



**CAMOSUN COLLEGE**  
*Trades and Technology*  
*Computer Science*

**COMP 246**  
**Advanced Simulation**  
**Winter 2021**

**COURSE OUTLINE**

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**Calendar Description:** <http://camosun.ca/learn/calendar/current/web/comp.html#COMP246>

\* *Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.*

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**1. Instructor Information**

(a) **Instructor** Benjamin Leather  
(b) **Office hours** By Request  
(c) **Location** Online  
(d) **Phone** 250-885-6966 **Alternative:** \_\_\_\_\_  
(e) **E-mail** leatherb@camosun.ca  
(f) **Website** \_\_\_\_\_

**2. Intended Learning Outcomes**

Upon successful completion of this course a student will be able to:

- Use virtual reality (VR) and augmented reality (AR) development tools in a game engine.
- Integrate game theory into an application.
- Design, implement, test and debug an interactive simulation that includes vision and spatial computing, 2D and 3D elements and position tracking for web or mobile devices.
- Integrate motion, animation and behaviors in a simulation.
- Design and implement an intuitive user interface.
- Use a collaboration service to enhance team communication.

**3. Required Materials**

There are no other materials required.

## 4. Course Content and Schedule

Week	Topic
1	Course Intro
	Equipment / Setup / Terminology
	VR / AR / MR
	Dangers / Considerations
	Lab 0: Hardware Introduction
2	Unity Setup for VR
	C# Primer
	Measurement Data Types
	Lab 1: Custom panorama skybox with HMD
3	Physiology and VR
	Prototyping
	QUIZ: Physiology and VR
	Lab 2: VR looking from a moving platform
4	Design Thinking
	Lab 3: Design Thinking Group Exercises
5	Colliders Practical Problem Solving
	QUIZ: Motivation for Gaming and prototypes
	Lab 3 (continued): Design Thinking Presentations
6	<i>Reading Break</i>
7	Game Organization and Principles
	Lab 4: Ray Interactor, Prefabs and Collisions
8	Coroutines
	QUIZ: Game Organization Principles
	Lab 5: Teleporting, Snap Turns, Sound
9	UI Canvas
	Lab 6: UI Canvas and VR with Coroutines (Part 1)
10	Shaders
	Lab 6: UI Canvas and VR with Coroutines (Part 2)
11	VR / UI Review
	QUIZ: Shaders / UI
	Lab: Final Project
12	AR / MR
	Lab: Final Project
13	Group Code Reviews
14	Final Project Cleanup / Demonstrations

## 5. Basis of Student Assessment (Weighting)

Quizzes (4)	25%
Labs (7)	50%
Code Review	5%
Final Project	20%

Must complete all assignments.

Must achieve a minimum average of 55% on all course work.

See Department Policies under section 8.

## 6. Grading System

Standard Grading System (GPA)

Competency Based Grading System

## 7. Recommended Materials to Assist Students to Succeed Throughout the Course

The majority of work in this course requires VR equipment and a capable PC. It is recommended that all work is done in class when possible.

### Student Conduct:

It is important you familiarize yourself with college policy around academic honesty and what it means when you violate the Standards of Integrity.

Policy E-1.13: Academic Integrity <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf>

Policy E-2.5.1: Plagiarism: Definitions and Consequences  
<http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.1.pdf>

See below for Department Policy on Academic Integrity violations.

### Academic Accommodations:

“You are responsible to communicate with your instructors. If you are registered with CAL, CAL will provide you with a letter for each course instructor outlining what accommodations you require.

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Connecting with your course instructors shortly after you have shared your letter of academic accommodation (as early as possible at the beginning of the term, if possible) will provide an opportunity to discuss the content, structure and expectations of the course as they relate to your academic accommodations. Connecting in with your instructor(s) gives you both a good opportunity to consider how the term might work and any contingency plans that may be needed. You are not required to disclose the nature of your disability to your course instructor(s), just what academic accommodations you need.

If you have accommodations for exams, it is your responsibility to review and follow the processes outlined on the Exams page.” (<http://camosun.ca/services/accessible-learning/current-students.html>)

The following document is also helpful in understanding academic accommodations: [http://camosun.ca/services/accessible-learning/\\_documents/academic-accommodation.pdf](http://camosun.ca/services/accessible-learning/_documents/academic-accommodation.pdf)

## 8. College Supports, Services and Policies



### Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### Department Policies:

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

#### Academic Integrity Violations:

1<sup>st</sup> violation: minus the weight of the deliverable and a note on your departmental file.

2<sup>nd</sup> violation: F in the course

3<sup>rd</sup> 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, Counselor, 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.

## College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

## College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

### A. GRADING SYSTEMS <http://www.camosun.bc.ca/policies/policies.php>

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
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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.

## B. 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	<i>Incomplete</i> : 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	<i>In progress</i> : 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	<i>Compulsory Withdrawal</i> : 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.