

COURSE INFORMATION

Course title:	Database Applications in Business Systems		
Course code:	BAIT 580A	Credits:	1.5
Session and term:	2023W2, Period 3	Class location:	HA 133/132
Section(s):	BA1/BA2	Class times:	Tues/Thu 8 – 10 AM (BA2)/ 10 – 12 -PM (BA1)
Course duration:	Jan 08 - Feb 08, 2024	Pre-requisites:	n/a
Division:	BAIT	Co-requisites:	n/a

INSTRUCTOR INFORMATION

Instructor:	Gittu George, PhD		
Phone:		Office location:	Virtual
Email:	ggeorg02@cs.ubc.ca	Office hours:	TBD

Teaching assistant: TBD

Office hours: TBD

Email:

COURSE DESCRIPTION

Good business decisions rest on well structured data and robust analytics. Increasingly, businesses are challenged with combining data produced in-house with external data, such as financial data, weather information or census reports, to fully account for a complex and evolving business landscape. This course will build on prior work with databases to help participants understand how decisions about database structure, and the questions we ask about data can inform business analytics.

The course will cover setting up various databases in cloud, interaction with cloud systems, data models, database optimization using indexes and query optimizers, to help speed-up business-critical analysis, data warehousing, and showcase analytic workflows that highlight the utility of databases in modern business applications. We will also explore other NoSQL databases like graph databases and document databases, and how such tools can be used to provide value in the world of business informatics and analysis.

COURSE FORMAT

This will be a face-to-face session during the scheduled class times. Class time will be used to work through examples and discuss issues and topics related to the weeks course material. Courses will be delivered using written material with supplemental video examples, along with code examples.

LEARNING OBJECTIVES

By the end of this course, students will be able to:

- Explain key concepts with regards to databases in a business setting.
- Understanding cloud-based systems and being capable in using them for your project.
- Apply knowledge of SQL and database applications to connect to databases and perform basic analytics
- Evaluate database performance and data needs with regards to specific analytics questions

- Create analytic reports using data from multiple sources to clearly answer specific questions that are of interest from a business perspective
- Distinguish various NoSQL databases and ability to use it in your business setting.

ASSESSMENTS

Summary

<u>Component</u>	<u>Weight</u>
Assignments	50%
Worksheets	10%
Final exam	40%
Total	<u>100%</u>

Details of Assessments

There will be 2 worksheets each week and 3 assignments during the period that will be individually assessed. Finally, the final exam will take up the remaining 40% and will be conducted in-person at the end of the term.

LEARNING MATERIALS

Required: Online reading materials and links will be provided.

Estimated cost of required materials: \$0

COURSE-SPECIFIC POLICIES AND RESOURCES

Missed or late assignments, and regrading of assessments

Late submissions will not be accepted and will receive a grade of zero.

Academic Concessions

If extenuating circumstances arise, please contact the RHL Graduate School program office as early as reasonably possible, and submit an [Academic Concession Request & Declaration Form](#). If an academic concession is granted during the course, the student will be provided options by RHL, or by the instructor in consultation with RHL, per [UBC's policy on Academic Concession](#).

Other Course Policies and Resources

A significant component of answer sets for this course relies on programmatic code. In some cases solutions to problems can be found online, using resources such as StackOverflow, Reddit or other online communities. It is expected that a participant cite the URL of the source if such code represents more than two lines of a course participant's submission. This citation can be placed as a comment in the code itself.

Failure to properly cite sources will be penalized based on the amount of code used without citation, and the importance of that code for the overall result.

Code Plagiarism

Code plagiarism falls under the UBC policy for [Academic Misconduct](#). Students must correctly cite any code that has been authored by someone else or by the student themselves for other assignments.

Cases of "reuse" may include, but are not limited to:

- the reproduction (copying and pasting) of code with none or minimal reformatting (e.g., changing the name of the variables)
- the translation of an algorithm or a script from a language to another
- the generation of code by automatic code-generations software

An "adequate acknowledgement" requires a detailed identification of the (parts of the) code reused and a full citation of the original source code that has been reused.

Students are responsible for ensuring that any work submitted does not constitute plagiarism. Students who are in any doubt as to what constitutes plagiarism should consult their instructor before handing in any assignments.

POLICIES APPLICABLE TO COURSES IN THE ROBERT H. LEE GRADUATE SCHOOL

Attendance

Excepting extenuating circumstances, students are expected to attend 100% of their scheduled class hours. Absent students limit their own academic potential, and that of their classmates, and cause unnecessary disruption to the learning environment. Students missing more than 20% of the total scheduled class hours for a course (including classes held during the add/drop period) without having received an academic concession will be withdrawn from that course. Withdrawals, depending on timing, could result in a "W" or an "F" standing on the transcript.

Punctuality

Students are expected to arrive for classes and activities on time and fully prepared to engage. Late arrivals may be refused entry at the discretion of the instructor or activity lead. Students arriving later than halfway through a scheduled class will be treated as absent for that class.

Electronic Devices

Devices such as laptops, tablets, and cell phones are not permitted to be used in class unless directed by the instructor for in-class activities. Students who do not follow the School's policy in this regard may be required to leave the room for the remainder of the class, so that they do not distract others. Research shows that students' use of laptops in class has negative implications for the learning environment, including reducing their own grades and the grades of those sitting around them.

Citation Style

Please use the American Psychological Association (APA) reference style to cite your sources.

Details of the above policies and other RHL Policies are available at:

<http://www.calendar.ubc.ca/vancouver/index.cfm?tree=12,199,506,1625>

UNIVERSITY POLICIES AND RESOURCES

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on the UBC Senate website at <https://senate.ubc.ca/policies-resources-support-student-success>.

Respect for Equity, Diversity, and Inclusion

The UBC Sauder School of Business strives to promote an intellectual community that is enhanced by diversity along various dimensions including Indigeneity (including identification as First Nation, Métis, or Inuit), race, ethnicity, gender identity, sexual orientation, religion, political beliefs, social class, and/or disability. It is critical that students from diverse backgrounds and perspectives be valued in and well-served by their courses. Furthermore, the diversity that students bring to the classroom should be viewed as a resource, benefit, and source of strength for your learning experience. It is expected that all students and members of our community conduct themselves with empathy and respect for others.

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.

Use of Artificial Intelligence

Generative AI (Including ChatGPT) Not Permitted

Any work submitted must be your own original work, written without outside assistance or collaboration. Any use of generative artificial intelligence (AI), including ChatGPT, is not permitted and constitutes academic misconduct. Any student suspected of submitting work that includes AI generated content may be asked for preliminary work or other materials to evidence the student's original and unaided authorship. The student may also be asked to separately explain or support their work. AI identification methods may also be employed by the instructor. After review, if it is determined by the

instructor that submitted work likely contains AI generated content, the work may receive a zero and may be subject to further misconduct measures set out in the [UBC Academic Calendar](#).

COPYRIGHT

All materials of this course (course handouts, lecture slides, assessments, course readings, etc.) are the intellectual property of the instructor or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline and could be subject to legal action. Any lecture recordings are for the sole use of the instructor and students enrolled in the class. In no case may the lecture recording or part of the recording be used by students for any other purpose, either personal or commercial. Further, audio or video recording of classes are not permitted without the prior consent of the instructor.

ACKNOWLEDGEMENT

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the x̣ẉməθḳẉəỵəm (Musqueam) people, who for millennia have passed on their culture, history, and traditions from one generation to the next on this site.

COURSE SCHEDULE

Class	Asynchronous or Synchronous	Date	Topic
1	Synchronous	January 9	Introduction to Big Data & cloud computing
2	Synchronous	Jan 11	Introduction to RDS and interaction with AWS
3	Synchronous	Jan 16	Faster SQL (Indexing)
4	Synchronous	Jan 18	(de)Normalization & Data Warehousing
5	Synchronous	Jan 23	Introduction to NoSQL and Graph Databases
6	Synchronous	Jan 25	Querying Graph Databases (Part 1)

7	Synchronous	Jan 30	Querying Graph Databases (Part 2)
8	Synchronous	Feb 1	Document Databases Intro
9	Synchronous	Feb 6	Querying Document Databases
10	Synchronous	Feb 8	Class Conclusions/Special Topics