DSC 482.01 Fall 2021 Syllabus

Artificial Intelligence

Marcus Birkenkrahe

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1 General Course Information

- Meeting Times: Monday/Wednesday/Friday, 09:00-09:50 hrs
- Meeting place: Derby Center 209 (computer lab)
- Professor: Marcus Birkenkrahe
- Office: Derby 210
- Phone: (870) 307-7254
- Office hours: Mon/Wed/Fri 10:00-10:30 AM; Tue/Thu 4-4:30 PM
- Text: AIMA - *Artificial Intelligence - A Modern Approach (4th edition)*, by Stuart Russell and Peter Norvig, Pearson 2021.

1.1 Objectives

Artificial intelligence has been a goal of computer science (CS) since the early days of the field in the 1950s. Unlike other areas of CS, it has undergone major trend swings. Currently, AI enjoys another (its third) spring. In truth, though, AI is not just one field, but several interconnected fields. In this seminar, we will work together to identify and understand the AI subfields that are industrially relevant, and separate them from the more arcane areas that may, or may not be relevant in the near future. This special topic seminar is for everyone who is interested in AI. We will discuss algorithmic, social, philosophical, commercial and technical aspects of AI.

1.2 Student Learning Outcomes

Students who complete DSC 482.01 "Artificial Intelligence", will be able to:

- understand the history and importance of AI for society
- know how to solve problems in complex environments
- know how AI can be used for sales and marketing
- understand agent-based technologies for different applications
- understand the conceptual basics of machine learning techniques
- design an own application using AI principles and techniques

1.3 Course requirements

No prior knowledge required. Some knowledge of, and experience with algorithms is useful but not critical. Curiosity is essential. You will gain data literacy skills by taking this course. The course will prepare you for further studies in machine learning and deep learning, but also in conceptual applications of AI, like machine ethics.

1.4 Grading system

WHEN	DESCRIPTION	IMPACT
Weekly	Participation	15%
Before midterms	Protocol	15%
TBD	Presentation	30%
Last week	AI application	40%

1.4.1 Grading table

This table is used to convert completion rates into letter grades. For the midterm results, letter grades still carry signs, while for the term results, only straight letters are given (by rounding up).

%	Midterm Grade	Final Grade
100-98	A+	
97-96	A	A
95-90	A-	
89-86	B+	
85-80	B	B
79-76	B-	
75-70	C+	
69-66	C	C
65-60	C-	
59-56	D+	
55-50	D	D
49-0	F	F

1.4.2 Presentation (30%)

- Present part of a chapter from AIMA, OR
- Review and present an AI research paper, OR
- Research and present an AI application.

1.4.3 Application (40%)

- Identify an AI application area, AND
- Research how AI could be used, AND
- Present briefly at sprint reviews, AND
- Present your application idea at the end of term.

1.4.4 Protocol (15%)

- Record a classroom session, AND
- Create a protocol of the session, AND
- Upload the protocol to GitHub.

1.4.5 Participation (15%)

- Participate in group discussions, OR
- Participate in class discussion, OR
- Present a glossary term, OR
- Present an interesting AI application.

1.4.6 Grading examples

1. Example - Midterm grade

   At midterms, student X has achieved the following results:

GRADE PART	WEIGHT	RESULT
Session Protocol	15%	80%
Weekly participation	15%	90%

   Student X's midterm result is a "B" (`85%`).

2. Example - Final grade

   After the finals, student X has achieved the following results:

GRADE PART	WEIGHT	RESULT
Session protocol	15%	80%
Weekly participation	15%	90%
Presentation	30%	95%
Final application	40%	95%

   Student X's midterm result is an "A" (`92%`).

2 Standard Policies

2.1 Honor Code

All graded work in this class is to be pledged in accordance with the Lyon College Honor Code. The use of a phone for any reason during the course of an exam is considered an honor code violation.

2.2 Class Attendance Policy

Students are expected to attend all class periods for the courses in which they are enrolled. They are responsible for conferring with individual professors regarding any missed assignments. Faculty members are to notify the Registrar when a student misses the equivalent of one, two, three, and four weeks of class periods in a single course. Under this policy, there is no distinction between "excused" and "unexcused" absences, except that a student may make up work missed during an excused absence. A reminder of the college's attendance policy will be issued to the student at one week, a second reminder at two weeks, a warning at three weeks, and notification of administrative withdrawal and the assigning of an "F" grade at four weeks. Students who are administratively withdrawn from more than one course will be placed on probation or suspended.

2.3 Disabilities

Students seeking reasonable accommodations based on documented learning disabilities must contact Danell Hetrick in the Morrow Academic Center at (870) 307-7021 or at danell.hetrick@lyon.edu.

2.4 Harassment, Discrimination, and Sexual Misconduct

Title IX and Lyon's policy prohibit harassment, discrimination and sexual misconduct. Lyon encourages anyone experiencing harassment, discrimination or sexual misconduct to talk to Lai-Monte Hunter, Title IX Coordinator and Vice-President for Student Life, or Sh'Nita Mitchell, Title IX Investigator and Associate Dean for Residence Life, about what happened so they can get the support they need and Lyon can respond appropriately. Lyon is legally obligated to respond to reports of sexual misconduct, and therefore we cannot guarantee the confidentiality of a report, unless made to a confidential resource (Chaplain, Counselor, or Nurse). As a faculty member, I am required to report possible Title IX violations and must provide our Title IX coordinator with all relevant details. I cannot, therefore, guarantee confidentiality.

2.5 College-Wide COVID-19 Policies for Fall, 2021

Masks are mandated for all students in classrooms, laboratories and studios. They remain optional for all persons on the Lyon campus in all other locations and outside. Participation in community surveillance testing in

mandatory. Vaccines are STRONGLY encouraged for all faculty, staff, and students. Vaccines are NOT MANDATED for Lyon College community members.

Details specific to this course may be found in the subsequent pages of this syllabus. Those details will include at least the following: A description of the course consistent with the Lyon College catalog. A list of student learning outcomes for the course. A summary of all course requirements. An explanation of the grading system to be used in the course. Any course-specific attendance policies that go beyond the College policy. Details about what constitutes acceptable and unacceptable student collaboration on graded work.

3 Course specific information

3.1 Assignments and Honor Code

There will be numerous assignments during the semester - e.g. programming, lessons, tests, and sprint reviews. They are due at the beginning of the class period on the due date. Once class begins, the assigment will be considered one day late if it has not been turned in. Late programs will not be accepted without an extension. Extensions will **not** be granted for reasons such as:

- You could not get to a computer
- You could not get a computer to do what you wanted it to do
- The network was down
- The printer was out of paper or toner
- You erased your files, lost your homework, or misplaced your flash drive
- You had other coursework or family commitments that interfered with your work in this course

Put "Pledged" and a note of any collaboration in the comments of any program you turn in. Programming assignments are individual efforts, but you may seek assistance from another student or the course instructor. You may not copy someone else's solution. If you are having trouble finishing an assignment, it is far better to do your own work and receive a low score than to go through an honor trial and suffer the penalties that may be involved.

What is cheating on an assignment? Here are a few examples:

- Having someone else write your assignment, in whole or in part
- Copying an assignment someone else wrote, in whole or in part
- Collaborating with someone else to the extent that your submissions are identifiably very similar, in whole or in part
- Turning in a submission with the wrong name on it

What is not cheating? Here are some examples:

- Talking to someone in general terms about concepts involved in an assignment
- Asking someone for help with a specific error message or bug in your program
- Getting help with the specifics of language syntax or citation style
- Utilizing information given to you by the instructor

Any assistance must be clearly explained in the comments at the beginning of your submission. If you have any questions about this, please ask or review the policies relating to the Honor Code.

Absences on Days of Exams:

Test "make-ups" will only be allowed if arrangements have been made prior to the scheduled time. If you are sick the day of the test, please e-mail me or leave a message on my phone before the scheduled time, and we can make arrangements when you return.

3.2 Important Dates:

DATE	DESCRIPTION
August 30	Last day to drop w/o record of a course
September 6	Labor day (no classes)
October 2-5	Fall break (no classes)
October 6	Mid-semester grade reports due
October 13	Last day to drop a course with a "W" grade
October 20	Service day on campus (no classes)
Nobember 24-28	Thanksgiving Break (no classes)
December 3	Last day of class
December 6-10	Final exams
December 15	Final grades due

3.3 Schedule and session contenty

DATE	AIMA	PROJECTS
Wed-18-Aug	Course overview	
Fri-20-Aug		
Mon-23-Aug	What is AI?	
Wed-25-Aug		Protocol 1
Fri-27-Aug		Protocol 2
Mon-30-Aug	History of AI	
Wed-1-Sep		Protocol 3
Fri-3-Sep		Protocol 4
Mon-6-Sep	LABOR DAY	
Wed-8-Sep	State of the Art of AI	
Fri-10-Sep	APPLICATIONS	1st sprint review
Mon-13-Sep	Risks and benefits of AI	
Wed-15-Sep		Protocol 5
Fri-17-Sep		Protocol 6
Mon-20-Sep	Introduction summary	
Wed-22-Sep	Presentation 1	Protocol 7
Fri-24-Sep	Presentation 2	Protocol 8
Mon-27-Sep		Protocol 9
Wed-29-Sep	Presentation 3	Protocol 10
Fri-1-Oct	Presentation 4	Protocol 11
Mon-4-Oct	FALL BREAK	
Wed-6-Oct	Presentation 5	Protocol 12(X)
Fri-8-Oct	APPLICATIONS	2nd sprint review
Mon-11-Oct		
Wed-13-Oct	Presentation 6	Protocol 13(X)
Fri-15-Oct		
Mon-18-Oct		
Wed-20-Oct	SERVICE DAY	
Fri-22-Oct	Presentation 7	Protocol 14(X)
Mon-25-Oct		
Wed-27-Oct	Presentation 8	Protocol 15(X)
Fri-29-Oct		
Mon-1-Nov		
Wed-3-Nov	Presentation 9	Protocol 16(X)
Fri-5-Nov	APPLICATIONS	3rd sprint review
Mon-8-Nov		
Wed-10-Nov	Presentation 10	Protocol 17(X)
Fri-12-Nov		
Mon-15-Nov		
Wed-17-Nov	Presentation 11	Protocol 18(X)
Fri-19-Nov		
22-Nov		
24-Nov	THANKSGIVING	
26-Nov	THANKSGIVING	
29-Nov	PROJECT PRESENTATIONS	
1-Dec	PROJECT PRESENTATIONS	

(X) = Extra credit