.depthhead@ubc.ca)

## STUDENT SERVICE RESOURCES

### Disability Resource Centre

The Disability Resource Centre ensures educational equity for students with disabilities and chronic medical conditions. If you are disabled, have an injury or illness and require academic accommodations to meet the course objectives, please contact Earlene Roberts, the Diversity Advisor for the Disability Resource Centre located in the University Centre building (UNC 215).



UNC 215 250.807.9263

email: [earllene.roberts@ubc.ca](mailto:earllene.roberts@ubc.ca)

Web: [www.students.ok.ubc.ca/drc](http://www.students.ok.ubc.ca/drc)

### **Equity and Inclusion Office**

Through leadership, vision, and collaborative action, the Equity & Inclusion Office (EIO) develops action strategies in support of efforts to embed equity and inclusion in the daily operations across the campus. The EIO provides education and training from cultivating respectful, inclusive spaces and communities to understanding unconscious/implicit bias and its operation within campus environments. UBC Policy 3 prohibits discrimination and harassment on the basis of BC's Human Rights Code. If you require assistance related to an issue of equity, educational programs, discrimination or harassment please contact the EIO.

UNC 325H 250.807.9291

email: [equity.ubco@ubc.ca](mailto:equity.ubco@ubc.ca)

Web: [www.equity.ok.ubc.ca](http://www.equity.ok.ubc.ca)

### **Office of the Ombudsperson for Students**

The Office of the Ombudsperson for Students is an independent, confidential and impartial resource to ensure students are treated fairly. The Ombuds Office helps students navigate campus-related fairness concerns. They work with UBC community members individually and at the systemic level to ensure students are treated fairly and can learn, work and live in a fair, equitable and respectful environment. Ombuds helps students gain clarity on UBC policies and procedures, explore options, identify next steps, recommend resources, plan strategies and receive objective feedback to promote constructive problem solving. If you require assistance, please feel free to reach out for more information or to arrange an appointment.

UNC 328 250.807.9818

email: [ombuds.office.ok@ubc.ca](mailto:ombuds.office.ok@ubc.ca)

Web: [www.ombudsoffice.ubc.ca](http://www.ombudsoffice.ubc.ca)

### **Sexual Violence Prevention and Response Office (SVPRO)**

A safe and confidential place for UBC students, staff and faculty who have experienced sexual violence regardless of when or where it took place. Just want to talk? We are here to listen and help you explore your options. We can help you find a safe place to stay, explain your reporting options (UBC or police), accompany you to the hospital, or support you with academic accommodations. You have the right to choose what happens next. We support your decision, whatever you decide.

Visit [svpro.ok.ubc.ca](http://svpro.ok.ubc.ca) or call us at 250-807-9640.

### **Independent Investigations Office (IIO)**

If you or someone you know has experienced sexual assault or some other form of sexual misconduct by a UBC community member and you want the Independent Investigations Office (IIO) at UBC to investigate, please contact the IIO. Investigations are conducted in a trauma informed, confidential and respectful manner in accordance with the principles of procedural fairness.

You can report your experience directly to the IIO by calling 604-827-2060.



Web:

<https://investigationsoffice.ubc.ca/>

E-mail: [director.of.investigations@ubc.ca](mailto:director.of.investigations@ubc.ca)

### **Student Learning Hub**

The Student Learning Hub (LIB 237) is your go-to resource for free math, science, writing, and language learning support. The Hub welcomes undergraduate students from all disciplines and year levels to access a range of supports that include tutoring in math, sciences, languages, and writing, as well as help with study skills and learning strategies.

For more information, please visit the Hub's website (<https://students.ok.ubc.ca/student-learning-hub/>) or call 250-807-9185.

### **Student Wellness**

At UBC Okanagan health services to students are provided by Student Wellness. Nurses, physicians and counsellors provide health care and counselling related to physical health, emotional/mental health and sexual/reproductive health concerns. As well, health promotion, education and research activities are provided to the campus community. If you require assistance with your health, please contact Student Wellness for more information or to book an appointment.

UNC 337 250.807.9270

email: [healthwellness.okanagan@ubc.ca](mailto:healthwellness.okanagan@ubc.ca)

Web: [www.students.ok.ubc.ca/health-wellness](http://www.students.ok.ubc.ca/health-wellness)

### **SAFEWALK**

Don't want to walk alone at night? Not too sure how to get somewhere on campus? Call Safewalk at 250-807-8076.

For more information, see: [www.security.ok.ubc.ca](http://www.security.ok.ubc.ca)