CS 4710 - Artificial Intelligence: Syllabus
Dimitris Diochnos
Department of Computer Science, University of Virginia
FALL 2016

Time and Location
Mondays & Wednesdays, 2:00pm-3.15pm, Thornton Hall E316.
Website: http://www.cs.virginia.edu/diochnos/teaching/
Collab: The Collab website will be used extensively; distribution of slides, homework assignments, and other reading materials.

Instructor
Dimitris Diochnos, 228 Rice Hall, diochnos@virginia.edu.

Teaching Assistants
Graduate student Xuwang Yin (xy4cm) and undergraduate students Haley Bowler (hjb2dq), Sugat Poudel (sp5pe) and Avinash Ramesh (ar5df).

Office Hours
Monday. Diochnos D, 11am-1pm at 414 Rice Hall.
Tuesday. Yin X, 10am-12pm at 514 Rice Hall. Poudel S, 4pm-5pm at 514 Rice Hall.
Wednesday. Diochnos D, 12pm-1pm at 414 Rice Hall. Bowler H, 1pm-2pm at 414 Rice Hall.
Thursday. Yin X, 10am-11am at 514 Rice Hall. Poudel S, 4pm-5pm at 514 Rice Hall.
Friday. Bowler H, 1pm-2pm at 414 Rice Hall. Ramesh A, 4pm-5pm at 514 Rice Hall.

Prerequisite Background
Absolutely required: CS 2102 (Discrete Mathematics), CS 2150 (Program and Data Representation)
Helpful, but not (technically) required: CS4102 (Algorithms). Basic concepts from probability and statistics. We will also review some of these concepts when necessary.

August 26, 2016
Topics and Course Description

Introduces artificial intelligence. Covers fundamental concepts and techniques and surveys selected application areas. Core material includes state space search, logic, and resolution theorem proving. Application areas may include expert systems, natural language understanding, planning, bayesian networks, Markov models, multi-agent systems, machine learning, or machine perception. Provides exposure to AI implementation methods.

Schedule of Classes

The syllabus is continuously updated and subject to change. We will cover the material at a pace that is comfortable. Our first meeting is on Wednesday, August 24, 2016 and our last meeting is on Monday, December 5, 2016. The final is in-class on Friday, December 16, 2016 between 2:00pm and 5:00pm.

No Classes. No classes on the following days:

- Reading days: Saturday, October 1 - Tuesday, October 4, 2016.

Textbook, Notes, Slides, and Related Reading


Slides. The slides are a courtesy of Professor Mark Floryan. They will be distributed through Collab. Almost all of the covered material will be described in the slides.

Books for your free time. Have you finished with this course and you are excited about artificial intelligence, its interactions with complexity theory and mathematics and you want to know more about the history of the field? If yes, here is a good book:

- Gödel, Escher, Bach: An Eternal Golden Braid, by Douglas Hofstadter [4].

Due to the close interaction of artificial intelligence with modern mathematics and complexity theory, other books that revolve around mathematics, or the history of mathematics, also come to mind and one can enjoy during the summer or in their free time.

- The Parrot’s Theorem: A Novel, by Denis Guedj [3].
- Uncle Petros and Goldbach’s Conjecture: A Novel of Mathematical Obsession, by Apostolos Doxiadis [1].

Grading

Grading will be based on the following:

- 50% homework assignments,
- 30% midterm exams,
• 20% final exam.

Grades may also be adjusted slightly upward or downward depending on class participation. The grading scale is: A, B, C, D, F.

Examinations

In-class exams will be closed-book written exams. We will have three midterm exams; at least one will be in-class. The final is in-class on Friday, December 16, 2016 between 2:00pm and 5:00pm.

Homework Assignments

There will be four or five homework assignments.

Collaboration Policy

Students may work in groups of 2 on a homework assignment but no more. Only one submission is necessary, but in case you decided to collaborate with someone else on an assignment you must let us know who your partner was. Students are allowed to have different partners on different assignments. Unless otherwise specified on an assignment, students may discuss problem sets with one another at a very high level; see also cheating below. Hence, a student (or a group of two) should afterward write the solutions on their own. Collaborators (in case you form a group of two) must be named at the top of the assignment. Further, people with whom you have discussed a problem at a high level must also be named right below the collaborators with a tag *Discussed with*.

No collaboration will be allowed on exams (whether midterms or final).

Cheating

For programming exercises (which will be the majority of homework exercises), looking at someone else’s code (online or elsewhere) is considered cheating. Similarly, if someone else writes your code, it is also cheating.

However, as mentioned above, you may discuss with others your homework at a high level. Further, looking at pseudo-code or instructional material (text or videos) online is allowed *as long as there is no code*.

Late Work Policy

A student may use up to *three* late days throughout the semester. Note that if you have decided to collaborate with someone else on an assignment and you want to turn in this assignment with delay, this delay will also be charged to your collaborator as well (as long as your collaborator also has the luxury to accommodate such a delay based on the three-days-late-rule). This means that you can not complain about various things that happen to you, such as interviews, emergencies, etc. Of course, happy to discuss truly extraordinary circumstances on a case-by-case basis; please also communicate with me via email in advance.

References


