CS 4710: Artificial Intelligence

Summer 2016

MTWRF 10:30-12:45, Thornton D222

Instructor:
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Office: Rice Hall, room 203
Office hours are by appointment / after class

Teaching Assistants:
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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 processing, planning, machine learning, or machine perception. Provides exposure to AI implementation methods, emphasizing programming.

Availability: It is important to me to be available to my students, and to address their concerns. If you cannot meet with me during my office hours, e-mail me and I will find the time to meet. That being said, like everybody else I am quite busy, so it may take a day or more to find a time to meet. And if you have any comments on the course - what is working, what is not working, what can be done better, etc. - I am very interested in hearing about them. There is an anonymous feedback tool through Collab, or you can send myself or one of the TAs an e-mail. I tend to get bogged down by e-mail as the semester progresses, so seeing me in person (right after lecture, during office hours, etc.) is often a good way to get a more immediate response.

Prerequisites: CS 2150 with a grade of C- or above. This is a *strict* pre-requisite. You must have ALREADY taken the class, and gotten the required grade (or higher). I also highly recommend that you be comfortable with basic probability, statistics (regressions), calculus (some partial derivatives), and linear algebra (basic matrix operations, etc.)

Grades: Grades will be computed by the following formula:

- 50% Homework
- 25% Midterms (4)
- 20% Final Exam
- 5%   Attendance

Grades will generally follow the decade curve: 90-100 is some sort of A (A-, A, A+), 80-90 is some sort of B, etc. **Note:** I reserve the right to modify the weighting (changing the curve, adding pop quizzes, etc.), especially if attendance drops off significantly. If this happens, it will be clearly announced in lecture. Attendance in this class is not mandatory. If you don't want to be in the lecture, then I don't want you there. You can still receive an A if you are not present in

lecture. If you do attend class, then you must agree to not use a laptop, as I have found them to be only detrimental in the past.

We aim to have assignments returned within 5-10 days of their submission date. However, note that the submission date is the last time that somebody can submit the assignment (two late days OR two days of late penalty (see below)) - we can't start grading until all the assignments are in. Thus, assignments should be returned within 5-10 days.

Special Circumstances: Students with special circumstances (athletics, extra time required on exams, LNEC considerations, etc.) need to let me know during the **first week of class**.

Textbooks *Artificial Intelligence: A Modern Approach* by Stuart Russel and Peter Norvig (ISBN 978-0136042594). We will study selected chapters from the textbook; lecture examples will often not be the same as the textbook examples. This textbook is recommended but not required.

Exams: There will be three mid-term exams, as well as a final. These exams will take place every Friday (the final exam on the final Friday).

Assignments: This course will have a heavy emphasis on programming the techniques taught. The homework will mostly be well-defined programming assignments. However, several of these assignments may be open-ended with no clear best solution. Students are expected to be able to implement an approach and then study the benefits and drawbacks of that implementation. Most assignments will be accompanied by a short write-up describing the trade-offs in your implementation strategy.

The programming assignments can be done in a variety of languages. For now, we will accept Ruby, Python, Java, and C/C++. Some of these assignments will enforce a specific language.

Late Policy: The late policy is that 33% of the assignment's grade is deducted if the assignment is between 1 second and 24 hours late; 67% if the assignment is between 24 hours plus one second and 48 hours late, and no credit beyond 48 hours. The submission time is as determined by the submission server's clock, which is synchronized via NTP with the US atomic clocks. Note that if your assignment is 1 second late, it will be considered late and have points removed!

However, you have a total of 2 late days to use throughout the entire semester. A late day extends the due date (and the effect of the late penalty) by 24 hours - thus, with one late day you can submit an assignment up to 24 hours late with no grade penalty. Late days apply to the FIRST assignment that you turn in late - thus, you do not specify if you are using late days or not, and you cannot "pick and choose" which assignments the late days apply to. You may not use more than two late days on any single assignment (otherwise we have to wait a week to start grading them). Late days are meant to account for the unexpected: multiple exams in one week, computer crashes, dog eating your textbook, etc. Thus, there will be NO additional leeway given for any reason, since that is what this policy is meant to handle. If you do not use any late days, there might be a (very small) bonus to your grade at the end of the semester, but there is no guarantee to that. Lastly, note that the late submission penalty will probably not appear in the grade book until the very end of the semester.

Submission system: All homeworks will be submitted via Collab.

Honor Policy: There have been a large number of honor violations in this class and other CS courses recently. Outside the normal UVa honor policy rules, we have the rules above as to group assignments for written homeworks, and the rules above for programming homeworks (not looking at another student's code). Any honor violation or cheating will be referred to the honor committee, **and will result in an immediate failure for the course**, regardless of the outcome of the honor trial or your other grades. No exceptions! I am very strict on this, and one have successfully raised honor charges against students in the past due to violations of this policy.