CAMOSUN COLLEGE
School of Trades and Technology
Department of Computer Science

COMP 245 – Artificial Intelligence
Fall 2022

COURSE OUTLINE

The calendar description is available on the web @	calendar.camosun.ca

Ω *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.*

1. Instructor Information

(a) Instructor	Benjamin Leather		
(b) Office hours	By Appointment		
(c) Location	Technology Building 267		
(d) Phone	N/A (please email)	**Alternative:**	N/A
(e) E-mail	leatherb@camosun.ca		
(f) Website	D2L		

2. Intended Learning Outcomes

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

- Understand key artificial intelligence and machine learning concepts.
- Learn how artificial intelligence techniques are implemented into games
- Implement decision management that AI needs to make through finite state machines
- Add randomness to games to make the AI less predictable
- Implement AI sensors which make the AI character more aware of the world around them
- Implement a flocking algorithm
- Implement path following and steering behaviours in AI characters
- Create a navigation mesh in Unity to make pathfinding more efficient
- Create behaviour trees to provide a richer strategy in a game
- Understanding how to apply machine learning to game characters for games or

simulationsWeek numbers relate to the schedule listed in *Course Content and Schedule* below.

3. Required Materials

(a) Texts
   - none, online notes
(b) Other
   - COMP 245 Lectures and Labs

4. Course Content and Schedule (Tentative)
Week 01: Introduction to AI
Week 02: Finite State Machines
Week 03: Randomness and Probability
Week 04: Implementing Sensors
Week 05: Flocking
Week 06: Wayfinding / Path Following
Week 07: A*
Week 08: Navigation Mesh
Week 09: Behaviour Trees
Week 10: No Class
Week 11: Machine Learning
Week 12: Neural Networks
Week 13: Project
Week 14: Project

Final Exam: TBA

This schedule is subject to change.

5. Basis of Student Assessment (Weighting)

(a) Assignments
Labs   30%
Project   30%
Must <u>complete all</u> labs to pass the course

(a) Exams
Two tests – each test worth 20%   25%
Must have a <u>passing average</u> to pass the course

Final Exam   15%
Must pass the final to pass the course

Mark appeals must be made within 7 days of the mark being posted.

6. Grading System
(If any changes are made to this part, then the Approved Course description must also be changed and sent through the approval process.)
(Mark with "X" in box below to show appropriate approved grading system – see last page of this template.)

| **X** | Standard Grading System (GPA) |

| | Competency Based Grading System |

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

None

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

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
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	*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.