OKANAGAN COLLEGE

COSC 416 – Topics in Databases (Database-as-a-Service)

Winter 2020 Section 001

Schedule:

Lecture	Monday, 2:30PM – 3:50PM, **E 301**
Lecture	Wednesday, 3:30PM – 4:50PM, **E 401**
Lab 01	Monday, 4:00PM – 5:50PM, **E 301**

Instructor: Matthew Fritter
Office Hours: Wednesdays and Fridays, 10:00AM – 3:00PM
Email: mfritter@okanagan.bc.ca
Website: Course notes, labs, and announcements will be posted on Moodle and GitHub: https://github.com/MattFritter/COSC416-Database-as-a-Service

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Calendar Description: In this course, students will learn about Database-As-A-Service architectures, and how this differs from running a standalone or local database server. Students will get experience working with major commercial DBaaS providers, including both SQL and NoSQL databases, and learn how to interface applications with DBaaS to build scalable, database-drive applications.

Prerequisites: Minimum grade of 60% or higher in COSC 304, third-year standing.

Required Text: None. All course materials will be provided through Moodle and GitHub.

Lecture Topics:

- Introduction to the Database-as-a-Service architecture, and how it differs from traditional databases
- Pros and cons of using a DBaaS in production environments
- Working with major DBaaS providers, including Microsoft Azure SQL Database, Amazon RDS and DynamoDB, and Google Cloud
- Using DBaaS services for document and file storage databases
- Building a simple DBaaS

Learning Outcomes:
Students who complete this course will have experience working with major commercial DBaaS systems, and will know how to integrate DBaaS systems into an application. Students will understand when a DBaaS is appropriate, and have a general knowledge of the benefits and shortcomings of this architecture in comparison to traditional database servers.

Tentative Topic Schedule:

Week	Description	Date
1	**No Labs – Course Introduction**	Jan 6 - 10
2	DBaaS – Architecture details, benefits and drawbacks	Jan 13 - 17
3	Amazon Relational Database Service (RDS)	Jan 20 - 24
4	Amazon RDS, Continued	Jan 27 - 31
5	Microsoft Azure SQL database, Quiz #1	Feb 3 - 7
6	Azure MySQL/PostgreSQL databases	Feb 10 - 14
7	**Study Break**	Feb 17 - 21
8	Google Cloud, BigQuery – DbaaS Warehousing	Feb 24 - 28
9	DBaaS for document and file storage	Mar 2 - 6
10	NoSQL DBaaS – Amazon DynamoDB, Quiz #2	Mar 9 - 13
11	NoSQL DBaaS – MongoDB Atlas	Mar 16 - 20
12	Building a simple DBaaS system	Mar 23 - 27
13	Continuation of above, additional topics **TBD**	Mar 30 – Apr 3
14	**No Labs – Last Week of Classes (Final Exam Prep)**	Apr 6 - 10

Labs: You may complete lab tasks in the lab or at home. Details on how to submit your lab will be included with each lab document. Lab attendance is not mandatory, but is encouraged.

Exams: There will be two quizzes, held in-class. Quizzes will be announced in-class and on Moodle the week before. There will be a final exam held during the final exam period, time and date TBD.

Evaluation:

Item	Weight
6 Lab Assignments	40%
Two in-class Quizzes, each 15%	30%
Final Exam	30%

Important Dates:

- First Day of Class: January 6th
- Last Day to Register or Drop: January 17th
- Study Break: February 18th – 21st

- Last Day of Classes: April 9th
- Final Exam Period: April 14th – April 24th

Academic Integrity:

It is Okanagan College Policy that students are aware of policies regarding academic misconduct (i.e. cheating and plagiarism). These policies are outlined in the 2019-2020 OC Calendar. If you are not aware of policies be sure to read this information. Cheating and plagiarism are summarized below. You are responsible for reading the full description from the OC Calendar, or on the website: https://webapps-5.okanagan.bc.ca/ok/Calendar/AcademicIntegrity

Cheating: includes but is not limited to dishonest or attempted dishonest conduct during tests or examinations in which use is made of books, notes, diagrams or other aids excluding those authorized by the examiner. It includes communicating with others for the purpose of obtaining information, copying from the work of others and purposely exposing or conveying information to other students who are taking the test or examination.

Plagiarism: is the presentation of another person's work or ideas without acknowledgment. Students in doubt should take care to avoid unintentional plagiarism by learning proper scholarly procedures.