

Course Syllabus – Fall 2023

Course Information

<i>Course Number/Section</i>	CS 4365.001
<i>Course Title</i>	Artificial Intelligence
<i>Term</i>	Fall 2023
<i>Class Time & Place</i>	TTh 11:30-12:45 GR 2.530

Professor Contact Information

<i>Professor</i>	Richard Min, Ph.D. MBA, MS/CE, STM, M.Div
<i>Office Phone</i>	972-883-4522
<i>Other Phone</i>	
<i>Email Address</i>	rkm010300@utdallas.edu
<i>Office Location</i>	ECSS 4.609
<i>Online Office Hours</i>	TTh 1:30-2:30pm & TTh 4-5:30pm (or via email/MsTeams or by appointment)

Note: state time/day and how office hours will be held, e.g., physical office, BlackBoard Collaborate or MS Teams (add appropriate links) and/or phone call – optional; please ensure student's identity in adherence to FERPA

Course Pre-requisites, Co-requisites, and/or Other Restrictions

(including required prior knowledge or skills)

[CE 3345](#) or [CS 3345](#) or [SE 3345](#) or [TE 3345](#) or equivalent.

Course Description

[CS 4365](#) - **Artificial Intelligence** (3 semester credit hours) Basic concepts and techniques that enable computers to perform intelligent tasks. Examples are taken from areas such as natural language understanding, computer vision, machine learning, search strategies and control, logic, and theorem proving. Prerequisite: [CE 3345](#) or [CS 3345](#) or [SE 3345](#) or [TE 3345](#) or equivalent. (3-0) Y

Student Learning Objectives/Outcomes

1. Understand and use uninformed and heuristic search techniques
2. Understand and use local search algorithms.
3. Understand and use constraint satisfaction problems.
4. Understand and use logical inference using the resolution algorithm.
5. Understand and use probabilistic inference in Bayesian networks
6. Understand and use planning
7. Understand and use games with perfect information (adversarial search)
8. Understand and use zero-sum games with hidden information

Required Textbooks and Materials

Required Texts

Artificial Intelligence, A Modern Approach. 4ed. Stuart Russell and Peter Norvig. © 2021 Pearson. ISBN-13: 9780134610993 (print), ISBN-13: 9780137505135 (ebook).

*** The textbook resource site: <http://aima.cs.berkeley.edu/>*

*** The 3rd edition is available and acceptable.*

*** This book is the primary textbook of this course and is referred as [AI].*

Required Materials

AIMA - the textbook online resource: <http://aima.cs.berkeley.edu/>

LISP. Common Lisp. <http://www.clisp.org/>

Common Lisp Language, 2ed. by Guy L. Steele.

<http://www.cs.cmu.edu/Groups/AI/html/cltl/cltl2.html>

PROLOG: <http://www.swi-prolog.org/>

Prolog Tutorials: <http://www.swi-prolog.org/>

Logic, Programming and Prolog (2ed) by Ulf Nilsson and Jan Maluszynski

online: <http://www.ida.liu.se/~ulfni53/lpp/>

Prover9 <http://www.cs.unm.edu/~mccune/prover9/>

Weka data mining tool <http://www.cs.waikato.ac.nz/ml/weka/>

AISpace <http://www.aisspace.org/index.shtml>

Google Patterns <http://www.clips.ua.ac.be/pages/pattern>

Python.org <https://www.python.org/>

UC Berkeley CS188 Pacman Project - http://ai.berkeley.edu/project_overview.html

Answer Set Programming (smodels & lparse, or gringo & clasp for Mac or Linux)

<http://www.tcs.hut.fi/Software/smodels/>

<http://potassco.sourceforge.net/>

Suggested Course Materials

Suggested Readings/Texts

Suggested Materials

Textbooks and some other bookstore materials can be ordered online or purchased at the [UT Dallas Bookstore](#).

Technical Requirements

In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the [Getting Started with eLearning](#) webpage.

Course Access and Navigation

This course can be accessed using your UT Dallas NetID account on the [eLearning](#) website.

Please see the course access and navigation section of the [Getting Started with eLearning](#) webpage for more information.

To become familiar with the eLearning tool, please see the [Student eLearning Tutorials](#) webpage.

UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The [eLearning Support Center](#) includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Communication

This course utilizes online tools for interaction and communication. Some external communication tools such as regular email and a web conferencing tool may also be used during the semester. For more details, please visit the [Student eLearning Tutorials](#) webpage for video demonstrations on eLearning tools.

Student emails and discussion board messages will be answered within 3 working days under normal circumstances.

Distance Learning Student Resources

Online students have access to resources including the McDermott Library, Academic Advising, The Office of Student AccessAbility, and many others. Please see the [eLearning Current Students](#) webpage for more information.

Server Unavailability or Other Technical Difficulties

The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the online [eLearning Help Desk](#). The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

Academic Calendar

**** Note:** The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.

For each test, you should make your seat reservation at UTD Test Center in the beginning of the semester (for the date and time) and get the confirmation for each test.

During the week of each test, we do have class/lecture as scheduled.

Week # TTh 11:30-12:45pm GR 2.530	Topic & AI Chapter Reading	Other Topic	Assessment: Assignments & Examinations Check elearning for detail. Note. We have class/lecture during the week of test1,2,3	Due Date Weekly Activity items: usually 1 or 2 labs, reading & essay due by Friday of each week.
01 – 08/21-08/24 02 – 08/28-08/31 03 – 09/04-09/07 04 – 09/11-09/14 05 – 09/18-09/21 06 – 09/25-09/28 07 – 10/02-10/05 08 – 10/09-10/12 09 – 10/16-10/19 10 – 10/23-10/26 11 – 10/30-11/02 12 – 11/06-11/09 13 – 11/13-11/16 14 – 11/20-11/23 15 – 11/27-11/30 16 – 12/04-12/07	Introduction AI ch01 AI ch02 AI ch03 AI ch04 AI ch05 AI ch07 AI ch08 AI ch09 AI ch06 AI ch13 AI ch14 AI ch10-ch11 Fall Break Adv Topics	Lisp Prolog Adv Topics (as time permits). ASP	Test1 09/25-09/28 Test2 10/30-11/02 Test3 12/04-12/07	08/25 (or 9/02 F) 09/01 F 09/08 F 09/15 F 09/22 F 09/29 F 10/06 F 10/13 F 10/20 F 10/27 F 11/03 F 11/10 F 11/17 F Fall Break 12/01 F 12/08 F
12/11 to 12/15	Final Exam Week	Grade Due	Midterm Grade 10/14 Final Grade 12/20	

Proctored Final Exam Procedures

If your course has a proctored exam requirement, please see the [UTD Testing Center](#) webpage and [Distance Learning Proctored Exams](#) webpage to make arrangements.

Class Materials

The Instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

(For blended/hybrid course only)

Classroom Conduct Requirements Related to Public Health Measures

UT Dallas will follow the public health and safety guidelines put forth by the Centers for Disease Control and Prevention (CDC), the Texas Department of State Health Services (DSHS), and local public health agencies that are in effect at that time during the Fall 2021 semester to the extent allowed by state governance. Texas Governor Greg Abbott's Executive Order [GA-38](#) prohibits us from mandating vaccines and face coverings for UT Dallas employees, students, and members of the public on campus. However, we strongly encourage all Comets to get vaccinated and wear face coverings as recommended by the CDC. Check the [Comets United: Latest Updates webpage](#) for the latest guidance on the University's public health measures. Comets are expected to carry out [Student Safety](#) protocols in adherence to the Comet Commitment. Unvaccinated Comets will be expected to complete the [Required Daily Health Screening](#). Those students who do not comply will be referred to the Office of Community Standards and Conduct for disciplinary action under the [Student Code of Conduct – UTSP5003](#).

(For blended/hybrid course only)

Class Attendance

The University's attendance policy requirement is that individual faculty set their course attendance requirements. Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. In some courses, instructors may have special attendance requirements; these should be made known to students during the first week of classes. Faculty have the discretion to set an attendance policy for their in-person meetings, but the absences due to COVID-19 cannot be counted against a quarantined student.

Class Participation

Regular class participation is expected. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures

(and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Class Recordings

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Note: if the instructor records any part of the course, then the instructor will need to add the following syllabus statement:

The instructor may record meetings of this course. These recordings will be made available to all students registered for this class if the intent is to supplement the classroom experience. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.

Grading Policy

(including percentages for assignments, grade scale, etc.)

97-100	A+	94-96	A	90-93	A-
87-89	B+	84-86	B	80-83	B-
77-79	C+	74-76	C	70-73	C-
67-69	D+	64-66	D	60-63	D-
Below 60	F				

Note 1. Each range shown above is inclusive and without any rounding-off. For example, 94-97 for grade A is for the score falling in the range between 94.000 and 96.999. The grade of 93.999 is for A-.

Note 2. In elearning, "Running" total in your gradebook shows the current weighted grade based on your graded work only based on what you have submitted and graded. For example, if you have done only Test1, Assignment1, Weekly postings so far (but you have missed Test2 and missed Assignment2 totally), current total grade will be based on only those entries that you have submitted and done.

80% for 3 Tests. 20% for Test1, 30% for Test2, 30% for Test3.

Each test will be taken via elearning. Each test will be closed-book online test via elearning (to be taken at UTD Test Center) for 1-hour or 2-hour examination. Time and detail of Test will be announced later in elearning. Each student should make a seat reservation prior to

each test (as soon as possible, or three days before the scheduled test date). All exams are closed book and closed notes. Exams will focus more on concepts and less on details. Additional study-material or documentation will be provided to avoid the need for memorization as much as possible. We will likely take all the tests in the testing center as scheduled. You can expect to see a few coding/analysis questions, a few short answer questions and a few multiple-choice questions in each test. Instructor is responsible for grading all the tests.

Any make-up tests will be arranged and scheduled during the same week (usually Tuesdays prior to the actual test date) at the discretion of the instructor. There should be a valid reason for scheduling make-up tests & they need to be coordinated with the instructor, at least one to two weeks prior to the test date except for serious medical condition (with Doctor's or Hospital's certificate will be required as a valid proof. Without it, there will be 15% penalty for any makeup test after the scheduled test date). It is unlikely that curving will be used to boost the final grades. If the instructor decides to do it, only the test scores will be boosted, but the tests' contribution will be clipped at 60%. In other words, curving will NOT make up for the points lost in all other assignments. So, it is extremely important to complete them in timely manner.

20% for Weekly Activity items (Assignment or Project). Each weekly activity may include weekly reading, weekly labs (usually 2 labs), weekly reading and essay (summary of reading), and/or any bonus activity of the week. Each weekly activity item is available by Monday 8am and is due by Friday 5pm of the week. No late submission is accepted.

You are expected to start working on them as soon as they are posted or by the scheduled due date/time. Do not expect us to rescue you on the day of submission. You can upload each item many times but the last submission will be graded. No Late submission is accepted. My advice is to submit whatever you have done (your best effort) before the due and/or by the due date, and to seek for any further discretion and/or consideration if you may need. All these weekly activity items should be done in Unix, Linux or Mac, and you will hand-in your projects directly in Linux.

Submit each activity item through elearning (each item in the week's activity folder). More details on Weekly Activity, Requirement, and Submission steps will be given with eLearning. For some activity item (e.g., lab), TA may schedule a demo session and you are required to schedule your demo with TA (for 5-10 minutes) and do your demo to TA in a week after the due date. If you have any conflict for the demo schedule, you may do the demo to the instructor (and/or you record your demo in a video format using your webcam using MS Teams, elearning Collaborate, WebEx, or video recording of your demo (to be uploaded to learning and to notify TA).

Note. If you need a quick response for an urgent issue or concern, you may send an email to instructor or TA directly via email (instead of posting here) to get a quicker response and/or immediate attention.

An instructor who believes a student has committed an act of **plagiarism** should take appropriate action, which includes the issuing of a “penalty grade” (that is, F for the course)

for academic dishonesty. For any "minor" plagiarism charge, the maximum letter grade for the course would be B+ or lower.

Course Policies

Instructor is responsible for grading all the tests. TA will be responsible for grading all weekly activity items (any assignment or project). So, contact the TA directly for any grading related discrepancies (and cc to the instructor). It is not possible to give a detailed feedback for each weekly activity item or test question due to large number of students enrolled in our classes. If you need more details/clarification, you are encouraged to meet the TA/instructor via online during office hours & get personal attention. Do not rely on email alone to get the full response. If you are stuck with your assignment, it is better to turn in what you have and send us email. We will revise your submission and give some guidance. Your next submission will override the previous submission - TA will always grade the latest submission for each project. You can use email to get help for weekly assignments. Include the detailed problem description & applicable error messages, zip all your source files and include it with your email too. Do not just say "my program does not work" and expect us to figure out everything - you need to help us to help you efficiently. We expect to complete grading assignments (projects), weekly activities or quizzes, and tests in a week or so. However, when the schedule gets too busy, it can be as long as 2 weeks before the grades are assigned. It is the students' responsibility to review the grade details when they become available and follow up for clarifications if needed.

Make-up exams

Any make-up tests will be scheduled during the same week (usually one or two days prior to the actual test date) at the discretion of the instructor. There should be a valid reason for scheduling make-up tests and they need to be coordinated with the instructor, 1-2 weeks prior to the test date except for serious medical condition (with Doctor's or Hospital's certificate will be required as a valid proof). Without any valid reason, there will be 15% penalty for any makeup test scheduled after the scheduled test date.

Extra Credit

Please check for any extra or bonus credit work posted in elearning.

Late Work

No late submission of any work is accepted unless stated otherwise.

Special Assignments

Not Applicable or check with Instructor.

Classroom Citizenship

Please review the UTD policy and guideline on Student behavior and conduct, academic honesty and integrity in <https://www.utdallas.edu/conduct/integrity/> and UTD BAIT team in <https://www.utd.edu/conduct/bait/>

Also note that all the course materials are only for your individual and personal use and for this course. Do not share or redistribute any of the course materials in any form or

means with other. Do not make any of the course materials available via Internet or web site (e.g., git or github, tutorial or quizlet site).

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

“As a Comet, I pledge honesty, integrity, and service in all that I do.”

Academic Support Resources

The information contained in the following link lists the University’s academic support resources for all students.

Please go to [Academic Support Resources](#) webpage for these policies.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University’s policies and procedures segment of the course syllabus. Please review the catalog sections regarding the [credit/no credit](#) or [pass/fail](#) grading option and withdrawal from class.

Please go to [UT Dallas Syllabus Policies](#) webpage for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.