COURSE SYLLABUS

COURSE TITLE: ICS-212 Database Systems Management

CLASS SECTION: X03A, X03B

TERM: Fall 2024

COURSE CREDITS: 3

DELIVERY METHOD(S):   Face-to-face

For COVID-19 information please visit https://legacy.camosun.ca/covid19/index.html.

Camosun College requires mandatory attendance for the first-class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.

INSTRUCTOR DETAILS

NAME: Zahra Jana Behfarshad

EMAIL: behfarshadj@camosun.bc.ca

OFFICE: TEC 236

HOURS: Monday: 3 – 4:30 PM and Thursday: 11 AM- 12 PM by appointment

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

ICS 212 provides the student with the foundational skills and knowledge needed to become a competent Database user. Students will be introduced to Oracle DBMS, MongoDB, learn industry standard practices for installing and configuring databases, and manage running databases using best-of-breed tools. By the end of the course, the student will be prepared to undertake database-centric software development projects.

PREREQUISITE(S):   C in COMP 139, or ICS 124, or COMP 146
                       and
                    C in COMP 144, or ICS 120
                       and
                    C in ENGR 155, or ICS 125

CO-REQUISITE(S):   -
EXCLUSION(S):   -

COURSE LEARNING OUTCOMES / OBJECTIVES

Learn how to design and manage database systems. You will be introduced to advanced database system concepts including the issues of design, setup and data manipulation.

The course lectures will provide the students with foundational database administrative theory. The weekly three-hour lab will provide the student with opportunities to put these concepts into practice within a realworld environment based on the Oracle XE and MongoDB. Lab assignments will include programming assignments, database management, troubleshooting and architecture activities. A midterm and final exam will be scheduled as will bi-weekly quizzes.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

- Materials on the D2L course page: presentation slides for lectures, lab assignment instructions for labs, etc. see https://online.camosun.ca/d2l/home/265061

- Recommended Textbooks:

    o Beginning Oracle Database 12c Administration: From Novice to Professional, 2nd ed. ▯ Author: Ignatius Fernandez.
        - ISBN: 978-1484201947 o The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling, 3rd ▯ Authors: Ralph Kimball and Margy Ross.
        - ISBN: 978-1118530801.
    o The Data Warehouse Lifecycle Toolkit, 2nd Edition
        - Authors: Ralph Kimball and Margy Ross
        - ISBN: 978-0470149775
- Recommended Hardware
    o This course assigns labs on a weekly basis that will enable students to gain practical experience using the Oracle DBMS and the MongoDB NoSQL database. As a result, it is recommended that students have access to computers capable of running these systems. The recommended computer is a Windows 10 or 11 desktop or laptop with 8GB of RAM and 12GB of free disk space. As an alternative, students may also access lab computers remotely that have these systems preinstalled.

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY

General Schedule
We will have lectures and labs over a 14-week semester. Each week will consist of a two-hour lecture, a one-hour lecture and a two-hour lab. Additional time over and above the allotted lab time may be required to complete lab assignments.

Please see lecture and lab schedule at http://my.camosun.ca for detailed information about class hours and locations. Please consult the calendar tool in D2L frequently for any updates.

Topics & Activities
<u>Lectures</u> will be delivered in-person at regular times. We will be working with various tools hands-on to develop the essential database skills. This is a valuable opportunity to practice and reinforce the material covered in the lectures, which is why attending them is strongly recommended.

Labs will be released each week with the exception of the week of the midterm (week 8). It is important to submit the lab assignments before the deadline. The instructor will be available, in person, during the regularly scheduled lab times.

Quizzes will be bi-weekly open-book quizzes to reinforce your comprehension of course material. You will have 2 opportunities to complete each quiz before their due date.

Schedule of Sessions and Topics

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

Week	Topics	Assignments
1	Course Overview & Logistics	No Labs
2	Introduction to DBMS NoSQL Intro MongoDB Introduction	Lab 1 – MongoDB Install + Database Creation
3	MongoDB Basic Commands MongoDB CRUD and Query	Lab 2 – MongoDB fundamentals
4	MongoDB Indexes MongoDB Security	Lab 3 – Advanced MongoDB Operations
5	Introduction to SQL and PL/SQL Introduction to triggers	Lab 4 – Introduction to Oracle
6	Oracle Architecture Planning Physical Design	Lab 5 – Trigger, Functions, Procedure
7	Physical Design (continued) User Management Data Loading	Lab 6 – Planning and Data Import and Export
8	Midterm Exam	No labs
9	Taking Control Monitoring Fixing Problems	Lab 7 – User Management
10	Backups Recovery Big Picture & SOPS	Lab 8 – ImpExpDP, DBA and Data Dictionary
11	Introduction to Data Warehouse Lifecycle Dimensional Modeling	Lab 9 – RMAN, SOP and Explain
12	Dimensional Modeling	Lab 10 – Star Schema

	Creating Dimensional Model Case Study	
13	Extract, Transform and Load Overview Transformation PL/SQL Review	Lab 11 – Extract, Transform and Load (Part 1)
14	SQL Functions Oracle Summaries Data Mining	Lab 12 – Extract, Transform and Load (Part 2)

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is required. Deadlines can be reviewed on the CAL exams page. http://camosun.ca/services/accessible-learning/exams.html

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Quizzes 5 quizzes, every other week, online – two chances per quiz.	10%
Lab Assignments Must achieve a 55% minimum on 10 of the 12 labs to pass.	30%
Midterm Exam – closed book Must achieve 55% to pass.	10%
Final Exam Must achieve 55% to pass.	50%
TOTAL	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the Grade Review and Appeals policy for more information.
http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf

COURSE GUIDELINES & EXPECTATIONS

Lab attendance is strongly recommended throughout the entire semester. Each lab will build on a previous week's completed results and for this reason, it is important that all labs be completed on time. Late assignments will be penalized at the rate of **10% per day and will not be accepted after 5 business days past due**. All labs are to be handed in to their associated assignment area within D2L. Lab work is expected to be completed using proper software engineering practices and will be graded accordingly.

Students must achieve

- a 55% minimum on 10 of the 12 labs
- a minimum 55% on the midterm exam
- a minimum 55% on the final exam

to pass the course.

Must achieve a **C (60%)** in the course to use as a pre-requisite.

GRADING SYSTEM

We will be using the following grading system:

X	Standard Grading System (GPA)
	Competency Based Grading System

The following two grading systems are used at Camosun College:

1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

2. Competency Based Grading System (Non-GPA)

    This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.

DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at http://www.camosun.bc.ca/policies/E-1.5.pdf for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	*In progress*: A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	*Compulsory Withdrawal*: A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

SCHOOL OR DEPARTMENTAL INFORMATION

Supplemental department policies:

Grade review: You have 7 days after marks are posted to review with your instructor.

Academic Integrity Violations:

- 1st violation: minus the weight of the deliverable and a note on your departmental file.
- 2nd violation: F in the course
- 3rd violation: Student Conduct Policy E-2.5 is applied

Missed Examinations/Quizzes: If a student misses a quiz, project or an exam, a mark of zero will be assigned unless there are extenuating circumstances. You must provide a note from a medical practitioner (Doctor, Nurse, Psychologist, Counsellor, etc.) In such cases, the proportion of grade assigned to the missed quiz or exam will be added to the proportion assigned to the final exam. The final project will be due at the end of last week of lectures. NO consideration will be given to any student wishing to complete project the at any other time than that assigned.

Electronic Devices: The school's policy regarding electronic devices is that any student who has a cell phone or other unauthorized electronic device (ie. ipad, laptop, playbook, etc.) on their person or around their desk during an exam will be guilty of cheating and will a grade of "F" for the course.

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of college property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit http://camosun.ca/students/.

Support Service	Website
Academic Advising	http://camosun.ca/advising
Accessible Learning	http://camosun.ca/accessible-learning
Counselling	http://camosun.ca/counselling
Career Services	http://camosun.ca/coop
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous
International Student Support	http://camosun.ca/international/
Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration
Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e., physical, depression, learning, etc). If you have a disability, the Centre for Accessible Learning (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started: http://camosun.ca/services/accessible-learning/

Academic Integrity

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

Academic Progress

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit http://camosun.ca/learn/fees/#deadlines.

Grading Policy

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf for further details about grading.

Grade Review and Appeals

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf for policy relating to requests for review and appeal of grades.

Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first-class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures" (http://camosun.ca/learn/calendar/current/procedures.html) and the Grading Policy at http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit

Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence and Misconduct Policy: http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf and camosun.ca/sexual-violence. To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-3703841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf to understand the College's expectations of academic integrity and student behavioural conduct.

Changes to this Syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.