UNIVERSITY OF GUELPH (Main Campus)
School of Computer Science
Course Outline

Course Code: CIS*3700 **Credits**: 0.50	**Course Title:** Introduction to Intelligent Systems	**Date of Offering:** Winter 2020
Instructor: Yang Xiang **Office hours:** Thur 4:00-5:00 PM	**Office:** Reynolds 3320 **Email:** yxiang@uoguelph.ca	GTA: Michael Roher mroher@uoguelph.ca

Calendar Description:

This course covers the core topics of artificial intelligence, namely: agents and environment, search, knowledge representation, reasoning, and learning. The last three topics are covered using logic as the common formalism for coherence. The course introduces a broad range of basic concepts, terminology, and applications, in addition to providing some specific, widely applicable methodologies.

Prerequisite(s): (CIS*3750 or CIS*3760), (CIS*2460 or Stat*2040)

Topics:

- Intelligent agents
- Properties of agent environment
- Solving problems by uninformed search and heuristic search
- Knowledge representation with logic
- Inference with model checking, resolution, and chaining
- Inductive learning and decision trees
- Regression, classification by linear models, gradient descent, and neural networks
- Assignments require programming in Java.

Lectures (Start: Jan 7, 2020; End: Apr 2, 2020)
Tues, Thur 2:30-3:50PM; Graham Hall 2310

Labs Tues 8:30 - 9:20AM; Rozanski Hall 105

Required Text: S. Russell and P. Norvig,
Artificial Intelligence: A Modern Approach, (3rd Ed.), Prentice Hall, 2010.

Method of Evaluation:

Course Work	Date	Weight
Assignment A1:	Due Thur. Jan. 30	12%
Assignment A2:	Due Thur. Mar. 12	12%
Assignment A3:	Due Thur. Mar. 26	12%
Midterm:	Thur. Feb. 27	24%
Final Exam:	Thur. Apr. 16: 2:30 - 4:30PM	40%
		A student passes the course if the weighted sum of all components ≥ 50%.

Learning Outcomes

1. Identify key properties of environment for intelligent system applications.
2. Implement uninformed search and A* search.
3. Encode domain knowledge in propositional logic.
4. Understand inference by resolution, forward and backward chaining.
5. Understand inductive learning and information measure.
6. Implement decision tree learning.
7. Understand regression, classification by linear models, and simple artificial neural networks.

Instructor's Role and Responsibility to Students

The instructor's role is to develop and deliver course material in ways that facilitate learning for a variety of students. Lecture PowerPoint slides will be made available to students on the course website but are not intended to be stand-alone. During lectures, the instructor will expand and explain the content of slides and provide example problems that supplement posted slides. Scheduled classes will be the principal venue to provide information and feedback for exams and assignments.

Students' Learning Responsibilities

Students are expected to take advantage of the learning opportunities provided during lectures and lab sessions. Students, especially those having difficulty with the course content, should also make use of other resources recommended by the instructor. Students who fall behind due to illness, work, or extra-curricular activities are advised to keep the instructor informed as early as possible. This will allow the instructor to recommend extra resources in a timely manner and/or provide consideration if appropriate.

Assignment Submission

Assignment Submission Procedure in the course website should be followed. Assignments should be submitted to CourseLink Dropbox by 11:30PM on specified due dates. Late submissions are subject to 20% of the total mark per day up to 2 ***calendar*** days (graceful period). For instance, the latest time to submit an assignment due on Thursday is 11:30PM on Saturday, with the highest possible mark of 60%.

Re-Grading Policy

For each assignment, a mark report will be emailed to each student. Marked mid-terms will be returned to students. Problems in marking should be reported to Instructor (in face or to yxiang@uoguelph.ca) within 48 hours after receiving the mark report or the mid-term. After 48 hours, the reported mark will be finalized.

Email Policy

As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students. All emails for the Instructor should be sent to yxiang@uoguelph.ca. In particular, mark reports to students will be sent from accounts other than yxiang@uoguelph.ca. Problems on marking should NOT be reported by replying to marking reports.

Electronic Recording

The electronic recording of class lectures is expressly forbidden without the prior consent of the instructor. When recordings are permitted, they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

Academic Integrity

The University of Guelph is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards, and must abide by the applicable policies (Section VIII of the Undergraduate Calendar on "Academic Misconduct").

For educational purposes, assignments of this course are to be completed individually. Any utilization of external sources must be done with proper references. Work that shows significant unnatural similarity, or that appears to be copied from unacknowledged sources, will be investigated as potential academic misconduct. "Aiding and abetting" is also a punishable offence, and students must be careful not to help others commit offences by giving out their files or allowing others to access their computer accounts.