

CS 3346b / CS 3121b

WINTER 2019

Course Description

The academic calendar states "Introduction to Artificial Intelligence; logic programming; heuristic search; knowledge representation; expert systems." This description is a bit dated. The course is an introduction to Artificial Intelligence but looks instead at the fundamentals used in the construction of intelligent agents. Included is heuristic search and knowledge representation, but also included is logical reasoning, machine learning, and planning. Programming will require the use of Python. Expert systems will not be covered.

Students will be introduced to a number of fundamental ideas which are useful for understanding the research literature and building intelligent artifacts.

Prerequisites

Either (Computer Science 2210A/B and 2211A/B) or (Software Engineering 2203A/B, 2205A/B and 2250A/B); Computer Science 2209A/B, or registration in the BESC program in Computer Engineering or Software Engineering. Students are responsible for the appropriate algorithmic or logic background.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Instructor

Name	Dr. Robert Mercer
Office	MC 28A-2
Office Hours	Friday 9-10am (or by appointment)
Phone	86893 (emergencies only)
E-Mail	mercero@csd.uwo.ca (preferred communication method)

Course Materials

Textbooks: Artificial Intelligence : A Modern Approach (Stuart J. Russell and Peter Norvig) (available in the library) and Artificial Intelligence: Foundations of Computational Agents 2nd edition (David L. Poole and Alan K. Mackworth) (available online at <http://artint.info/>)

Lecture Slides: Slides will be available online on the course website

Course Website

<http://www.csd.uwo.ca/courses/CS3346a/>

Students should check the course website as well as OWL on a regular basis for news and updates. These are the primary methods by which information will be disseminated to all students in the class. The missing of critical information due to your failure to check the course website or OWL cannot be used as a basis for appeal.

Course Topic

The course will follow the textbooks reasonably closely with some chapters left out. In the following, "RN" are chapters from Russell and Norvig and "AI2e" are chapters from Poole and Mackworth.

Topic 1: Chapter RN1: Introduction

Topic 2: Chapter RN2: Intelligent Agents

Topic 3: Chapter RN3: Solving Problems by Searching

Topic 4: Chapter RN5: Adversarial Search

Topic 5: Chapter RN6 and AI2e4: Constraint Satisfaction Problems

Topic 6: Chapter RN7, RN8, RN9, and AI2e5: Logical Agents using Classical and Non-classical Logic

Topic 7: Chapter RN10: Classical Planning

Topic 8: Chapter RN10: Other Types of Planning

Topic 9: Chapter AI2e7: Belief Networks

Topic 10: Chapter RN18: Learning from Examples

Topic 11: Introduction to Answer Set Programming

Topic 12: Introduction to OWL

Class Schedule

Lectures: Wednesday 9:30-10:30am, UCC 146 Friday 9:30-11:30am, UCC 146

TA Consulting Hours

TA: Vincent Sippola TBA, MC 4A

TA: Marilyn Finnie TBA, MC 4A

Computing Facilities

Each student will have an account on the Computer Science Department server

Each student will have an account on the Computer Science Department senior undergraduate computing facility, GAUL. In accepting the GAUL account, a student agrees to abide by the department's *Rules of Ethical Conduct*.

Email Contact

We occasionally need to send email messages to the class or to students individually. Email is sent to the UWO email address as assigned to you by Information Technology Services (ITS), i.e. your email address @uwo.ca. It is your responsibility to read this email on a frequent and regular basis, or to have it forwarded to an alternative email address if preferred. See the ITS website for directions on forwarding email.

Student Evaluation

Four assignments worth 10% each.

Midterm and Final Exams worth 30% each.

If for any reason the assignment schedule given below cannot be adhered to, the assignment marks will be pro-rated. (The n assignments are worth $k\%$ of the overall mark for the course. If an assignment has to be cancelled for any reason, the remaining assignment weights will be prorated to add up to $k\%$.)

Every effort will be made to have assignments marked and handed back within 3 weeks of the handin date, preferably sooner.

Academic Accommodation for Medical Illness

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Academic Counselling Office of your home faculty as soon as possible and contact your instructor immediately. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in WSC 140, and can be contacted at scibmsac@uwo.ca. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. For further information please see:

<http://www.uwo.ca/sci/counselling/pdf/Submission-of-Medical-Documentation-for-Course-Appeal.pdf>

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

Assignment Schedule

Due Dates, Assignment Weights, Workload (light, medium, heavy)

All assignments are due by 4pm of the due date.

Assignment 1: Due 8 February 2019 (10% medium) (originally ~~1 February 2019~~)

Assignment 2: Due 1 March 2019 (10% medium)

Assignment 3: Due 22 March 2019 (10% medium)

Assignment 4: Due 5 April 2019 (10% medium)

Exam Schedule

Midterm Exam -- 8 March 2019, during class time, UCC 146

Final Exam -- TBA

No electronic devices may be in your possession during tests and exams. All exams are closed book.

Assignments

Submission of Assignments: Instructions will be given with each assignment.

Late Assignment Policy (11:55pm cutoff):

1 day late: -10% (Monday following due date; before 11:55pm)

2 days late: -50% (Tuesday following due date; before 11:55pm)

3 days late: -100% (but will be marked) (after 11:55pm Tuesday following due date)

Extensions:

Generally, no extensions to assignments will be given (except for lengthy illness, or other compassionate grounds).

In those cases where an extension is granted, only the course instructor can grant the extension. If you have serious medical or compassionate grounds for an extension, you should take supporting documentation to the office of the Dean of your faculty, who will contact the instructor.

There will be no makeup Midterm Exam, except for students requesting a Special Midterm Exam for religious reasons. These students must have notified the course instructor and filed documentation with their Dean's office at least 2 weeks prior to the Midterm Exam in question.

If you miss the Midterm Exam for any other reason, and present valid documentation to the Dean's office, your Final Exam mark will be reweighted to include the weight of the Midterm Exam. You must notify the course instructor within a week of the missed Midterm Exam, and documentation must be received by your Dean's office within 2 weeks of the missed exam.

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible.

If you are a science student, the Academic Counselling Office of the Faculty of Science is located in WSC 191, and can be contacted at 519-661-3040 or scibmsac@uwo.ca. Their website is <http://www.uwo.ca/sci/counselling>.

A student requiring academic accommodation due to illness is recommended to follow the policy on Accommodation for Illness http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf (which includes a link to the Student Medical Certificate)

If you miss the Final Exam, contact your faculty's Academic Counselling Office as soon as possible. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation": http://www.uwo.ca/sci/counselling/procedures/exam_conflicts.html.

Accessibility Statement

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

The policy on Accommodation for Students with Disabilities can be found here: www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf

Support Services

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western: http://www.uwo.ca/health/mental_wellbeing for a complete list of options about how to obtain help.

The website for Registrarial Services is <http://www.registrar.uwo.ca>

Ethical Conduct

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Plagiarism: Students must write their assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence.

All assignments are individual assignments. You may discuss approaches to problems among yourselves; however, the actual details of the work (assignment coding, answers to concept questions, etc.) must be an individual effort.

The standard departmental penalty for assignments that are judged to be the result of academic dishonesty is, for the student's first offence, a mark of zero for the assignment, with an additional penalty equal to the weight of the assignment also being applied. You are responsible for reading and respecting the Computer Science Department's policy on *Scholastic Offences and Rules of Ethical Conduct*.

The University of Western Ontario uses software for plagiarism checking. Students may be required to submit their written work and programs in electronic form for plagiarism checking.

Tutoring

The role of tutoring is to help students understand course material. Tutors should not write assignments or take-home tests for the students who hire them. Having employed the same tutor as another student is not a legitimate defence against an accusation of collusion, should two students hand in assignments judged similar beyond the possibility of coincidence.