



THE UNIVERSITY OF BRITISH COLUMBIA

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

COSC 301 – 101 – INTRODUCTION TO DATA ANALYTICS

2022W TERM -1 (SEPT. 6TH 2022 – DEC. 8TH 2022)

INSTRUCTOR:

Name: Dr. Firas Moosvi

Contact: firas.moosvi@ubc.ca (Preferred)

Office Location: SCI 393

Office Hours: Tuesdays and Thursdays after class (5:00 – 5:30 PM)

Class Location: L 305

SCHEDULE:

Lecture: Tuesday and Thursday

Hours: 3:30pm – 5:00pm

LABORATORY COORDINATOR/INSTRUCTOR/TA:

L2A:	Mavis (Zhengua) Chen	Friday	4:00pm – 6:00pm
L2B:	Mavis (Zhengua) Chen	Friday	8:00am – 10:00am
L2C:	Mavis (Zhengua) Chen	Wednesday	10:00am – 12:00pm
L2D:	Ali Ladha	Monday	10:00am – 12:00pm
L2E:	Ali Ladha	Wednesday	2:00pm – 4:00pm
L2F:	Ali Ladha	Friday	2:00pm – 4:00pm

All TAs can be contacted on Ed Discussion.

TEXTBOOK AND OTHER REFERENCE MATERIAL:

There is no textbook required for this course, all course material will be linked through the course website, and is free and open source.



COURSE DESCRIPTION:

Course Website:

Course materials are available on [Canvas](#), and on the [course website](#).

Calendar Course Description:

Techniques for computation, analysis, and visualization of data using software. Manipulation of small and large data sets. Automation using scripting. Real-world applications from life sciences, physical sciences, economics, engineering, or psychology. No prior computing background is required. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501.

Prerequisite: Either (a) third-year standing, or (b) one of COSC 111 or COSC 122

Equivalency: DATA 301.

Course Overview:

This course is one of my favourite courses to teach at UBCO! It was initially created by Dr. Ramon Lawrence, and has since been updated by various folks including Dr. Patricia Lasserre, Dr. Firas Moosvi, Dr. Irene Vrbik, Dr. Scott Fazackerley, and others. It is a fantastic introduction to the field of Data Science and in this one course, you will be equipped to handle most of the common Data wrangling, processing, and analysis tasks. You will also be introduced to a variety of tools (tech stack) that are common in the industry, and we hope you use this course as a spring board to launch your interest in Data Science! Come for the data, stay for the fun! In this course you will be able to explore datasets that are of interest to you and also do some common processing tasks towards a data analysis.

Learning Outcomes:

1. Understand data representation formats and techniques and how to use them.
2. Work with large datasets and learn to manipulate them programmatically.
3. Experience using a wide-range of data analytics tools including Excel, Git, Python, Pandas, Tableau, and other visualization packages and software.
4. Develop a computational thinking approach to problem-solving and use programs to solve data tasks.

Course Format: **In-Person**

LATE POLICY:

- Labs, project milestones, and learning logs have a 48-hour no-penalty grace period.
- Learning Logs later than 48 hours cannot be accepted.
- Unless prior arrangements have been made, labs and project milestones will not be accepted after the 48-hour grace period.

PASSING CRITERIA:

All students must satisfy ALL conditions to pass the course:

1. Obtain an average grade of at least 50% on the Labs, with no more than 3 missed labs,
2. Obtain an average grade of at least 50% on the Test and Exam components together,



3. Obtain a grade of at least 50% on the course Project,
4. Obtain a grade of at least 40% on the Final Exam,
5. Obtain a grade of at least 50% on the whole course.

If students do not satisfy the appropriate requirements, the student will be assigned the lower of their earned course grade or, a maximum overall grade of 45% in the course.

TENTATIVE COURSE SCHEDULE AND REQUIRED READINGS:

See the updated schedule on the [course website](#).

EVALUATION CRITERIA AND GRADING:

Learning Logs	10%
Project	25%
Labs	30%
Tests	20%
Final Exam	15%

Final grades will be based on the evaluations listed above and the final grade will be assigned according to the standardized grading system outlined in the UBC Okanagan Calendar.

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 W2022 is **Sunday December 11th, 2022, to Thursday December 22nd, 2022**. 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. Yves Lucet at yves.lucet@ubc.ca or the Department Head, Dr. John Braun at cmps.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 Earllene 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

Web: 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

Web: 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

Web: 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 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://investigationoffice.ubc.ca/>

E-mail: 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

Web: 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