

Outline for Artificial Intelligence II, CS4442

Course Description

This course is a continuation of CS3346, Artificial Intelligence I. A broad range of areas falls into the field of Artificial Intelligence. In this course we give a brief introduction to three very active areas of Artificial Intelligence: machine learning, natural language processing, and computer vision. The programming assignments will be done in Matlab (short intro to Matlab will be given), and the emphasis of the assignments will be on developing practical applications, such as SPAM detector in email, text categorization, object tracking in videos.

Planned topics (subject to change) are:

- [Machine Learning](#): linear classifier (Perceptron), neural networks, boosting
- [Natural Language Processing](#): word sense disambiguation, discourse understanding, machine translation, text categorization
- [Computer Vision](#): edge detection, image segmentation, tracking, stereo correspondence, motion segmentation

Prerequisites

- Computer Science 3346 (AI 1) is an official prerequisite, with a grade of at least 60%. However, the material covered in AI 2 does not really need AI 1 as a prerequisite, therefore I usually give permission to enroll in AI 2 without AI 1.
- Computer Science 2210a/b with a grade of at least 60%
- One full-course equivalent from: Calculus, Linear Algebra, Applied Mathematics

Instructor

Olga Veksler

Office: MC361

Email: my_first_name@csd.uwo.ca

Lectures: Mo 9:30-11:30 and Th 9:30-10:30 in MC-105B

Office Hours: Tues 3:30-4:30 or by appointment.

Teaching Assistant

TBD

Email:

Office Hours: Feb 13, Mar 7, Mar 21, Apr 4 from 10:30 to 11:30 and Feb 13, Mar 6, Mar 20, Apr 3 from 16:30 to 17:30, in MC239.

from 3:30pm-5:30pm.

Main Textbook

[Artificial Intelligence: A Modern Approach](#) second edition

S. Russell and P. Norvig

Prentice Hall, 2002.

Other Textbooks:

Machine Learning: [Pattern Classification](#)

third edition, R. Duda, P. Hart, D. Stork, Wiley Interscience

Computer Vision: [Computer Vision: Algorithms and Applications](#)

R. Szeliski, Springer

Natural Language Processing: [Foundations of Statistical Natural Language Processing](#)
C. Manning, H. Schutze, MIT Press.

Course Website

http://www.csd.uwo.ca/faculty/olga/Courses//Winter2010//CS4442_9542b/index.html. Lecture notes, assignments, labs, and other class information will be posted at this site. You are responsible for reading this information frequently.

Student Evaluation

Grades will be based on:

- 3 short quizzes, each worth 18% of the final mark
- 3 programming assignments, first one worth 16% and the other two are worth 15% each

If for any reason the assignment schedules given below cannot be adhered to, the assignment marks will be pro-rated. The 3 assignments are worth 46% 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 46%.

If for any reason any of the short quizzes have to be cancelled, the remaining quizzes will be worth 54% of the final mark.

Calculators will be allowed during the quizzes, but no other electronic devices will be allowed.

Every effort will be made to have assignments and quizzes marked and handed back within 3 weeks of the hand in date.

Assignment Schedule **Tentative, some of these dates might change**

All assignments are due at midnight on the date indicated, submitted using WEBCT. The assignments are to be programmed in Matlab. The instructor will give a short introduction to Matlab.

- Assignment 1 due on February 12.
- Assignment 2 due on March 10.
- Assignment 3 due on April 4.

Short Quiz Schedule **Tentative, some of these dates might change**

- Thursday, February 15
- Thursday, March 15
- Monday, April 9

There will be **no makeup** for short quizzes, except for religious reasons, in which case students must have notified the course instructor and filed documentation with their Dean's office at least 1 week prior to the short quiz.

If you miss a short quiz for any other reason, and present valid documentation to the Dean's office, your . To make up for the missed quiz, I will either reweigh the other quizzes or will schedule a make-up quiz at the end of the term. You must notify the course instructor within a week of a

missed short quiz, and documentation must be received by your Dean's office within 2 weeks of the missed quiz.

Late Policy

For each assignment it is indicated above when it is due, and for each assignment we will give details on how to hand in the work.

The late penalty for assignments is 5% for each day. You cannot be more than 4 days late. For computing the late penalty, Saturday and Sunday count as one day.

Extensions will be granted only by the course instructor. 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.

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 your Dean's office as soon as possible and contact your instructor immediately. 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 [this](#).

Also see

- [the policy on Accommodation for Illness](#)
- [the services for students in mental/health distress](#)
- [the services for students with disabilities](#)
- [the office of registrar](#)
- [the Student's Council](#)

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](#)

Ethical Conduct

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. Assignments that are judged to be the result of academic dishonesty will, for the student's first offence, be given a mark of zero 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](#) and also [Academic Policies](#).

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.

For computer-marked multiple-choice tests and/or exams, use may be made of software to check for unusual coincidences in answer patterns that may indicate cheating.

Plagiarism: Students must write their essays and 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 (see Scholastic Offence Policy in the Western Academic Calendar).

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.

Computing Facilities

Each student will be given 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](#) .

Note: After-hours access to certain Computer Science lab rooms is by student card. If a student card is lost, a replacement card will no longer open these lab rooms, and the student must bring the new card to a member of the Systems Group in Middlesex College Room 346.