

CS-0263: Artificial Intelligence

COURSE INFORMATION

Instructor Info: Lee Spector

lasCCS@hampshire.edu

Office

Extension: x5352

Office

Regular office hours: Tuesdays 10:00-11:30, Wednesdays 1:00-2:30, and Thursdays 10:00-11:30. Other times can

Hours: be set up by arrangement (in person or via email). Sign up for regular office hours, advising day meetings, and occasionally other signup times on Moodle here.

Term: 2014F

Meeting Info: Tuesday 02:00 PM - 03:20 PM Adele Simmons Hall (ASH) 126

Thursday 02:00 PM - 03:20 PM Adele Simmons Hall (ASH) 126

Description:

Artificial Intelligence is a branch of computer science concerned with the development of computer systems that "think." In this course we will explore the core ideas of artificial intelligence through readings, presentations, discussions, and hands-on programming activities. A range of practical artificial intelligence techniques will be covered, and students will complete programming projects to demonstrate engagement with the themes of the course. Prerequisite: One programming course (in any language).

- Course Objectives:**
- To gain familiarity with a range of concepts and computational techniques that have been developed by AI researchers over history of the field.
 - To apply several of these concepts and techniques to hands-on research and development activities involving "intelligent agents" in virtual worlds.

Evaluation Criteria: Hampshire Students

You will be evaluated on the basis of participation (including approximately-weekly demonstrations), a portfolio of code, and a retrospective essay that discusses your portfolio and the relation of the code that it contains to AI concepts. You should demonstrate through your participation that you have read and thought about the course readings. You will be expected to present a demo of new, running code, related to the topics covered recently in class, approximately once per week. **Any missed or inadequate demos will be noted in your evaluation, and if you fail to present an adequate demo for 3 or more of the demo sessions you should not expect to receive an evaluation.** The code that you demonstrate can be a new component of an ongoing project or a new mini-project undertaken just for one week. Demos will be strictly limited to 3 minutes, with 1 minute set-up time. You should be certain before each demo session that you can get all of the necessary files in place and begin your demo within 1 minute of the start of your demo time. You should also be certain that you can complete your demo within 3 minutes after setup. Your code portfolio (and the associated retrospective essay) should demonstrate facility with the code environment used in the class and engagement with several of the class topics at the implementation level.

Five College (graded) Students

Each demo will be graded on a scale from 0-100. The final portfolio (code plus retrospective essay) will also be graded on a scale from 0-100. Attendance and participation will be scaled to a third number from 0-100. For your final grade I will calculate:

$$\text{score} = (0.5 * \text{demo average}) + (0.3 * \text{portfolio}) + (0.2 * \text{attendance and participation})$$

I will then assign grades as follows:

score	grade
≥ 97	A+

>=93	A
>=90	A-
>=87	B+
>=83	B
>=80	B-
>=77	C+
>=73	C
>=70	C-
>=67	D+
>=63	D
>=60	D-
<60	F

There will be no curve. Pluses and minuses will be given only if your home institution allows them. Note that missed demos will be scored as zero and will have a dramatic negative impact on your grade. A clearly inadequate demo may also be scored as a zero or nearly zero.

Additional Info:**Division I Distribution Credit**

Successful completion of this course satisfies the Division I distribution requirement in Mind, Brain, and Information. This course provides opportunities for satisfaction of Division I cumulative skills requirements in Quantitative Skills and Independent Work.

Text

- Artificial Intelligence: Foundations of Computational Agents, by David Poole and Alan Mackworth, Cambridge University Press, 2010. Available free online.

Additional readings are linked to the schedule below, and others may be distributed in class.

Software

The Clojure programming language, accessed primarily via:

- Leiningen
- Counterclockwise
- Gorilla-repl

Additional Resources

[AITopics](#) (Hub for additional information about AI)
[Clojure Videos](#)
[Introduction to Clojure](#)
[Try-clj](#) (a browser-based Clojure repl)
[Grimoire](#) (Clojure documentation)
[Clojuredocs](#) (Clojure documentation)
[Clojure Atlas](#) (Clojure documentation)
[4clojure](#) (an interactive site for learning Clojure via problems)
[Clojinc](#) (Lee's introduction to Clojure)

Facilities

Students may use their own computers and/or the Macs in ASH 126, which will be available at various posted hours. Students should **not** expect files left on the Macs in ASH 126 to persist; **the discs on those machines may be erased without notice at any time**. Students may find it convenient to use a thumb drive to transport files to and from class.

Difficulty/Level

This course is intended to serve students with a wide range of backgrounds, including students with only one previous programming course (in any language) and students with significant computer science and programming experience. Students

with little previous experience should resist being intimidated by the more difficult readings, etc., and bear in mind that I take background into account in writing evaluations. If a reading or a class discussion is over your head, try to extract the gist of it (which may be all that you need at this point in your learning) and talk to me if you want to understand more. Students with extensive previous experience should note that the class is structured to provide ample opportunities for more advanced work; feel free to talk to me about ideas for projects, etc.

Demonic Coding

Many class sessions will be dedicated in part or entirely to "demonic coding." In a demonic coding session the class is split into two groups and the available time is split into two periods. In the first period one of the groups is coders and the other is demons; in the second period the roles are reversed. Coders sit at workstations and work on their own projects for the entire period. Demons rotate among the coders at announced times, observing and interacting with one coder at a time. Demons may ask questions and/or make suggestions, and coders must dedicate a percentage of their time (approximately 50%) to demonic interactions. Each student must have access to his/her current work files every day -- on a laptop computer, or a thumb drive, or a networked server, etc. -- and always be ready to participate as a coder in a demonic coding session.

Policies in Regards to Illness, Epidemic, or Pandemic

If you have a fever, please stay home, take good care of yourself, and contact me by email or phone. When you are able to work at home you should be able to participate in classes and to submit work electronically. If your illness makes it impossible for you to meet the course deadlines then contact me and we will negotiate an accommodation.

Plagiarism Policy

Official policy text:

All Hampshire College students and faculty, whether at Hampshire or at other institutions, are bound by the ethics of academic integrity. The entire description and college policy can be found in Non Satis Non Scire at handbook.hampshire.edu under Academic Policies/Ethics of Scholarship. Plagiarism is the representation of someone else's work as one's own. Both deliberate and inadvertent misrepresentations of another's work as your own are considered plagiarism and are serious breaches of academic honesty and integrity. All sources used or consulted in the process of writing papers, examinations, preparing oral presentations, course assignments, artistic productions, and so on, must be cited. Sources include material from books, journals or any other printed source, the work of other students, faculty, or staff, information from the Internet, software programs and other electronic material, designs and ideas.

All cases of suspected plagiarism or academic dishonesty will be referred to the Dean of Advising who will review documentation and meet with student and faculty member. Individual faculty, in consultation with the Dean of Advising, will decide the most appropriate consequence in the context of the class. This can range from revising and resubmitting an assignment to failing the course. Beyond the consequence in the course, CASA considers first offenses as opportunities for education and official warning. Multiple or egregious offenses will have more serious consequences. Suspected instances of other breaches of the ethics of academic integrity, such as the falsification of data, will be treated with the same seriousness as plagiarism and will follow the same process.

In this course we will often be sharing and borrowing code. This is an important aspect of the course and an important aspect of modern programming practice. This does not mean, however, that it is acceptable to submit code that is not your own without acknowledging sources. Sources should be clearly and explicitly provided in everything that you produce.

Schedule

The following is only an approximate schedule and it is subject to change. Adjustments will be announced in class. Assigned readings should be read *prior* to the indicated classes.

Tuesday 2:00-3:20 AM	Thursday 2:00-3:20 AM
	September 4
	Syllabus Introduction

	September 9		September 11
P&M Preface How old is the AI dream? Why would someone learn Clojure? Clojure from the Ground Up 1 Clojure from the Ground Up 2 Clojure from the Ground Up 3		Clojinc Clojure from the Ground Up 4 Clojure from the Ground Up 5 Clojure from the Ground Up 6 One of: <ul style="list-style-type: none"> Rich Hickey on Clojure for Java Programmers (Part 1, Part 2) Rich Hickey on Clojure for Lisp Programmers (Part 1, Part 2) 	
Demos Clojure from the Ground Up 7 Optional: Clojure from the Ground Up 8	September 16	ADVISING DAY - NO CLASS	September 18
P&M 1	September 23	Demos	September 25
P&M 2	September 30	Demos	October 2
P&M 3	October 7	Demos	October 9
OCTOBER BREAK - NO CLASS	October 14	Demos	October 16
P&M 4 Evolution of Artificial Intelligence	October 21	Demos	October 23
P&M 5	October 28	Demos	October 30
P&M 8	November 4	Demos	November 6
P&M 12	November 11	Demos	November 13
P&M 13	November 18	Demos	November 20
P&M 15 Future Progress in Artificial Intelligence: A Survey of Expert Opinion	November 25	THANKSGIVING - No Class	November 27
Computing Machinery and Intelligence Rethinking Computer Intelligence	December 2	Book Discussion on Our Final Invention Robots! (and Artificial Intelligence) Stephen Hawking explains killer robots to John Oliver	December 4
Final Demos	December 9	Final Demos Due: Portfolios	December 11



How old is the AI dream?



Why would someone learn Clojure?

 Moodle Docs for this page

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You are logged in as Lee Spector (Log out)

[Home](#)

