

COMP 3106 A (Fall, 2026)

Introduction to Artificial Intelligence

Instructor: Zinovi Rabinovich
Class location: Please check Carleton Central for the room location.
Email: zinovirabinovich@cunet.carleton.ca
Office location: HP 5410
Best ways to be in touch: in class, via discussion board, during office hours, via email
Teaching Assistant: A list of teaching assistants and their contact/office hours information will be posted once the course starts.
Lecture times: Wednesdays and Fridays, 13:00-14:30
Course website: https://brightspace.carleton.ca/d2l/home/449109

Course Calendar Description

Principles and tools used in Artificial Intelligence. Fundamentals of Knowledge Representation and Reinforcement Learning and Nature-Based computing. Methods for non-adversarial problem solving including non-exhaustive and heuristic-based strategies for searching the state space. Methods for adversarial problem solving, modeled as two-person and multi-person games.

- **Precludes:** additional credit for COMP 4106 (no longer offered), SYSC 4416
- **Prerequisites:** COMP 2402 and (COMP 2404 or SYSC 3010 or SYSC 3110) and COMP 2804

Learning Material(s) and Other Course/Lab-Related Resources

Learning Material	Options for Purchasing (e.g., Bookstore, Used, etc.)	Approximate Cost
Stuart Russell & Peter Norvig. Artificial Intelligence: A Modern Approach, 4th Edition. Pearson (2020). ISBN-13: 9780134610993.	Ebook or Hardcover	~70 CAD (ebook) to ~260 CAD (hardcover)

Students are not required to purchase textbooks or other learning materials for this course.

Any editions of the textbook are allowed, but the most recent version is recommended for ease of reference.

The course may also use supplementary online resources available publicly or through the Carleton Library. Information on accessing these resources will be provided in class or posted on Brightspace.

The course will use Wooclap, Carleton University's web-based student response system. See here for details: <https://www.wooclap.com>

Topics Covered and Learning Outcomes

By the end of this course, students should be able to:

- Identify and describe different types of agents and task environments
- Formulate the fundamental ideas, concepts, and methods in artificial intelligence
- Select the appropriate AI methods to solve problems
- Implement AI methods and analyze their performance.

Week	Topic/Content	Readings/Prep for Class
1-2	Agents and Agent-Based Systems	Textbook 2.1-2.4
2-3	Heuristic Search	Textbook 3.1-3.6, 5.1-5.5
4	Principles of Machine Learning	Textbook 19.1,19.2,19.4
5	Bayes Theorem and Inference	Textbook 12.5,12.6, 13.1-13.3
6	Rule-based Systems	Textbook 9.3, 9.4, Online material
7-8	Reinforcement Learning	Textbook 22.1-22.5
9	Artificial Life	Textbook 23.1, 4.1
10	Natural Language Processing	Textbook 23.1
11	Artificial Neural Networks	Textbook 21.1-21.6
12-13	Project Demonstrations	

About course format

This course will be in-person. During class, we will have interactive activities such as: discussions, tutorials, demonstrations, examples, exercises, etc. In-person class attendance is very important as students will be responsible for all items discussed in class.

About course communication

This All announcements for the course will be made through Brightspace. You are responsible for regularly monitoring these announcements. In-person classes may also be used to elaborate on announcements.

Students are requested to ask questions or have discussions about the course or course material during the in-person classes, during instructor or TA office hours, or on Brightspace. This way, other students may benefit from the discussion. You may not, however, show or post solutions to the assessments during class or on Brightspace. Questions or discussion about your individual situation may be asked by email.

Assessment Scheme

Grade Breakdown

COMPONENT	GRADE VALUE	DATE (approximate)
Quizzes (4)	32 %	Weeks 4, 7, 9, 12
Assignments (4)	32 %	Weeks 4, 7, 9, 13
Project	36 %	Week 8 (proposal), Week 12-13 (presentations)

About Assignments

There will be four assignments. Each assignment will contain an implementation and associated questions. Implementations must be written in Python 3. Assignments may be completed individually or in small groups of up to three students.

For each assignment, you may be submitting one or more files that contain source code. These files must follow the specified format. Incorrectly formatted assignments will be penalized and may receive a mark of zero. If any of the source code files you submit does not run, it may receive a mark of zero. Furthermore, you are expected to demonstrate good programming practices, and your code may be penalized if it is poorly written.

About Quizzes

There will be four quizzes. Each quiz will be 80 minutes in length and take place in-person during regularly scheduled class time. Quizzes are open-book, and you may consult your notes and the textbook during quizzes. You may not use electronic devices (except non-programmable scientific calculators) during quizzes; you may not consult other people during quizzes. Quizzes must be completed individually.

About the Project

Students will complete a project that involves an implementation of methods from artificial intelligence to solve a problem. The project will comprise: (1) a project proposal outlining the problem, (2) a live demonstration of the work, (3) a repository with the source code for the implementation, and (4) a project report detailing the work completed. Projects may be completed individually or in small groups of up to three students.

On aggregation of components towards the final grade

The lowest assignment grade or the lowest quiz grade (not both) will be excluded from the total grade computation. That is, either (1) the best three out of four assignments and four out of four quizzes will count toward your total grade or (2) four out of four assignments and the best three out of four quizzes will count toward your total grade.

About the use of AI in an course on AI

Students are free to use tools of your choice for your Assignments and Projects. Notice, **however**, that students bear full responsibility for the correctness of the submitted solutions. Students are expected to be able to explain any and all portions of the submitted material. Failure to do so may result in zero mark for the respective task.

All quizzes are expected to be completed individually, and **without** electronic aid; any communication or access of electronic devices (e.g. cellphones) during the quiz will be considered cheating. Use of Smart Glasses (or other similar assistive technologies) before or during a quiz is strictly prohibited and is considered an academic integrity violation. Even if you have prescription

glasses with assistive technologies, you will not be allowed to use them during the quiz, so please make sure that you have acceptable prescription glasses. The proctor has the right to ask to inspect your glasses before or during the quiz. In addition, unless authorized with PMC accommodations, you are NOT allowed to use headphones nor ear buds during a quiz. Also, during a quiz, if you choose to wear a baseball cap, sunglasses or anything else that would prevent a proctor from monitoring where your eyes are focused during the quiz, you will likely be asked by a proctor to move to a different seat. Lastly, you must submit your quiz before leaving the classroom or it won't be graded.

Late and Missed Work Policies

Late Work

For each assignment, the project proposal, and the project implementation/report, students may request a 48-hour extension. To request an extension, you must submit a rough draft of your work and with a statement that you are requesting an extension on the Brightspace submission portal by the due date. Provided this, submissions within this 48-hour extension period will be accepted without penalty. Late submissions beyond this will not be accepted.

Technical problems do not exempt you from this requirement. Consequently, you are advised to: (1) periodically upload your progress (e.g. upload your progress at least daily) and (2) attempt to submit well in advance of the due date and time. It is your responsibility to ensure you have submitted the correct materials.

Missed Work

Short-term (5 days or less): Students requesting academic consideration for short-term (5 days or shorter) extenuating circumstances must contact the course instructor as soon as possible and complete the [Academic Consideration for Coursework Form](#).

Long-term (> 5 days): Students requesting academic consideration for long-term (longer than 5 days) extenuating circumstances must contact the course instructor as soon as possible and complete the [Long-Term Academic Consideration Form](#) with supporting documentation

Typical accommodation for missed quizzes will involve a modified grading scheme (e.g. changing which assessments are eligible to be dropped); typical accommodation for missed assignments or project components will involve modified due dates. In all cases, accommodation will be at the discretion of the course instructor.

Undergraduate Academic Advisors

The Undergraduate Advisors for the School of Computer Science are available in Room 5302HP; or by email at scs.ug.advisor@cunet.carleton.ca. The undergraduate advisors can assist with information about prerequisites and preclusions, course substitutions/equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisors will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and Writing Tutorial Services.

SCS Computer Laboratory

Students taking a COMP course can access the SCS computer labs. The lab schedule and location can be found at: <https://carleton.ca/scs/tech-support/computer-laboratories/>. All SCS computer lab and technical support information can be found at: <https://carleton.ca/scs/tech-support/>. Technical support staff may be contacted in-person or virtually, see this page for details: <https://carleton.ca/scs/tech-support/contact-it-support/>.

Mental Health and Wellness

The [Carleton Wellness Website](#) is a wonderful resource link to include in the course outline for students.

Academic Accommodations and Regulations

Academic Accommodation

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes are outlined on the Academic Accommodations website (<https://students.carleton.ca/course-outline/>).

Chat GPT/Generative AI Usage

Unless explicitly stated otherwise, the use of any AI system to complete coursework must be appropriately cited. This includes the use of chatbots (e.g., ChatGPT, Google Bard, Bing Chat), research assistants (e.g., Elicit), and image generators (e.g., Stable Diffusion, Dall-E), etc. Failure to reference such systems or tools is considered academic misconduct.

As our understanding of the uses of AI and its relationship to student work and academic Integrity continue to evolve, students are required to discuss their use of AI in any circumstance not described here with the course instructor to ensure it supports the learning goals for the course.

Academic Integrity

Students are expected to uphold the values of academic Integrity, which include fairness, honesty, trust, and responsibility. Examples of actions that compromise these values include but are not limited to plagiarism, accessing unauthorized sites for assignments or tests, unauthorized collaboration on assignments or exams, and using artificial intelligence tools such as ChatGPT when your assessment instructions say it is not permitted.

If you are unsure of the expectations regarding academic Integrity (how to use and cite references, if unauthorized collaboration with lab- or classmates is permitted (and, if so, to what degree), then you must ask your instructor. Sharing assignment or quiz specifications or posting them online (to sites like Chegg, CourseHero, OneClass, etc.) is **always** considered academic misconduct. You are **never** permitted to post, share, or upload course materials without explicit permission from your instructor. Academic integrity offences are reported to the office of the Dean of Science. Information, process and penalties for such offences can be found on the ODS webpage: <https://science.carleton.ca/students/academic-integrity/>

Misconduct in scholarly activity will not be tolerated and will result in consequences as outlined in [Carleton University's Academic Integrity Policy](#). A list of standard sanctions in the Faculty of Science can be found [here](#).

Additional details about this process can be found on [the Faculty of Science Academic Integrity website](#).

Students are expected to familiarize themselves with and abide by [Carleton University's Academic Integrity Policy](#). Claiming ignorance of or confusion about the academic integrity standards as described in the Policy does not excuse a student from responsibility for violations of those standards.

Student Rights & Responsibilities

Students are expected to act responsibly and engage respectfully with other students and members of the Carleton and the broader community. See the [7 Rights and Responsibilities Policy](#) for details regarding the expectations of non-academic behaviour of students. Those who participate with another student in the commission of an infraction of this Policy will also be held liable for their actions.