

# Course Outline

<b>Course Code</b>	<b>RSM 371 H1 F</b>
<b>Course Name</b>	Data and Information Management for Business Analytics
<b>Term, Year</b>	<b>Fall, 2024</b>
<b>Course Meets</b>	Mon, 13:00 – 15:00
<b>Web page URL</b>	<a href="https://q.utoronto.ca">https://q.utoronto.ca</a> Make sure you <b>always</b> read the online Announcements!

## Instructor Details

Name	Email	Phone	Office Hours
Gerhard Trippen	<a href="mailto:Gerhard.Trippen@rotman.utoronto.ca">Gerhard.Trippen@rotman.utoronto.ca</a> (Please start subject with <b>RSM371</b> )	416-978-0383	RT406, Mon, 15:00-17:00 by appointment only and other times by appointment.
----- TA:	<b>Suman Somaiah Mukkatira jeevan</b> <a href="mailto:suman.jeevan@rotman.utoronto.ca">suman.jeevan@rotman.utoronto.ca</a>		

## Course Description

This course is for those that want to gain the foundational skills of working with data. 80% of business analysis efforts are spent on finding, extracting, cleaning, and visualizing data prior to performing the actual data analysis. Whether or not you are considering a career in data sciences, this course introduces the essential skills for working with data that can apply to careers in information technology, business, finance, marketing analysis, or data sciences. This is a hands-on course focused on developing practical skills across a broad range of the most common data management and analysis concepts, such as relational database design and its implementation with SQL and Python, programming fundamentals, data manipulation and data cleaning and preparation, and data analysis and visualization techniques using Python.

## Learning Outcomes

The objectives of this course are:

- Apply the principles of Database Management System Design concepts from analysis to full implementation.
- Create Structured Query Language (SQL) queries appropriate for data extraction and summarization tasks.
- Demonstrate the ability to prepare, explore and validate data for business analysis.
- Apply advanced data analysis techniques towards the development of decision-making tools.
- Develop Business Intelligence Dashboards to support business decision-making.

## Course Prerequisites

CSC108H1

# Course Materials

## Required Readings

Reading Package	DataCamp	Required	<a href="https://www.datacamp.com/">https://www.datacamp.com/</a>
Textbook	<a href="#">SQL [electronic resource] : a beginner's guide /</a> Robert Sheldon. New York : McGraw-Hill/Osborne, c2003. 2nd ed.	Optional	UofT Library
Textbook	<a href="#">SQL [electronic resource] : clearly explained /</a> Jan L. Harrington. Amsterdam ; New York : Morgan kaufmann Publishers, c2003. 2nd ed.	Optional	UofT Library
Textbook	<a href="#">Beginning SQL /</a> John Kauffman, Brian Matsik, Kevin Spencer ; with Ian Herbert, Julian Skinner, Sakhr Youness. Birmingham, UK ; Chicago : Wrox Press, c2001.	Optional	UofT Library
Textbook	A Guide to SQL Philip J. Pratt, Mary Z. Last. Publisher: Cengage Learning	Optional	Online
Textbook	<a href="#">Python Data Analytics [electronic resource] : With Pandas, NumPy, and Matplotlib /</a> by Fabio Nelli. Berkeley, CA : Apress : Imprint: Apress, 2018. 2nd ed.	Optional	UofT Library
Textbook	<a href="#">Python for data analysis : data wrangling with pandas, NumPy, and IPython /</a> Wes McKinney. Sebastopol, CA : O'Reilly Media, Inc., 2017. Second edition. [sic]	Optional	UofT Library
Textbook	<a href="#">Foundations for analytics with Python [electronic resource] /</a> Clinton W. Brownley. Sebastopol, CA : O'Reilly Media, Inc., 2016. First edition.	Optional	UofT Library
Textbook	<a href="#">Pandas for everyone : Python data analysis /</a> Daniel Y. Chen. Boston : Addison-Wesley, [2018]	Optional	UofT Library
Textbook	The Book of Dash Build Dashboards with Python and Plotly Adam Schroeder; Christian Mayer; Ann Marie Ward No Starch Press (RHPS)	Optional	Library
Textbook	Interactive Dashboards and Data Apps with Plotly and Dash 1st Edition Elias Dabbas Packt Publishing	Optional	Library

## Electronic Course Materials

This course will be using the following electronic course materials:

DataCamp: <https://www.datacamp.com/>

Anaconda: <https://www.anaconda.com/>

These materials will cost a total of **\$0.00**. The use of these materials complies with all University of Toronto policies which govern fees for course materials.

## Evaluation and Grades

Grades are a measure of the knowledge and skills developed by a student within individual courses. Each student will receive a grade on the basis of how well they have command of the course materials, skills and learning objectives of the course.

Work	Percentage of grade	Due Date
Individual Coding Assignments	10%	Ongoing
Group Assignment 1	15%	2024-10-25 23:59
Group Assignment 2	15%	2024-11-22 23:59
Group Assignment 3	10%	2024-12-06 23:59
Final Exam	50%	TBD

## Course Format and Expectations

We will be using Jupyter Notebook / DataCamp for data analysis exercises throughout the course. All students will receive a **free** DataCamp subscription for six months, with access to all the online courses DataCamp offers (not just the chapters that are covered in the course). To register for DataCamp an email address will be required which you need to share with me in the beginning of the term. For students who would prefer to opt out and not use DataCamp, solutions to exercises can be submitted to me by email.

### *Writing Assignments or Presentations*

The case studies are intended to help you develop your communication skills. How well you communicate your ideas, in writing or orally, will be considered in the evaluation of the assignment. In your written assignments, you should aim for clarity, strong organization, concision, professionalism, and correct grammar. Your presentations should reflect strong planning and organization, clarity of speech, and an engaging demeanour. Sources, whether in written or presentation assignments, should always be correctly attributed.

Support is available through the RC Centre for Professional Skills (CPS) for students who would like help or feedback on their writing or speaking (presentations). CPS offers both individual and group appointments with trained writing instructors and presentation coaches who are familiar with the RC program and common types of business assignments. You can also access your college Writing Centres for help with written assignments.

You can book an appointment with a writing or presentation coach through the RC Centre for Professional Skills Writing Centre. For more information about writing centres, student supports, and study resources, see the [Writing and Presentation Coaching academic support page](#).

### *Team or Group Assignments*

The case studies require students to work in teams of 3-4 (preferably 4). Learning to work together in teams is a crucial transferrable skill you will use not only in your coursework, but also in your future careers. Support is available if you encounter common teamwork challenges such as:

- Team members feeling left out of the team.
- Team members not responding in a timely manner to communication.
- Division or quality of work among team members being unequal or unfair.

Consult the [Centre for Professional Skills Teamwork Resources page](#) for tips, strategies, and best practices. You can also [book an appointment with a teamwork mentor](#) through the RC Centre for Professional Skills Writing Centre. Teamwork mentors can help you resolve or mitigate conflict, strategize on planning, or improve team communication.

If you are a student registered with Accessibility Services, and extensions are one of your academic accommodations, consult with your Accessibility Advisor about the teamwork in this course.

### ***Missed Tests and Assignments***

Students who miss a term test or assignment for reasons entirely beyond their control (e.g. illness) may request special consideration **within 2 business days** of the missed midterm/test/assignment due date.

In such cases, students must:

1. Complete the Request for Special Consideration form: <https://uoft.me/RSMConsideration>
2. Provide documentation to support the request, eg. Absence Declaration from [ACORN](#), medical note etc.

**Please note:** As of September 2023, students may use the Absence Declaration on ACORN **\*one time per term\*** to report an absence and request consideration. **Any subsequent absence will require a [Verification of Illness form](#) or other similar relevant documentation.**

Students who do not submit their requests and documentation within 2 days may receive a grade of 0 (zero) on the missed course deliverable.

**Final Exams:** If you miss the final exam in this course for a legitimate reason (illness, etc) you will need to contact your College Registrar to file a petition for a deferred exam. This deferred exam will be written at a later date as established by the Faculty of Arts & Science. Instructions can be found here: <https://www.artsci.utoronto.ca/current/faculty-registrar/petitions-appeals/preparing-petition>

### ***Late Assignments***

*All assignments are due on the date and at the time specified in Quercus. Late submissions will normally be penalized by 20% if the assignment is not received on the specified date, at the specified time. A further penalty of 10% will be applied to each subsequent day.*

## **Statement on Equity, Diversity and Inclusion**

The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. U of T does not condone discrimination or harassment against any persons or communities.

## **Commitment to Accessibility**

The University is committed to inclusivity and accessibility, and strives to provide support for, and facilitate the accommodation of, individuals with disabilities so that all may share the same level of access to opportunities and activities offered at the University.

If you require accommodations for a temporary or ongoing disability or health concern, or have any accessibility concerns about the course, the classroom or course materials, please [email Accessibility Services](#) or visit the [Accessibility Services website](#) for more information as soon as

possible. Obtaining your accommodation letter may take up to several weeks, so get in touch with them as soon as possible. If you have general questions or concerns about the accessibility of this course, you are encouraged to reach out to your instructor, course coordinator, or Accessibility Services.

## Plagiarism Detection

Normally, students will be required to submit their course essays to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the [University's Plagiarism Detection Tool FAQ](#) page from Centre for Teaching Support & Innovation.

Moss - Measure Of Software Similarity:

Moss is an automatic system for determining the similarity of programs. Moss will be used for reviewing source code and preventing possible plagiarism.

## Generative AI / ChatGPT

The knowing use of generative artificial intelligence tools, including ChatGPT and other AI writing and coding assistants, for the completion of, or to support the completion of, an examination, term test, assignment, or any other form of academic assessment, may be considered an academic offense in this course.

## Academic Integrity

Academic Integrity is a fundamental value essential to the pursuit of learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the U of T degree that you earn will continue to be valued and respected as a true signifier of a student's individual work and academic achievement. As a result, the University treats cases of academic misconduct very seriously.

[The University of Toronto's Code of Behaviour on Academic Matters](#) outlines the behaviours that constitute academic misconduct, the process for addressing academic offences and the penalties that may be imposed. You are expected to be familiar with the contents of this document. Potential offences include, but are not limited to:

In papers and assignments

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment (this includes collaborating with others on assignments that are supposed to be completed individually).

On test and exams

- Using or possessing any unauthorized aid, including a cell phone.
- Looking at someone else's answers.
- Misrepresenting your identity.
- Submitting an altered test for re-grading.

## Misrepresentation

- Falsifying institutional documents or grades.
- Falsifying or altering any documentation required by the University, including (but not limited to) medical notes.

All suspected cases of academic dishonesty will be investigated by the procedures outlined in the [Code of Behaviour on Academic Matters](#). If you have any questions about what is or is not permitted in the course, please do not hesitate to contact the course instructor. If you have any questions about appropriate research and citation methods, you are expected to seek out additional information from the instructor or other U of T or RC resources such as the RC Centre for Professional Skills, the College Writing Centres or the Academic Success Centre.

## Email

At times, the course instructor may decide to communicate important course information by email. As such, all U of T students are required to have a valid UTmail+ email address. You are responsible for ensuring that your UTmail+ email address is set up and properly entered on ACORN. For more information visit the [Information Commons Help Desk](#).

Forwarding your utoronto.ca email to a Gmail or other type of email account is not advisable. In some cases, messages from utoronto.ca addresses sent to Gmail accounts are filtered as junk mail, which means that important messages from your course instructor may end up in your spam or junk mail folder.

## Recording Lectures

Lectures and course materials prepared by the instructor are considered by the University to be an instructor's intellectual property covered by the Canadian Copyright Act. Students wishing to record a lecture or other course material in any way are required to ask the instructor's explicit permission and may not do so unless permission is granted. Students who have been previously granted permission to record lectures as an accommodation for a disability are excepted. This includes tape recording, filming, photographing PowerPoint slides, Quercus materials, etc.

If permission for recording is granted by the instructor (or via Accessibility Services), it is intended for the individual student's own study purposes and does not include permission to "publish" them in any way. It is forbidden for a student to publish an instructor's notes to a website or sell them in any other form without formal permission.

## Weekly Schedule

Session	Date	Topic
1	2024-09-09	Overview Introduction
2	2024-09-16	SQL Basics Database Management Fundamentals
3	2024-09-23	Normalization Entity Relationship Diagram
4	2024-09-30	SQL Fundamentals
5	2024-10-07	More Advanced SQL
6	2024-10-21	Merging and Joining <b>Extra Readings:</b> Structuring Analytical Data Tables
7	2024-11-04	<b>For Own Review:</b> Python Basics/Python Data Structures (CSC108) Numpy/pandas Data Structures for Analysis
8	2024-11-11	Data Preparation for Analysis Data Cleaning and Preprocessing
9	2024-11-18	Data Manipulation and Descriptive Statistics
10	2024-11-25	Data Visualization Basic Plotting
11	2024-12-02	Data Visualization Advanced Graphs for Business Intelligence
12	2024-12-03	Interactive Dashboards

**Please note that the last day you can drop this course without academic penalty is November 4, 2024.**

## Other Useful Links

- [Become a volunteer note taker](#)
- [Accessibility Services Note Taking Support](#)
- [Credit / No-Credit in RSM courses](#)
- [Rotman Commerce Academic Support](#)
- [Where to find teaching assistant opportunities](#)

## URL links for print

- ACORN: <http://www.acorn.utoronto.ca/>
- Email Accessibility Services: [accessibility.services@utoronto.ca](mailto:accessibility.services@utoronto.ca)
- Accessibility Services website: <http://studentlife.utoronto.ca/as>
- University's Plagiarism Detection Tool FAQ: <https://uoft.me/pdt-faq>
- The University of Toronto's Code of Behaviour on Academic Matters: <http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>
- Information Commons Help Desk: <http://help.ic.utoronto.ca/category/3/utmail.html>
- Become a volunteer note taker: <https://studentlife.utoronto.ca/program/volunteer-note-taking/>
- Accessibility Services Note Taking Support: <https://studentlife.utoronto.ca/service/note-taking-support/>
- Credit / No-Credit in RSM courses: <https://rotmancommerce.utoronto.ca/current-students/degree-requirements/credit-no-credit-option/>
- Rotman Commerce Academic Support: <https://rotmancommerce.utoronto.ca/current-students/academic-support/>
- Book an appointment with a writing or presentation coach: <http://uoft.me/writingcentres>
- Writing and Presentation Coaching academic support page: <https://rotmancommerce.utoronto.ca/current-students/academic-support/writing-and-presentation-coaching/>
- Centre for Professional Skills Teamwork Resources page: <https://rotmancommerce.utoronto.ca/teamwork-resources>
- Book an appointment with a Teamwork Mentor: <http://uoft.me/writingcentres>