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University of North Texas
Department of Computer Science and Engineering
CSCE 5210 – Fundamentals of Artificial Intelligence
Session: Summer/2022 (W8-I)
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Class:

5210-1 (6205) - MoWe 4:30PM - 07:10PM - NTDP K150

Instructor:
Dr. Moawia Eldow
Office: E250E
Email: moawia.eldow@unt.edu
Office hours: MoWe 12:00 to 1:00 pm

TAs/Graders:
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Description:
A broad understanding of the basic techniques for building intelligent computer systems and how AI is applied to solve problems. The emergent nature of intelligent behavior through robust and efficient sensation, knowledge representation, and decision making are demonstrated through a series of hands-on demonstrations and tutorials. Ethical implications of automation and autonomy of machines are discussed through case studies.

Prerequisites: None. Good backgrounds on **programming languages**, **discrete math** and **data structures** can help overcome many fundamentals covered in the class.

Learning Outcomes:
By the end of the course, students will
1. Be familiar with types of agents and basic concepts of artificial intelligence.
2. Be familiar with search algorithms including informed search and heuristic search.
3. Be able to design and use agents for constraint satisfaction problems
4. Be able to use propositions and inference techniques.
5. Be able to use basic algorithms in supervised machine learning.
6. Be familiar with reasoning under uncertainty.
7. Be familiar with ethical and social impacts of artificial intelligence.

Primary Text (required):

Artificial Intelligence: Foundations of Computational Agents, 2nd Edition,
David L. Poole and Alan K. Mackworth,
Cambridge University Press, 2017. ISBN-13:9781107195394.
Available online at: https://artint.info/2e/html/ArtInt2e.html

Grading:

		Grading Scale:	
Participation	**5%**	for score x in $90 \le x$	**A**
Homework Assignments	**20%**	$80 \le x < 90$	**B**
Programming Assignments	**20%**	$70 \le x < 80$	**C**
Project	**15%**	$60 \le x < 70$	**D**
Midterm Exam	**20%**	$x < 60$	**F**
Final Exam	**20%**		

Homework Assignments:
Written homework assignments/exercises **_will be due at 11:59 pm on Wednesdays._**
Assignments may be turned in using the dropbox on canvas. Please use a high resolution black and white scan for hand written exercises.

Programming Assignments:
The program may be written in any language as long as the TA and the professor are able to build and execute from source code. If in doubt, contact the instructor to verify that the programming environment is acceptable. Assignments may require using modifying the textbook's python code from AI Python. Programs may be turned in using the dropbox on canvas. **_Programming assignments will be due at 11:59 p.m. on Fridays._**

Late Submission Policy:
Assignments may be turned in late, but not more than two weeks. All the late submissions may lose a percentage of their graded point values according to the following schedule:

> On time : **0%**
> 1-3 days : **10%**
> 4-7 days : **20%**
> 8-14 days : **40%**
> > 14 days : **100%**

Project:
Each group of 3 to 5 students need to work in one project through the term. Components of the project may include a proposal, milestone first report, and final project code and report. Projects may be turned in using the dropbox on canvas before the due date.

Exams:
There will be one **midterm exam** during the semester at the normal lecture time, which will cover the first half of the class topics. There will also be a **final exam** during finals week, which will cover the second half of the class topics.

Collaboration:
for homework and programming assignments, discussion of concepts, ideas, and techniques are allowed. After discussion, each student must write up his/her own solution. Copying another person's work, in part or whole, is not allowed. Giving another student your work, in part or whole, is considered cheating as well. Any violation of academic integrity would result in a non-droppable grade of zero for that assignment and an additional reduction of one letter grade in the course and a report to the university administration. Major violations will result in a grade of F!.

Academic Policies
No cheating or plagiarism is allowed in assignments and exams. Academic dishonesty will result in a final course *grade of "F"*. "Sharing/reuse" of solutions to assignment problems is strictly prohibited. All work turned in with your name on it must be your own work.

Other Policies:
Students should refer to any other polices from university, college and department.

Course Outline (*Tentative Schedule*):

Week	Reading chapters and Topics	Homework (H), Program (P) (Due date)
May 16-20	Overview of Class Ch1 – Artificial Intelligence & Agents	**H1 (05/25/2022)**
	May 18, **Instructor excuse - No classes**	
May 23-27	Ch3 – Searching of Solutions	**Project Proposal due on May 27th**
	Ch3 – Searching of Solutions (cont.)	**H2 (06/01/2022), P1 (06/03/2022),**
May 30-Jun 03	May 30, **Memorial Day -No Classes**	
	Ch4 – Reasoning with Constraints	
Jun 06-10	Ch4 – Reasoning with Constraints (cont.)	**H3 (06/15/2022), P2 (06/17/2022)**
	Mid-Term Exam (*Wednesday 06/08/20*)	**Project milestone first report due on June 10th**
Jun 13-17	Ch5 – Propositions and Inference (cont.)	
	Ch5 – Propositions and Inference (cont.) Ch13 – Individuals and Relations	**H4 (06/22/2022), P3 (06/24/2022)**
Jun 20-24	Ch7 – Supervised Machine Learning	
	Ch7 – Supervised Machine Learning (cont.)	**H5 (06/29/2022), P4 (07/01/2022)**
Jun 27-Jul 01	Ch8 – Reasoning with Uncertainty	
	Ch16 – Ethical & Social Impacts of AI	**Project final report due on July 1st**
Jul 04-08	July 4, **Independence Day -No Classes** July 6, Project Presentations	
	Final Exam (*Thursday 07/07/22*)	