

University of North Texas  
Department of Computer Science and Engineering  
**CSCE 5210 – Fundamentals of Artificial Intelligence**

**Session: Summer/2022 (W8-II)**

**Class:**

5210-2 (6460) - MoWe 1:00PM - 03:40PM - NTDP K150

**Instructor:**

**Dr. Moawia Eldow**

Office: E250E

Email: [moawia.eldow@unt.edu](mailto:moawia.eldow@unt.edu)

Office hours: MoWe 12:00 to 1:00 pm

**TAs/Graders:**

Name: TBA

Email: TBA

Office: TBA

Office hours: TBA

**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:**

Participation	5%
Homework Assignments	20%
Programming Assignments	20%
Project	15%
Midterm Exam	20%
Final Exam	20%

**Grading Scale:**

for score x in 90 _ x	<b>A</b>
80 _ x < 90	<b>B</b>
70 _ x < 80	<b>C</b>
60 _ x < 70	<b>D</b>
x < 60	<b>F</b>

### **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 :	<b>0%</b>
1-3 days :	<b>10%</b>
4-7 days :	<b>20%</b>
8-14 days :	<b>40%</b>
> 14 days :	<b>100%</b>

### **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):**

<b><u>Week</u></b>	<b><u>Reading chapters and Topics</u></b>	<b><u>Homework (H), Program (P) (Due date)</u></b>
<b><u>Jun 06-10</u></b>	Overview of Class Ch1 – Artificial Intelligence & Agents	
	Ch1 – Artificial Intelligence & Agents (cont.)	<b>H1 (06/15/2022)</b>
<b><u>Jun 13-17</u></b>	Ch3 – Searching of Solutions	<b><i><u>Project Proposal due on Jun 17th</u></i></b>
	Ch3 – Searching of Solutions (cont.)	<b>H2 (06/22/2022), P1 (06/24/2022),</b>
<b><u>Jun 20-24</u></b>	Ch4 – Reasoning with Constraints	
	Ch4 – Reasoning with Constraints (cont.)	<b>H3 (06/29/2022), P2 (07/01/2022)</b>
<b><u>Jun 27-Jul 01</u></b>	<b>Mid-Term Exam (<u>Monday 06/27/20</u>)</b>	
	Ch5 – Propositions and Inference	<b><i><u>Project milestone first report due on July 1st</u></i></b>
<b><u>Jul 04-08</u></b>	July 4, <b>Independence Day -No Classes</b>	
	Ch5 – Propositions and Inference (cont.) Ch13 – Individuals and Relations	<b>H4 (07/13/2022), P3 (07/15/2022)</b>
<b><u>Jul 11-15</u></b>	Ch7 – Supervised Machine Learning	
	Ch7 – Supervised Machine Learning (cont.)	<b>H5 (07/20/2022), P4 (07/22/2022)</b>
<b><u>Jul 18-22</u></b>	Ch8 – Reasoning with Uncertainty	
	Ch16 – Ethical & Social Impacts of AI	<b><i><u>Project final report due on July 22nd</u></i></b>
<b><u>Jul 25-29</u></b>	Project Presentations	
	Project Presentations (cont.) & Class Review	
	<b>Final Exam (<u>Thursday 07/28/22</u>)</b>	