



WPI

Department of Computer Science

Course Syllabus

CS 534 Introduction to Artificial Intelligence

Course Description

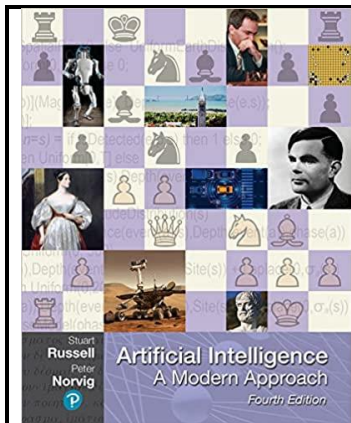
This course gives a broad survey of artificial intelligence. The course will cover methods from search, probabilistic reasoning, and learning, among other topics. Selected topics involving the applications of these tools are investigated. Such topics might include natural language understanding, scene understanding, game playing, and planning. (Prerequisites: familiarity with data structures and a high-level programming language.)

Course Objectives

- Students will acquire knowledge on concepts and problems from classical as well as state-of-the-art areas of AI.
- Students will develop a deeper understanding of some of the most important methods and algorithms in AI.
- Students will learn to work in a team and jointly apply their skills to solve real-world problems.
- Students will learn how AI technologies have been widely used in the real-world industries.

Course Materials

Reference Textbook



- Title: Artificial Intelligence: A Modern Approach, 4th Edition
- Author: Stuart Russell and Peter Norvig
- Publisher: Pearson Series
- Pub. Year: 2020
- ISBN-10: 0134610997
- ISBN-13: 978-0134610993
- Book Site: <http://aima.cs.berkeley.edu/>

Course Requirements and Grading***Recommended Background***

Prerequisites: Familiarity with data structures and a high-level programming language is required. Python would be strongly recommended.

Some basic knowledge in math models, algorithms, logic, machine/deep learning, natural language processing, computer vision, etc., is highly desired and helpful.

Assignment Sections

Raw scores MAY be adjusted by the instructor to calculate final course grades. Final course grades will be determined based on the following components:

Assignment Category	Quantity	Weight (% of Final Grade)
Discussion Forums	2	20%
Individual Project Assignments	3	30%
Group Project Assignments	4	50%
Total	9	100%

All the project assignments and discussion forums must be completed and submitted to the appropriate places before the assigned dates (see the course schedule for the exact dates) for the submission to be considered "on-time". Drop boxes will be available on Canvas.

In general, each project assignment will have a basic objective for the majority of the assignment points and an extended objective for demonstrating additional work and understanding. Final course grades will reflect the extent to which students have demonstrated understanding of the material through class discussions, interactions in office hours, and performance in group project assignments. Final course grades will be awarded to the following scale:

Letter Grade	GPA	Numerical Grade
A	4.0	90 - 100
B	3.0	80 - 89
C	2.0	70 - 79
D	1.0	60 - 69
F	0.0	< 60

Discussion Forums (DF) (20%)

- In each forum, we have a topic posted on the discussion forum that requires each student to provide their comments and thoughts.
- Each student also needs to provide constructive feedback and response to at least two other classmates' posts. Ideally, those classmates should not be his or her project members.

Individual Project (IP) Assignments (30%)

There are three IP assignments in total. These IP assignments are used as practices to enable students to apply the techniques that they learn from each lesson to their projects. Each IP assignment is available at the beginning of a specific lesson during the course. You will have approximately two or three weeks to complete each assignment. They account for 30% of each student's grade. It is very important that students complete and submit all the IP assignments to master the materials. Note that all the IP assignments are individual work. General Discussions are allowed among your classmates, but no answers/solutions/codes can be shared, or an Honor Code is violated. Assistance may be requested from the instructor or TA. Other assistance may be considered an Honor Code violation. IP assignments (**see the separated course schedule and requirements**) will be submitted to Canvas before the due date unless it is further noticed and adjusted by the instructor. Late submissions are **NOT** encouraged under any circumstances. Students may submit incomplete assignments for partial credit. These assignments must be completed by the students.

Group Project (GP) Assignment (50%)

During the course, there will be one group project (**see the separated course schedule and requirements**). This project is a reasonably large assignment that will take weeks to complete during the course. Each student will be required to work in a group to complete the project. This will be determined at the beginning of the course **after the final enrollment has been settled**. This project will be due near the end of the course; therefore, late submissions are **NOT** accepted. Students must turn in their project to the appropriate Drop Box on Canvas in the CS 534 section. The project will be graded based upon the content. Help will not be provided on the due date of the project.

Course Policies

All the course materials are available to students on Canvas. The instructor will post information on the course announcement or send emails to remind students what is available and what they should be working on. Material is provided on a lesson-by-lesson basis, and is presented to students as Web pages, Microsoft Word documents (doc), or in Portable Document Format (PDF). Material that students submit for the course should be uploaded to a designated drop box on Canvas and should be submitted as PDF files. Note that **except for the program codes**, all the project deliverables (1) should be in one PDF file, or else 10% of the graded score will be deducted; and (2) must be typed and drawn by the tools. No handwritten and hand-drawn submissions are allowed, or 10% of the graded score is deducted.

Policy on Late/Missing Assignments

All the assignments are essential to mastering the material of this course and it is essential that students maintain the proper pace. Please check the requirements for each assignment before the final submission. Assignments are accepted in their assigned Canvas drop box without penalty if they are received by the due date, or 10% of the graded score is deducted for the late submission per day. If the Canvas drop box for the assignment is closed at the time students attempt to submit it, they may send it to the instructor or TA via Canvas course mail (and **NOT** WPI e-mail). Work submitted after one week of its original due date will not be accepted. Exceptions may be made for extraordinary circumstances, but these are on an individual basis and must be approved in advance of the due date for the assignment. Examples of extraordinary circumstances include illness and family emergencies. If students' upcoming work or personal schedule may prevent them from submitting their assignment on time, the instructor highly recommends that the students attempt to submit the assignment earlier and not later.

Important Dates

For 7-week Graduate Courses, a student can add a course without a fee through the fifth day of classes. On days 6-10 of the term, students can add courses (with instructor approval) with a \$100 late fee. Students can drop courses on days 1-10 of the term without a fee. No drops are allowed after the 10th day of the term. For 10- and 14-week Graduate Courses, a student can add/drop through the 10th day of the semester without a fee. After day 10 of the semester, students can add courses (with instructor approval) with a \$100 late fee. No drops are allowed after the 10th day of the semester. Please check the form at <https://www.wpi.edu/offices/registrar/course-registration/add-drop>.

Communications

Registered students will be given access to a section of Canvas for this course. Canvas will be used as the primary mechanism (outside of lectures) to disseminate course information, including announcements, lecture slides, group projects, and discussion forums, and scores for forums and projects. Communication with the Instructor on issues relating to the individual student should be conducted using Canvas emails, WPI emails, via telephone, or in person - **not** in the public forums on Canvas. Canvas emails are the preferred method – for urgent messages, students should also attempt to contact the Instructor via telephone. Federal privacy law and WPI policy require that any communication with a student related in any way to a student's status be conducted using secure WPI systems – if students use emails to communicate with the Instructor, students **MUST** send messages from their WPI email accounts.

Note that I aim to respond to students' messages within 12 hours, when possible.

All course materials (lecture slides, assignment specifications, *etc.*) are published on Canvas in Adobe® Portable Document Format (PDF) or in a format for which a free *reader* is available (such as Microsoft PowerPoint). This allows users of most computing platforms to view and print these files. Microsoft® Word (or a compatible word processing application) is required for preparing assignments – it is available on computers in the WPI open labs.

Privacy

Instructors respect and protect the privacy of information related to individual students. As described above, issues relating to an individual student will be discussed via email, telephone or in person. Instructors will not discuss issues relating to an individual student with other students (or anyone without a need to know) without prior permission of the student.

Assessable work other than exams will be returned to individual students directly by the instructor (or by a faculty or staff member designated by the instructor, or via another secure method). Under no circumstances will a student's graded work be returned to another student. Faculty and staff will take care to protect the privacy of each student's scores and grades.

Disability Accommodations

Students with approved academic accommodations should plan to submit their accommodation letters through the [Office of Accessibility Services Student Portal](#). Should you have any questions about how accommodation can be implemented in this particular course, please contact me as soon as possible. Students who are not currently registered with the Office of Accessibility Services (OAS) but who would like to find out more information about requesting accommodations, documentation guidelines, and what the accommodated interactive process entails should plan to contact OAS either by email AccessibilityServices@wpi.edu, by phone (508) 831-4908, or by stopping by the office on the 5th floor of Unity Hall.

Honor Code

Unless explicitly noted, all work students submit must be their own work. Students are encouraged to discuss with others about ideas and material in the course, in preparing for exams, in understanding homework problems, in making project statements, etc. However, all homework and exam solutions are to be written individually, and the solutions should be their own, unless otherwise specified. Projects encourage teamwork, that is, in that case students are expected to work closely with their partner/(s) to solve problems and prepare a common agreed-upon solution.

Note that copying of any material, may it be a single sentence or a figure, from any location (including the internet) without proper acknowledgement of the source constitutes plagiarism. If in doubt, please ask for clarification. Any violation of the WPI's guidelines for academic integrity will result in no credit for the course and referral to the Student Affairs Office for disciplinary action. Students should be familiar with the WPI Policy on Academic Honesty (<https://www.wpi.edu/about/policies/academic-integrity/student-guide>).