UNIVERSITY OF THE FRASER VALLEY

ORIGINAL COURSE IMPLEMENTATION DATE: January 2004
REVISED COURSE IMPLEMENTATION DATE: September 2019
COURSE TO BE REVIEWED (six years after UEC approval)**:** February 2021
Course outline form version: 05/18/2018

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: COMP 380	**Number of Credits:** 3 Course credit policy (105)

Course Full Title: Introduction to Artificial Intelligence
Course Short Title: Intro to Artificial Intelligence
(Transcripts only display 30 characters. Departments may recommend a short title if one is needed. If left blank, one will be assigned.)

Faculty: Faculty of Professional Studies	**Department (or program if no department):** Computer Information Systems

Calendar Description:

A basic introduction to Artificial Intelligence. Topics include common AI techniques, including knowledge representation and reasoning, logical inference, and machine learning. Emphasis is placed on practical use of rule-based systems and the fundamentals necessary for the development of Expert Systems.

Note: Students with credit for CIS 380 cannot take this course for further credit.

Prerequisites (or NONE):	COMP 251, (one of STAT 106 or MATH 270/STAT 270), and admission to the Bachelor of Computer Information Systems degree or the Bachelor of Science with Computing Science major. Note: Students accepted to a CIS or Computing Science minor may register with permission of the department.
Corequisites (if applicable, or NONE):	None
Pre/corequisites (if applicable, or NONE):	None

Antirequisite Courses *(Cannot be taken for additional credit.)*
Former course code/number: **CIS 380**
Cross-listed with:
Dual-listed with:
Equivalent course(s): **CIS 380**
(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)

Typical Structure of Instructional Hours

Lecture/seminar hours	45
Tutorials/workshops	
Supervised laboratory hours	
Experiential (field experience, practicum, internship, etc.)	
Supervised online activities	
Other contact hours:	
Total hours	**45**

Labs to be scheduled independent of lecture hours: ☒ No ☐ Yes

Special Topics *(Double-click on boxes to select.)*
This course is offered with different topics:
☒ No ☐ Yes *(If yes, topic will be recorded when offered.)*

Independent Study
If offered as an Independent Study course, this course may be repeated for further credit: *(If yes, topic will be recorded.)*
☒ No ☐ Yes, repeat(s) ☐ Yes, no limit

Transfer Credit
Transfer credit already exists: *(See **bctransferguide.ca**.)*
☐ No ☒ Yes
Submit outline for (re)articulation:
☒ No ☐ Yes *(If yes, fill in transfer credit form.)*

Grading System
☒ Letter Grades ☐ Credit/No Credit

Maximum enrolment (for information only): 35

Expected Frequency of Course Offerings:
Once per year *(Every semester, Fall only, annually, etc.)*

Department / Program Head or Director: Talia Q	**Date approved:**	December 2028
Faculty Council approval	**Date approved:**	December 7, 2018
Dean/Associate VP: Tracy Ryder Glass	**Date approved:**	December 7, 2018
Campus-Wide Consultation (CWC)	**Date of posting:**	February 22, 2019
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	March 1, 2019

Learning Outcomes

Upon successful completion of this course, students will be able to:

- Contrast AI systems and traditional computer information systems.
- Assess the major benefits and limitations of Expert Systems.
- Describe the role of knowledge acquisition, validation, and representation in AI.
- Model uncertainty and apply probabilistic inference in AI systems.
- Design and build a simple expert system.
- Implement programs that use Neural computing, Genetic Algorithms, and Fuzzy Logic.
- Define the role of intelligent agents in modern software.

Prior Learning Assessment and Recognition (PLAR)

☒ Yes ☐ No, PLAR cannot be awarded for this course because

Typical Instructional Methods *(Guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion.)*

Lectures, assignments, and hands-on exercises working with Expert Systems software.

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials *(If more space is required, download Supplemental Texts and Resource Materials form.)*

	Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.	Russell, S. & Norvig, P.	Artificial Intelligence: A Modern Approach	☒		
2.			☐		
3.			☐		
4.			☐		
5.			☐		

Required Additional Supplies and Materials *(Software, hardware, tools, specialized clothing, etc.)*

CD for assignments and project.

Typical Evaluation Methods and Weighting

Final exam:	35%	Assignments:	30%	Field experience:	%	Portfolio:	%
Midterm exam:	35%	Project:	%	Practicum:	%	Other:	%
Quizzes/tests:	%	Lab work:	%	Shop work:	%	Total:	100%

Details (if necessary):

Typical Course Content and Topics

- Artificial vs. Natural Intelligence
- Knowledge acquisition and validation
- Machine reasoning, making inferences, representing uncertainty
- Building expert systems
- Neural Network fundamentals
- Genetic Algorithms, fuzzy logic, and Hybrid Intelligent systems
- Intelligent Agents
- Speech recognition and understanding
- Computer Vision
- Robotics