LaSalle College
Vancouver

Course Syllabus   Summer 2019

Course Number:	VGP332
Course Title:	Artificial Intelligence

Course Description: In this course, there are various artificial intelligence techniques and concepts that will be explored including automated reasoning, various types of pathfinding, bot behaviours, state machines, fuzzy logic, and decision making. There will be exposure to various different techniques in creating more realistic AI behaviours through different randomization concepts. Students will apply their learning by implementing and design artificial intelligence algorithms through a 3D framework in C/C++.

Class Meetings:	Room 234, Saturday from 8:30am to 12:30pm
Instructor:	Peter Chan
Email Address:	ptychan@hotmail.com and petertychan@gmail.com
Instructor Availability:	ptychan@hotmail.com and petertychan@gmail.com
Course Length:	11 weeks
Contact Hours:	44 hours
Credit Value:	3 credits

Course Competencies: Upon successful completion of this course, the student will be able to:
- Create fun game play features with intelligent automated characters
- Gain working knowledge with modern artificial intelligence algorithms and concepts
- Balance game play by applying randomization to artificial intelligence in a game
- Prototype various concepts such as A* path finding and various different character/bot behaviours

Course Prerequisites: GE128 Geometry and Linear Algebra and VGP130 Object-Oriented Programming in C++ II

Instructional Methods: Instructional methods include lectures, PowerPoint presentations, and code samples.

Material and Supplies: Will be available through Omnivox

Est. Homework Hrs: 4-8 hours per week

Technology Needed: Microsoft Visual Studio

Required Textbook(s): Programming Game AI by Example by Mat Buckland

Suggested Reading: Provided through Omnivox

Process for Evaluation:

Pathfinding Assignment	15%
Steering Assignment	15%
FSM Assignment	15%
Perception Assignment	15%
Decision Making Assignment	15%
Final Project	25%
Total Mark	**100%**

Course Completion: In order to successfully complete the course, a student must earn a passing grade for the course. **For most courses, a passing grade is a "C" or 68 percent.** Some courses may require a higher passing grade. Your syllabus will indicate if a higher passing grade is required to complete the course. A student who does not pass the course may be required to take the course again in order to meet the requirements for their program of study.

Weekly Outline

DATE	TOPIC	Homework and Assignments	Due Date	Mark
Week 1	Review of math and physics Graphs, nodes Introduction to pathfinding DFS, BFS	Pathfinding Assignment	Week 3	15%
Week 2	Continuation of pathfinding Dijkstra, A*			
Week 3	Finite state machines State design pattern Messaging	FSM Assignment	Week 4	15%
Week 4	Steering Behaviors **Quarterly Surveys**	Steering Assignment	Week 5	15%
Week 5	Group Behaviors			
Week 6	AI Perception	Perception Assignment	Week 7	15%
Week 7	More about pathfinding			
Week 8	Decision making Goal-based behaviors	Decision Making Assignment	Week 9	15%
Week 9	Special Topic			
Week 10	Special Topic			
Week 11	Final Presentation			25%

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POLICIES

Grading Scale

Letter	GPA	Percentage %	Description
A	4.00	88 - 100 %	A grade of "A" represents superior work that goes above and beyond the requirements of the course. "A" work shows creativity and insight
A-	3.7	85 - 87 %	A grade of "A-" represents excellent work that exceeds one or more of the requirements of the course. "A-" work shows creativity and initiative
B+	3.4	82 - 84 %	A grade of "B+" represents commendatory work with clear and consistent improvement over the duration of the course. "B+" work meets all course requirements.
B	3.00	78 - 81 %	A grade of "B" represents good, solid work with clear improvement over the duration of the course. "B" work meets all course requirements.
B-	2.7	75 - 77%	A grade of "B-" represents satisfactory work with some improvement over the duration of the course. "B-" work meets all course requirements.
C+	2.4	72 - 74 %	A grade of "C+" represents work that meets course requirements and demonstrates an average competency level for the course.
C	2.00	68 - 71 %	A grade of "C" represents work that meets course requirements and demonstrates the minimum competency level for the course.
C-	1.7	65 - 67 %	A grade of "C-" represents work that meets at least half of the course requirements, but demonstrates deficiencies. Represents a fail.
D+	1.4	62 - 64%	A grade of "D+" represents work that meets up to half of the course requirements, but demonstrates significant deficiencies. Represents a fail.
D	1.00	55 - 61%	A grade of "D" represents work that meets one or more of the course requirements, but demonstrates significant deficiencies. Represents a fail.
F	0.00	0 - 54%	A grade of "F" represents general failure to meet the requirements of the course. Represents a fail.

Unearned F (UF) Grade Definition

Unearned F Grade: students who failed the course AND did not complete the final assignments in the course. Final assignment include, but is not limited to a final exam, final project, final paper, portfolio presentation, capstone project or any other assignment due in the last week of the course. If a student completed some or all of the other requirements in the course but did not complete the final assignment of the course and failed the course, the F grade will be considered unearned. An unearned F grade will be reflected as a "UF" grade on the transcript. The course's instructor will award this grade when appropriate.

Late assignment Policy

Late assignments will not be accepted.

Attendance Policy

LaSalle College Vancouver is committed to learning-centred, hands-on instruction, which can only be accomplished when students attend class. **There are no excused absences.** The satisfactory explanation of an absence does not relieve the student from responsibility for the course work assigned and/or due during his/her absences. A student who does not attend class during the first week of school or starts late is still held responsible for his/her absences. Students who are marked absent from all scheduled classes for two consecutive weeks will be withdrawn from the College. Students should contact their academic advisor for appeal procedures following an attendance withdrawal.

Students are encouraged to make all schedule changes early in the first week of the quarter to minimize absences. Failure to sit in all classes during the first two weeks of school will result in termination from school for the quarter. Detailed information about scheduled adjustment periods can be found on the back of your official schedule or in the Academic Calendar.

Student Responsibilities

This course is part of a demanding applied post-secondary education program and requires a significant commitment of time and effort. In addition to studying for examinations and preparing for class, students are required, on average, to dedicate between one to two hours to course-related work for every hour of instruction.

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Classroom Policies
- There is absolutely no use of cell phones and mobile devices during instructional time. Cell phones and mobile devices must be turned off as students enter a class. Web-surfing and game playing during instructional time are not allowed.
- Downloading and installing games onto school computers are not allowed. Do not unplug classroom computers from the network at any time as this may cause the network to become unreliable.
- If students wish to work in a classroom that is already in session, they must ask the instructor teaching the class for permission to enter. They may or may not be admitted – depending on the instructor's discretion.
- Students are not to utilize lewd, indecent or obscene desktop screensavers in classrooms.
- Profanity, racial slurs, sexual comments, and vulgar language in class will not be tolerated. The instructor may remove students who do not behave in a professional and respectful manner. Students are required to actively contribute to their class environment in a positive fashion.
- Academic dishonesty is not tolerated at LaSalle College Vancouver. Academic dishonesty or plagiarism is defined as any attempt to take the work of someone else and submit it, in part or in whole, as one's own. Plagiarism includes the unattributed use of material from any source – including books, periodicals, CD-ROM, and the World Wide Web. All quotations, paraphrases or other adaptations of others' work must be properly cited and documented. Any student who uses images, texts, or other media without proper attribution will be subject to the same penalties as students guilty of other types of academic dishonesty. For examples of academic dishonesty, please refer to the Academic Honesty Policy and Procedures in this syllabus.

Food and Drink Policy
LaSalle College Vancouver provides students, faculty and staff with cafeteria areas at each of its campuses. Food and drink should be enjoyed exclusively in these areas of the school. From time to time, food may be served at school events that take place in lecture rooms, art rooms or other public areas such as the atrium or the art galleries. These events are always sponsored and supervised by school officials.

Students, faculty and staff are not allowed to bring food into classrooms at any time. Drinks are allowed in lecture classrooms, drafting rooms and art rooms if they are in screw-top bottles or sealed-top travel mugs. Aluminum cans, open-top containers and other easily spilled vessels are not allowed. Due to the sensitive nature of the technology used in the computer labs, fashion labs and audio production studios, no food or drink is allowed in these rooms at any time. Shelves have been provided near the entrances of computer labs for students to store drink containers while in class. In consideration of other students, students should remove their drink containers from the shelves when they leave the classroom. As instructors often have to speak for long periods and may find it difficult to leave the classroom, instructors may bring a drink in an approved, sealed-top container into the classroom where they are teaching. Students are not allowed to bring food or drinks into computer labs, fashion labs or audio production studios. Students violating the food and drink policy may be asked to leave the classroom.

Breaks are provided at regular intervals in all classes so that students may leave the classroom to get refreshment. Drink containers should not be left outside of classrooms or in the hallways. Drink containers left outside of classrooms will be thrown out.

Academic Honesty Policy and Procedures

Definition of Academic Dishonesty
LaSalle College Vancouver defines an act of academic dishonesty as any attempt to:
- Take the work of someone else and submit it as one's own
- Commit or assist another student in committing an act of academic misconduct
This includes the unattributed use of written words, visual images, moving images, or sounds from any source including the internet.

Examples of academic dishonesty include, but are not limited to:
- Plagiarism or self-plagiarism:
  o Submitting another person's work, in part or whole, as your own for an examination or assignment;
  o Using a paper writing "service" or having another person write one's paper;
  o Borrowing all or part of another student's paper or using someone else's outline to write one's own paper;
  o Using sources of information without identifying them;
  o Directly quoting the words of others without using quotation marks, indented format, or an appropriate citation style to identify the author;
  o Paraphrasing materials or ideas of others without identifying the sources

- Cheating or helping another person cheat:

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o Copying a student's examination or permitting a student to copy your examination;
o Communicating with any person during an examination, other than the examination invigilator or faculty;
o Violating procedures established to protect the integrity of an assignment, test or other evaluation;
o Working with another person or persons on an assignment without the faculty member's consent or allowing anyone to use your work without attribution;
o Using electronic devices without permission.

General Procedure
In the event a student is alleged to have committed an act of academic dishonesty:
a) The instructor will contact their Academic Director or Program Coordinator and submit details of the incident
b) In consultation with the instructor, the Academic Director or Program Coordinator will determine the facts, and recommend a course of action
c) The incident will be reported to the Associate Dean of Academic Affairs, who will keep it on file

Disciplinary Guidelines
Upon confirming the offense, the Academic Director or Program Coordinator and instructor will determine an appropriate action from the following options:
- In the case of a light infraction:
  o Warning or reprimand
  o Reduced grade on an assignment or examination

- In the case of a serious infraction or repeat offence:
  o Failed or reduced grade on an assignment or examination
  o A new assignment or additional course work
  o Failed or reduced grade for a course
  o Suspension or expulsion

Academic Appeals
A student may appeal a penalty imposed under this policy within ten (10) business days of being informed of the action/decision. Findings of fact are not subject to appeal. See Academic Calendar for more details.

Accessibility and Counseling Services
LaSalle College Vancouver provides accommodations to qualified students with disabilities. The Office of Accessibility Support Services assists qualified students with disabilities in acquiring reasonable and appropriate accommodations and in supporting equal access to services, programs and activities at LaSalle College Vancouver.

Students will be asked to supply medical documentation of the need for accommodation. Classroom accommodations are not retroactive, but are effective only upon the student sharing approved accommodations with the instructor. Therefore, students are encouraged to request accommodations as early as feasible with the Office of Accessibility Support Services to allow for time to gather necessary documentation. If you have a concern or complaint in this regard, please contact the Dean of Student Affairs. Complaints will be handled in accordance with the school's Internal Grievance Procedure for Complaints of Discrimination and Harassment.

LaSalle College Vancouver provides referrals for confidential short-term counseling, crisis intervention, and community referral services. For more information, please contact the Director of Student Services.

LaSalle College Vancouver Library
With hundreds of books, databases, DVD's, the library has many resources to help you achieve success and is an excellent resource to foster learning and inspire your creativity. The library is the place to study, conduct research, get research help, and much more. Visit the library website at http://aii.campusguides.com/aivlibrary for access to E-books, the library catalogue, subject guides, electronic databases, and for more information. Please contact the library at rkyle@lasallecollegevancouver.com (or phone 778-373-8919), if you have any questions about the library or its services.

Technical Issues
Please refer all technical issues to our Technical Services department at 3777-lcv@lasallecollegevancouver.com. Please be as specific as possible in describing the issue; listing the room number and if possible the number of the machine affected.

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