

# Course Syllabus

Course Title: Introduction to Artificial Intelligence

Course Number: CS 331

Course Credits: 4

Faculty: [Dr. Rebecca A. Hutchinson](#) <sup>e</sup> ([rah@oregonstate.edu](mailto:rah@oregonstate.edu))

Contact Info: [rah@oregonstate.edu](mailto:rah@oregonstate.edu)

Course Location: [Gilfillan Auditorium](#) <sup>e</sup> , Corvallis Campus, MW 10:00-11:50

Teaching Assistants: Grace Diehl ([diehlg@oregonstate.edu](mailto:diehlg@oregonstate.edu))

Office Hours: TBD

- Mon
- Tue
- Wed
- Thu
- Fri
- or by appointment - email instructor and/or TAs if needed

Course Catalog Description: Fundamental concepts in artificial intelligence using the unifying theme of an intelligent agent. Topics include agent architectures, search, games, logic and reasoning, and Bayesian networks.

Prerequisites: CS 325. Fluency in a programming language. The ability to take simple derivatives.

## Student Learning Outcomes

1. Analyze the dimensions along which agents and environments vary, along with key functions that must be implemented in a general agent.
2. Implement agents using search algorithms such as uninformed search, informed search or local search.
3. Develop strategies for agents in games of perfect and imperfect information.
4. Represent knowledge of the world using logic and infer new facts from that knowledge.
5. Use a Bayesian network to make quantitative (probabilistic) and qualitative inferences.
6. Implement a Bayesian network that solves a simple version of a problem such as text categorization or object recognition.

## Course Content

Approximate schedule (subject to change):

Week	Monday	Wednesday
1	Mar. 28: Introductions	Mar. 30: Agents (HW1 out)
2	Apr. 4: Uninformed Search (PA1 out)	Apr. 6: Informed Search (HW1 due)
3	Apr. 11: Local Search	Apr. 13: Adversarial Search (PA2 out)
4	Apr. 18: Logic 1 (PA1 due)	Apr. 20: Logic 2 (HW2 out)
5	Apr. 25: Flex Time/Catch-up	Apr. 27: Guest Lecture: AlphaGo Prof. Alan Fern (PA2 due)
6	May 2: Midterm Review (HW2 due)	May 4: Midterm
7	May 9: Probability (HW3 out)	May 11: Bayes Nets 1
8	May 16: Bayes Nets 2 (HW3 due, HW4 out, PA3 out)	May 18: Game Theory (HW5 out)
9	May 23: Guest Lecture: Safety in AI Prof. Sandhya Saisubramanian (HW4 due)	May 25: Guest Lecture: Ethics in AI Prof. Prasad Tadepalli (HW5 due)
10	May 30: Cancelled (univ. holiday)	Jun. 1: Final Exam Review (PA3 due)
Finals	Final Exam (date and time TBD)	

## Learning Resources

Artificial Intelligence: A Modern Approach (3rd edition), by Russell and Norvig (optional, but recommended).

Online resources related to the book: <http://aima.cs.berkeley.edu/> <sup>e</sup> .

## Evaluation of Student Performance

An approximate weighting of the marks in the course is listed below. This may change slightly depending on the number and size of the assignments.

- Programming Assignments (3 of them) - 30%
- Written Assignments (5 of them; drop lowest 1) - 20%
- Pre-class Quizzes (10 of them; drop lowest 2) - 10%
- Midterm - 20%
- Final - 20%
- In-class Participation - extra credit up to 5% of the total points for the class

The midterm and exam are open-book. Only print materials are permitted. Hand-held calculators are also allowed, but no laptops or phones. Do not rely too heavy on your notes during an exam! Use them as a safety net.

Grading Scale:

- A: 93-100
- A-: 90-93
- B+: 87-90
- B: 83-87
- B-: 80-83
- C+: 77-80
- C: 73-77
- C-: 70-73
- D+: 67-70
- D: 63-67
- D-: 60-63
- F: below 60

## Policy on collaboration

In solo assignments, collaboration is limited to verbal discussion of general approaches and strategies for the assignment. You can give each other examples that are not in the assignment. If you collaborate in this way, you will be asked to declare your collaborators.

Things not allowed:

- No use of code, documentation, or other written media from sources other than yourself (e.g., classmates, internet, etc.) unless explicitly allowed by the assignment.
- Do not tell each other the answers

For assignments done in teams, team members within the same team may explicitly discuss answers. However, the rules above apply between teams. For further details, please refer to the [OSU Academic dishonesty policy](#) <sup>e</sup> and the [CS Academic dishonesty policy](#) <sup>e</sup> .

## Late Policy

Written assignments are due at the start of class. The late policy is as follows:

- 0-24 hours late: 90% of the final score
- 24-48 hours late: 50% of the final score
- After 48 hours late: 0%

Note: Pre-class quizzes are exempt from the late policy. Late submissions will not be accepted.

## Statement Regarding Students with Disabilities

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu> <sup>e</sup> . DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

## Religious Holiday Statement

Oregon State University strives to respect all religious practices. If you have religious holidays that are in conflict with any of the requirements of this class, please see me immediately so that we can make alternative arrangements.

## Student Bill of Rights

OSU has twelve established student rights. They include due process in all university disciplinary processes, an equal opportunity to learn, and grading in accordance with the course syllabus:

<https://asosu.oregonstate.edu/advocacy/rights> <sup>e</sup>

## Community Statement

(Thanks to Eric Walkingshaw for this text.)

Every student should feel safe and welcome to contribute in this course. As the instructor, I will try to establish this tone whenever possible, but ultimately the responsibility for cultivating a safe and welcoming community belongs to the students-that means you!

Fortunately, being part of a safe and welcoming community is not too hard. A good place to start is to recognize (and continually remind yourself) of the following facts:

- Your classmates come from a variety of cultural, economic, and educational backgrounds. Something that is obvious to you may not be obvious to them.
- Your classmates are human beings with intelligence and emotions. This applies even if you are interacting anonymously on Canvas.
- Your classmates are here to learn. They have the right to pursue their education without being distracted by others' disruptive behavior, or made uncomfortable by inappropriate jokes or unwanted sexual interest.

If each of us remembers these facts and act with corresponding decency, respect, and professionalism, the course will certainly be better for everyone.

Some students might be inclined to shrug this off and perhaps crack a joke about safe spaces or political correctness. If that's you, please also know that if you make a fellow student uncomfortable by mocking them, making inappropriate jokes, or making unwanted advances, that is *harassment* and will be taken seriously. (If you are a victim of harassment, please see the brief [list of resources](#) below.)

However, I hope that we can all approach this positively. Treat your classmates as respected colleagues, support each other when needed, have fun without spoiling it for anyone else, and everybody wins.

If you are the victim of harassment in this class, there are several resources available to you:

- You may schedule a private meeting to talk to me.
- You may contact the [University Ombuds Office](#) <sup>e</sup> for confidential guidance and advice.
- You may contact the [Office of Equal Opportunity and Access](#) <sup>e</sup> to file an informal or formal complaint.

You may also want to read OSU's policies on [bullying](#) <sup>e</sup> and on [sexual harassment and misconduct](#) <sup>e</sup> .

Link to Statement of Expectations for Student Conduct:

[https://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/code\\_of\\_student\\_conduct\\_final.pdf](https://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/code_of_student_conduct_final.pdf) <sup>e</sup>

## Policy on Children in Class

(Thanks to Melissa Cheyney for this text.)

It is my belief that if we want women in academia, that we should also expect children to be present in some form. Currently, the university does not have a formal policy on children in the classroom. The policy described here is thus, a reflection of my own beliefs and commitments to student, staff and faculty parents.

All exclusively breastfeeding babies are welcome in class as often as is necessary to support the breastfeeding relationship. Because not all women can pump sufficient milk, and not all babies will take a bottle reliably, I never want students to feel like they have to choose between feeding their baby and continuing their education. You and your nursing baby are welcome in class anytime.

For older children and babies, I understand that minor illnesses and unforeseen disruptions in childcare often put parents in the position of having to choose between missing class to stay home with a child and leaving him or her with someone you or the child does not feel comfortable with. While this is not meant to be a long-term childcare solution, occasionally bringing a child to class in order to cover gaps in care is perfectly acceptable.

I ask that all students work with me to create a welcoming environment that is respectful of all forms of diversity, including diversity in parenting status.

In all cases where babies and children come to class, I ask that you sit close to the door so that if your little one needs special attention and is disrupting learning for other students, you may step outside until their need has been met. Non-parents in the class, please reserve seats near the door for your parenting classmates.

Finally, I understand that often the largest barrier to completing your coursework once you become a parent is the tiredness many parents feel in the evening once children have finally gone to sleep. The struggles of balancing school, childcare and often another job are exhausting! I hope that you will feel comfortable disclosing your student-parent status to me. This is the first step in my being able to accommodate any special needs that arise. While I maintain the same high expectations for all student in my classes regardless of parenting status, I am happy to problem solve with you in a way that makes you feel supported as you strive for school-parenting balance. Thank you for the diversity you bring to our classroom!

## Student Evaluation of Courses:

The online Student Evaluation of Teaching system is open to students the Monday of dead week and closes the following Sunday. Students will receive notification, instructions, and the link through their ONID. Students may also log into the system via Online Services. Course evaluation results are extremely important and are used to help improve courses and the learning experience of future students. Responses are anonymous (unless a student chooses to "sign" their comments agreeing to relinquish anonymity), and unavailable to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only. I am very interested in your feedback on ways to improve the course, and specific feedback is most helpful (which particular aspects of the course went well or poorly for you).