Purdue University Northwest Hammond
Computer Science
CS 49000,CS 59000
Introduction to Artificial Intelligence
Fall 2022
Lecture 1

Prof. Sayanti Roy
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INSTRUCTOR INFORMATION

Dr. Sayanti Roy

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Phone: 219-989-2479

Office Hours: Tuesday 1:30pm - 4pm, Thursday 12:30pm - 4pm or by appointment

Office Location: CLO 386

MEETING TIME AND LOCATION

- Tuesday: 11:00am – 12:15pm, Thursday: 11:00am – 12:15pm
- August 23 – December 8
- No classes on October 11, November 24
- Classroom Office Building (CLO) 151
- Examination Locations : CLO 151

PREREQUISITES

Students should have some prior programming experience and some knowledge of Data Structures and Linear Algebra or equivalent.

COURSE FORMAT

- Lecture
- Programming concepts will be taught in class using Python.
- No lab

LEARNING MATERIALS

Primary Textbook : Artificial Intelligence: A Modern Approach, 4th edition Published by Pearson Stuart Russell & Peter Norvig, ISBN-13: 9780134610993

Books are **NOT** required during class hours.

COURSE DESCRIPTION

- In this course we are going to learn several important topics based on modern Artificial Intelligence.

- We will study how Intelligent Agent perceives the environment and perform actions, mathematical concept of important Machine Learning algorithms and their applications in real-world environment.

- Topics include Intelligent Agents and Decision making, Machine Learning Algorithms, Deep learning, Natural Language Processing, Computer Vision and Robotics.

5 ASSIGNMENTS : 50% OF THE TOTAL GRADE

- Assignments will be mainly based on programming (python).
- Assignments will be due Sunday 11:59pm. Late assignments will be accepted with 10% penalty per day late.
- Typed assignment preferred.

10 QUIZZES: 10% OF THE TOTAL GRADE

- Quizzes will be due Sunday 11:59pm.
- Quizzes have only one attempt and a hard deadline.

MIDTERM AND FINAL PROJECT

- 1 Midterm 10 % of the final grade.
- Midterm review before exams.
- 1 final Project 25% of the final grade. More information on Final Project in the future.
- 1 page both sided handwritten cheat sheet is allowed in an a4 size paper. Please do not bring typed cheat sheet. Cheat sheet needed to be attached with the exam paper during submission.

ATTENDANCE : 5% OF THE TOTAL GRADE.

- Attendance for all class meetings is graded and expected.
- Before leaving class each day please sign for attendance.
- Lecture materials will not be reiterated for students failing to attend the previous lectures.
- In any event that a student is forced to miss a class it will be their responsibility to check the Brightspace for lecture topics covered, assignments, quizzes and announcements.
- Students who fail to notify the Registrar’s Office when they plan to withdraw will be given a failing grade in the course.

TENTATIVE COURSE STRUCTURE

Dates (M:D:Y)	Lecture Topics
08/23/2022	Lecture 1 : Introduction
08/25/2022	Python Essentials
08/30/2022	ML Supervised Algos I
09/01/2022	Intro to Intelligent Agents (IA)
09/06/2022	ML Supervised Algos II
09/08/2022	IA, Environment, Problem Solving
09/13/2022	ML Supervised Algos III
09/15/2022	IA and Search Problems
09/20/2022	ML Unsupervised Algos I
09/22/2022	Intro to Planning
09/27/2022	ML Unsupervised Algos II
09/29/2022	Planning in Real World
10/04/2022	ML Unsupervised Algos III
10/06/2022	Intro to Neural Net

Dates (M:D:Y)	Lecture Topics
10/13/2022	Midterm Review
10/18/2022	Midterm
10/20/2022	Deep Learning
10/25/2022	Deep Learning and its applications
10/27/2022	Learning from Demonstration
11/01/2022	Decision making
11/03/2022	Decision making under Uncertainty
11/08/2022	POMDPs
11/10/2022	Reinforcement Learning
11/15/2022	Intro to Robotics
11/17/2022	Robotics and Scene Perception
11/22/2022	Robotics and Communication
11/29/2022	ROS Overview
12/01/2022	Applications
Dec 5*,7*, Final Week	Project Presentations

GRADING

A+ 93 and above
A- 89 - 92
B+ 87 - 89
B 82 - 87
B- 79 - 82
C+ 77 - 79
C 75 - 77
C- 70-75
D+ 68 - 70
D 63 - 68
D- 60 - 63
F 59 or less

For information on grades please visit Academic Regulations website of PNW.

Grader : TBD

ACADEMIC INTEGRITY POLICY

- Plagiarism or any kind of academic dishonesty will not be tolerated.
- Students involving in any such act will be given a failing grade in the course with the strong possibility of referral to the PNW Dean of Students for a conduct sanction.
- For more information, please read PNW’s Academic Integrity Policy.

WHAT IS PLAGIARISM ?

- **Complete plagiarism :** writer submits someone else's work in their own name.
- **Direct plagiarism :** passing-off of another writer's words as your own.
- **Paraphrasing plagiarism :** writer reuses another's work and changes a few words or phrases.
- **Accidental plagiarism :** all the above !!

Reference : https://www.grammarly.com/blog/types-of-plagiarism/

COVID POLICY

- If a student is having Covid-19 symptoms, it is encouraged to get tested for Covid-19 and inform the instructor and wear masks if coming to class.

- For more information on PNW and Coivd-19 please visit PNW and Coronavirus.

ELECTRONIC DEVICES AND ONLINE POLICY

- Usage of any electronic devices like laptops, phone, camera etc. for making a call, recording lectures is prohibited during the class hours.

- If a student is meeting the instructor online over zoom it is advised to turn on the camera during the meeting.

- No electronic devices allowed during the exams.

MENTAL HEALTH/WELLNESS

- Purdue University Northwest is committed to advancing the mental health and well-being of its students.
- If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, confidential services are available.
- For help, contact the Counseling Center at (219) 989-2366 or visit at 2250 173rd Street on the Hammond Campus and TECH 101 in Westville.
- Please visit the Counseling Centre website for more information.

BASIC NEEDS SECURITY

- Any student who faces challenges securing food, housing, or other basic needs is urged to contact the Dean of Students for support at dos@pnw.edu or (219) 989-4141 (Hammond) or (219) 785-5230 (Westville).

- Student Advocates are also available to assist students 8:00am-4:30pm in Hammond (SULB 313) or Westville (LSF 103).

- Please visit the Dean of Students website for more information.

VETERANS

- Purdue University Northwest is committed to creating a community of support for veterans, active-duty service members and their families.

- Visit the Veterans Services website for more information.

ACADEMIC SUPPORT | TUTORING | WRITING CENTER | ACCESSIBILITY

- PNW students have access to these academic support services.

- Please visit the Tutoring website, Writing Center Website or the office of Equity Diversity and Inclusion for more information.

CAREER SERVICES

- Please visit https://www.pnw.edu/career-center/ to know about job, internships or other opportunities.

COURSE OUTCOME

At the end of this course, the student will become familiar with

- The basic principles of AI towards decision making.
- Have in depth knowledge of Intelligent Agents.
- Important machine learning models used for Computer Vision, Natural Language Processing and Robotics.
- Explore the current scope, limitations, and implications of AI.

ARTIFICIAL INTELLIGENCE??