

COURSE OUTLINES (SYLLABI) FOR UNDERGRADUATE COURSES

1. Course Information

Course Information

Artificial Intelligence II (4442), Winter 2021, the lectures will be held online and synchronous via Zoom, Mondays 9:30 – 11:30 AM, Wednesdays 9:30 -10:30 AM.

Zoom link for class lectures: <https://westernuniversity.zoom.us/j/91838217065> (passcode: 731184)

List of Prerequisites [if applicable]

- Computer Science 3346 (AI 1) and Computer Science 2210a/b are official prerequisites, with a grade of at least 60%. However, the material covered in AI 2 does not really need AI 1 or Data structure as a prerequisite, therefore we usually give permission to enroll in AI 2 without AI 1 or Data structure.
- One full-course equivalent from: Calculus, Linear Algebra, Statistics

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may 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.

2. Instructor Information

Prof. Boyu Wang and, bwang@csd.uwo.ca
Prof. Yalda Mohsenzadeh, ymohsenz@uwo.ca

Office Hours: Mondays at 4:00 to 5:00 PM on zoom
Zoom link to office hours: <https://westernuniversity.zoom.us/j/94917067804> (passcode: 912502)

Students must use their Western (@uwo.ca) email addresses when contacting their instructors. The students should include the course number in the subject line of the email and what the email is related to. For example CS442 – assignment 1.

3. Course Syllabus, Schedule, Delivery Mode

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 two very active areas of

Artificial Intelligence: machine learning and deep learning with applications in computer vision. The programming assignments will be done in Matlab/Python. During this course we will study both algorithmic perspectives of artificial intelligence and their practical applications especially in computer vision.

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Classes begin: January 11

Reading Week: February 13-21

Classes end: April 12

4. Course Materials

There is no required textbook. However, there are several good machine learning and computer vision textbooks describing parts of the material that we will cover.

- Mitchel, "Machine Learning", McGraw-Hill, 1997
- Forsyth and Ponce, "Computer Vision: A Modern Approach", Prentice Hall, 2002
- Goodfellow, Bengio, Courville, "Deep Learning", MIT Press, 2016
- Bishop, "Pattern Recognition and Machine Learning", Springer, 2006.
- Murphy, "Machine Learning: a Probabilistic Perspective", MIT Press, 2012.

Students should check OWL (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis.

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All course material will be posted to OWL: <http://owl.uwo.ca>.

If students need assistance, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

Technical Requirements

The students need to have access to stable internet connection, computer with working microphone and/or webcam.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Undergrad students:

Assignments (4)	60%
Final Project	40%

Graduate students:

Assignments (4)	40%
Project Presentation	10%
Final Project	50%

Undergraduate students will write submit the report of their final project. Graduate students will present their final project and submit a report of their final project.

Timetable:

Assignment 1: Release: Jan 29 Due: Feb 12

Assignment 2: Feb 12, Due: Feb 26

Assignment 3: March 12, Due: March 26

Assignment 4: March 26, Due: April 10

Final Project:

The project is to be completed in groups of two-three students. Students who are working for their research on problems that are amenable to machine learning solutions are strongly encouraged to formulate a project related to their work. Students who do not have such problems should contact Boyu and/or Yalda to discuss possible projects.

Undergraduate students will be required to write a project report.

Graduate students will be required to write a project report, and to do a final project presentation (10 minutes per team). The presentations will be scheduled in the last week of class, during of the class time.

Final project report will be due on May 7th.

In order to do pass the course,

- Undergraduate students must obtain at least 50% score in this course. They must do the final project and they must at least obtain half of the assignments score.
- Graduate students must obtain at least 60% score in this course. They must present their final project and write the final report, and they must obtain at least half of the assignments score.

Accommodated Evaluations

10% of each assignment will be taken off each day for late submissions; after 5 days being late, no points are given anymore.

6. Accommodation and Accessibility

Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy can be found at: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf

Academic Consideration for Student Absence

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the semester, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student's final grade. Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year

If the conditions for a Self-Reported Absence are *not* met, students will need to provide a Student Medical Certificate if the absence is medical, or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to contact their Faculty academic counselling office to obtain more information about the relevant documentation.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs, see:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf

and for the Student Medical Certificate (SMC), see:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

Religious Accommodation

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the Western Multicultural Calendar:

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html).

7. Academic Policies

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

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Contingency plan for an in-person class pivoting to 100% online learning

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.

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:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

8. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on add/drop courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at (519) 661-2147 if you have any questions regarding accommodations.

[New] Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

[optional] 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.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.