Course Syllabus

Course Information
(course number, course title, term, any specific section title)

Course Prefix, Number, Section
CS 4365.001

Course Title
Artificial Intelligence

Term
Fall 2018

Professor Contact Information
(Professor's name, phone number, email, office location, office hours, other information)

Name: Richard Min, Ph.D.
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Office: ECSS 4.609
Office Hours: MW 1-2:30 & MW 3:45-5:30 pm, TR 11:15am-1pm
(via email and/or by appointment)

Course Pre-requisites, Co-requisites, and/or Other Restrictions
(including required prior knowledge or skills)
Prerequisite: 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
After successful completion of this course, the student should be able to:

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
9. Understand and use non-zero-sum games with hidden information

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Required Textbooks and Materials

Required Textbooks

Artificial Intelligence, A Modern Approach. 3ed. Stuart Russell and Peter Norvig. Prentice Hall, 2010. ISBN-13: 860-1419506989 ISBN-10: 0136042597. http://aima.cs.berkeley.edu/
(This is our primary Textbook)

Knowledge Representation, Reasoning, and the Design of Intelligent Agents. Michael Gelfond; Yulia Kahl. © 2014 Cambridge University Press. Print ISBN: 978-1-107-02956-9
(Available online free access via UTD Library => ebook => Safari)

Bayesian Reasoning and Machine Learning by David Barber. © 2012 Cambridge University Press.
(Available online free access via UTD Library => ebook => Safari).

Supplemental or Recommended Textbooks

Logic, Programming and Prolog, 2ed. by Ulf Nilsson and Jan Maluszynski. ©2000 by Nilsson and Maluszynski. Download from http://www.ida.liu.se/~ulfni53/lpp/
(Available online)

Logic for Computer Science and Artificial Intelligence. Ricardo Caferra. © 2011 John Wiley & Sons. ISBN: 978-1-848-21301-2.
(Available online free access via UTD ebook safari)

Introducing Python. Bill Lubanovic. © 2014 O'Reilly Media, Inc. ISBN-13: 978-1-4493-5936-2
(Available online & free via UTD Library => ebook => Safari)

Paradigms of Artificial Intelligence Programming. Peter Norvig
© 2014 Morgan Kaufmann. Web ISBN-13: 978-0-08-057115-7
Print ISBN-13: 978-1-55860-191-8.
(Available online free access via UTD ebook safari)

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.aispace.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
See Required Materials

Assignments & Academic Calendar
(Topics, Reading Assignments, Due Dates, Exam Dates)

Spring 2018 Schedule/Plan*

* Note: The dates and the topics are subject to change as needed.

Week # M&W	AI Chapter	Other Topic	Examination	Assignment
01 – 8/20 M	AI ch1	Syllabus,		
02 – 8/27 M	AI ch2	Introduction		
03 – 9/03 M	AI ch3	Lisp and Python		
04 – 9/10 M	AI ch4			
05 – 9/17 M	AI ch5			(1) 9/17 M Noon
06 – 9/24 M	AI ch6		Test1 9/25 T	
07 – 10/01 M	AI ch7	Prolog		
08 – 10/08 M	AI ch8			
09 – 10/15 M	AI ch9			(2) 10/15 M Noon
10 – 10/22 M	AI ch10	Advanced Topics	Test2 10/23 T	
11 – 10/29 M	AI ch11	(as time permits),		
12 – 11/05 M	AI ch12	ASP		
13 – 11/12 M	AI ch13			(3) 11/12 M Noon
14 – 11/19 Break	Fall Break			
15 – 11/26 M	AI ch14		Test3 11/27 T	
16 – 12/03 M	Advanced Topics			(4) 12/03 M Noon
17 – 12/10 M	Final Exam Week	Grade Due 12/20	TBA	

* Note: The dates here are tentatively assigned and are subject to change as needed.

45% for 3 Tests. 15% for each 2-hour test. Tentatively scheduled. Each test will be taken at Testing Center (Student Assessment Center, McDermott Library 1st floor) for 2-hour examination. Time of Test will be announced later in elearning. Each student should make a seat reservation prior to each test. All exams are closed book and closed notes. Exams will focus more on concepts and less on details. Necessary 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 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, 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.) 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.

40% for 4 Assignments, contributing 10% each. Due (Monday 12pm Noon). You can ask for clarifications and help in the weekly forum. If you need help with your code, it is ok to post 1 or 2 lines of code, but do not post your full program - email it to TA or professor instead. You are expected to start working on them as soon as they are posted. Do not expect us to rescue you on the day of submission. I encourage everyone to submit the projects 1 or 2 days early. You can upload it again but the last submission will be graded. [Do not wait until the last minute to submit it. I do understand things happen and occasionally as you may not be able to submit projects on time.]

No late submission is accepted. Submit all assignments to elearning. Your grades and TA's comments will be recorded there - you can click on My Grades to access them. More details on Assignment & Submission steps will be given with eLearning.

Warning. To get A- or above (in letter grade), student should complete and submit all the assignments and get over 60% for each assignment. To get B- or above, student should complete and submit at least 60% of the assignments, and get over 50% or more for each assignment submitted.

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.

15% for Weekly Activity & Quiz (including online quiz) will be posted by Monday & will be due Saturday midnight (11:59pm) every week. It will be a small programming exercise or tryout (e.g., to write and run a simple "Hello world" program, to try Linux commands or sample programs provided, to install a tool to try it) in most weeks. It can also be a quiz (online and open-book) or some other meaningful activity as well. It will vary every week. Each weekly activity and its score may vary case by case. Late submissions are NOT accepted for weekly activities and quizzes. Note: Weekly quiz will provide a good snapshot, an excellent opportunity to review, and for a preparation for each test. Late submissions are NOT accepted for weekly activity or quiz. **Weekly Postings. 2** meaningful and relevant posts are required every week in weekly discussion forums. This is extremely crucial component of a true online course. No non-sense and no trivial comment. One-liners saying "Thanks!" ("Weather is bad" or "I got it" or "I do not know" or "very good" etc.) will not be counted as a valid posting or participation. Keep your posting very relevant and valuable to you and your classmates, and to the course work and activity of the week. Your post can be a good question, meaningful response to another student's question, interesting observation, etc. For a question, you should do your own homework for your question and share your findings. If you use an external source, you should provide a reference or a link of the source, and provide a good overview or summary in your wording. Do not post any offending or destructive content. Do not post any overwhelming contents (e.g., to copy and paste big image or images, or very long text content, or using "big" fonts) but you should attach a file as you need. In simple words, each post should value to the course. Instructor (TA or Grader) will grade the weekly forum and determine the value of each post - instructor's decision is final. First post should be submitted latest by Wednesday midnight and 2nd post should be completed latest by Saturday midnight, otherwise respective posts won't receive any grade. It is possible for someone to be a silent observer in on-ground course and still manage to get the final grade of A. It is impossible to do it in online course. Reasonable progress towards the expected answer or learning will get 1 point & perfect or near-perfect submissions will get 2 points. Late submissions are NOT accepted for weekly posts.

Grading Policy

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

Letter grades will be assigned as follows:

97-100	A+	93-96	A	90-92	A-
87-89	B+	83-86	B	80-82	B-

77-79	C+	73-76	C	70-72	C-
67-69	D+	63-66	D	60-62	D-
Below 60	F				

Note: The range shown above is inclusive and without any rounding-off. For example, 90-93 for grade A- is for the score falling in the range between 90.000 and 93.999. The grade of 93.999 is A-.

Note: "Running" and weighted total in your gradebook shows the current weighted grade based on your graded work only based on what you have submitted. 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.

Grading Criteria	Weekly Activity, Quiz, Posting 15% 4 Assignments (10% x 4) 40% 3 Tests (15% x 3) 45%	A+ = 97-100 A = 93-96 A– = 90-92 B+ = 87-89 B = 83-86 B– = 80-82 C+ = 77-79 C = 73-76 C– = 70-72 F = below 70
Make-up Exams	Not allowed (or 20% penalty)	
Late Work	Late submission or makeup is not allowed. (If imposed, there will be 20% reduction in grade per day [prorated] for any late submission of Assignment, and for maximum 3 days.)	
Class Attendance	Required; Attendance will be taken	
Classroom Citizenship	Respect for your classmates is necessary at all times	
All other policies	Please visit http://go.utdallas.edu/syllabus-policies for other policies	

Course & Instructor Policies

(make-up exams, extra credit, late work, special assignments, class attendance, classroom citizenship, etc.)

Instructor is responsible for grading all the tests & weekly participation. TA will be responsible for grading projects and weekly assignments. So, contact the TA directly for any grading related discrepancies for programs. It is not possible to give a detailed feedback for each project/weekly assignment/test question due to large # of students in our classes.

If you need more details/clarification, you are encouraged to meet the TA/instructor 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.

Attendance. For in-class course (and elearning weekly activity & participation via elearning for online course), Attendance Rule & Policy: Please note that if you miss any lectures beyond the 1st week, then automatic actions kick in: (1) Missing the next lecture in the 2nd week will result in an automatic drop of one grade from your final course grade. (2) Missing the entire 2nd week of lecture(s) is an automatic F in the course. So if you are going to miss more than one week of classes (ideally, you should not miss any lecture, but sometimes people switch courses during the first week), then you should not be in the course and you should drop out. Further you should plan to be here for Final Examination Week, as it will be scheduled for this course.

Off-campus Instruction and Course Activities

Below is a description of any travel and/or risk-related activity associated with this course.

Each student should plan to take 3 Tests at Testing Center, and demo for Assignments, or to arrange off-site proctoring service for Tests with Testing Center.

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."

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 go to http://go.utdallas.edu/syllabus-policies for these policies.

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