COURSE SYLLABUS

COURSE TITLE: Simulation Development

CLASS SECTION: X01A and X01B

TERM: W2022

COURSE CREDITS: 3

DELIVERY METHOD(S): Face to Face

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

Camosun College campuses are located on the traditional territories of the Lək̓ʷəŋən and WSÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.
Learn more about Camosun's Territorial Acknowledgement.

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: Benjamin Leather

EMAIL: leatherb@camosun.bc.ca

OFFICE: TEC 267

HOURS: 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

Students will build on their foundational programming knowledge by designing and developing object-oriented simulations and become familiar with character control and game theory using a modern game engine.

PREREQUISITE(S):   All of:
                        C in ART 135,
                        C in ICS 110
                    One of:
                        C in COMP 132,
                        C in ICS 114

COURSE DELIVERY

ACTIVITY	HOURS / WEEK	# OF WEEKS	ACTIVITY HOURS
Lecture / Learning Content	3	15	45
Seminar			0
Lab / Collaborative Learning	2	15	30
Supervised Field Practice			0
Workplace Integrated Learning			0
Online			0
		TOTAL HOURS	75

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon successful completion of this course a student will be able to:
- Demonstrate a basic understanding of advanced object-oriented concepts
- Demonstrate an understanding of arrays and collections.
- Demonstrate an understanding of inheritance
- Demonstrate an understanding of interfaces
- Demonstrate an understanding of abstract classes
- Demonstrate an understanding of polymorphism
- Demonstrate an understanding of generics
- In the context of a modern game engine:
  o Demonstrate an understanding of how to incorporate advanced object-oriented concepts
  o Demonstrate the ability to create and modify objects
  o Demonstrate an understanding of how to create scripts and connect them to Game objects
  o Demonstrate an understanding of how Physics work
  o Demonstrate an understanding of how Collisions
  o Demonstrate an understanding of how 3D spaces work
  o Demonstrate the ability to handle movement of an object (for example, handling keyboard events, Transform class)
  o Demonstrate an understanding of 2D game creation (ie. Platformer game)
  o Demonstrate the ability to incorporate ready-made assets into a game (for example, from the Unity Store)
  o Demonstrate the ability to add a visual display (head up display) to a 3D game
- Demonstrate an understanding of PHP variables and data types
- Demonstrate an understanding of PHP control structures and arrays
- Demonstrate an understanding of PHP iteration
- Demonstrate the ability to use PHP to connect to a database server
- Demonstrate the ability to use PHP to create queries and execute them on a database server
- Demonstrate the ability to use a modern game engine to create a networked simulation/game that connects to a database and stores/updates/deletes player and game data.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

None.

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

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

WEEK or DATE RANGE	ACTIVITY or TOPIC	OTHER NOTES
1	Course Outline, Introduction, logistics, C# Primer (Review of material from ICS 114) Lab 1 – C# Arrays and Collections	
2	Advanced OOP concepts – inheritance, interfaces, abstract classes, polymorphism, generics Lab 1 – C# Arrays and Collections Lab 2 – Advanced OOP concepts	
3	Introduction to Unity, Unity Game Objects, Unity UI Objects, Unity class fundamentals Lab 2 – Advanced OOP concepts	
4	Unity working in a 3D space Lab 3 – Unity creating a project, creating a scene, adding Game Objects	
5	Unity Adding Movement, Rotations, Collisions to a Scene, adding enemies, projectiles Lab 4 – Unity setting up a camera, writing/associating C# scripts, basic Player movement	
6	Unity UI Events, Randomness, IEnumerator, State Machines Lab 5 – Using collider objects, handling events, creating tags, adding Score QUIZ - UNITY	
7	READING BREAK	No classes
8	Unity – creating a State Machine Lab 6 (two week lab) – creating a simple 2D platformer game (tilemap game, with Unity Store assets)	
9	Unity Adding Graphics – Working with Sprites Lab 6 – creating a simple 2D platformer game (tilemap game, with Unity Store assets)	
10	Intro to PHP Lab 7 – creating a state machine (State object), create an Enemy with AI, implement Raycast object	
11	PHP – arrays, functions, creating a connection to a Database	

WEEK or DATE RANGE	ACTIVITY or TOPIC	OTHER NOTES
	Lab 8 (two week lab) – ending game, adding HUD, completing levels, adding additional levels	
12	PHP - querying a database (INSERT, UPDATE, DELETE) Unity – using WWW object to connect to external web resources (ie. php page) Lab 8 – ending game, adding HUD, completing levels, adding additional levels QUIZ - PHP	
13	Unity More with Assets Lab 9 – creating a networked game, create a simple DB (MySQL), connect to the database, create register/login/exit game functionality, save player/game data to the database.	
14	FINAL EXAM REVIEW	
15	Final Exam	

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 scan be reviewed on the CAL exams page. http://camosun.ca/services/accessible-learning/exams.html

EVALUATION OF LEARNING

DESCRIPTION		WEIGHTING
Labs 1-5, 7		50%
Labs 6, 8		20%
Quizzes/Tests		10%
Final exam		20%
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	TOTAL	100%

COURSE GUIDELINES & EXPECTATIONS

Must complete and submit **all** labs on time.

Must complete **all** quizzes/tests.

Must achieve a **minimum of 55%** on the Final exam to pass the course.

No leaving during any examination unless an accommodation is in place.

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/test 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, Councilor, 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 exam will be held during exam week. NO consideration will be given to any student wishing to write the exam 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

Support Service	Website
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.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

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 http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf to learn more about the process involved in a medical/compassionate withdrawal.

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.