

## CSE 511A: Introduction to Artificial Intelligence (Fall 2015)

|                        |   |
|------------------------|---|
| Instructor             | Professor Roman Garnett (garnett)   |
| TAs                    | Chip Schaff (cbscaff), Cheng Lin (clin3)<br>Xinyu Yan (xinyu.yan), Zhicheng Cui (z.cui)                       |
| Time/Location          | Tuesday/Thursday 2:30–4pm, Wilson Hall 214  |
| Office Hours (Garnett) | Wednesday 2–4pm, Jolley 504   |
| Office Hours (TAs)     | Monday 3–5pm, Jolley 508  |
| Office Hours (TAs)     | Friday 4:30–6:30pm, Jolley 508  |
| URL                    | <a href="http://cse.wustl.edu/~garnett/cse511a/">http://cse.wustl.edu/~garnett/cse511a/</a>                   |
| Piazza message board   | <a href="https://piazza.com/wustl/fall2015/cse511a/home/">https://piazza.com/wustl/fall2015/cse511a/home/</a> |

### Course Description

The discipline of artificial intelligence (AI) is concerned with building systems that think and act like humans or rationally on some absolute scale. This course is an introduction to the field, with special emphasis on sound modern methods. The topics include knowledge representation, problem solving via search, game playing, logical and probabilistic reasoning, planning, machine learning (decision trees, neural nets, reinforcement learning, and genetic algorithms) and machine vision. Programming exercises will concretize the key methods. The course targets graduate students and advanced undergraduates. Evaluation is based on programming assignments, a midterm exam, and a final exam.

### Prerequisites

If you are unsure about any of these, please speak with the instructor.

- CSE 132, CSE 240, and CSE 241, or permission of the instructor.
- Knowledge of Python. This will be critical to complete the programming assignments.
- Some basic knowledge of statistics, probability theory, and first order logic is strongly recommended.

### Book

The book is Russell and Norvig, *Artificial Intelligence: A Modern Approach*. Either the second or third edition is fine. This is a classic textbook and is strongly recommended. I will suggest readings from this book for every lecture.

A good reference for reinforcement learning is Sutton and Barto, *Reinforcement Learning: An Introduction*. This book is available online and I might suggest reading from it as well.

### Assignments

The assignments for this course are a progression of Python programming assignments related to the classic game Pac-Man. These projects will culminate with a capture-the-flag contest. You will submit an agent who tries to eat the opponents dots, while avoiding the opponent's ghosts. The winner will earn extra credit and gain the people's ovation and fame forever.

The assignments will be automatically graded, and a dynamic scoreboard will (anonymously) show your standing on each assignment compared with your peers. You may find information related to interacting with the autograder on the website.

The assignment schedule will be kept up-to-date on the webpage.

### **Late policy**

Assignments will be due at the beginning of class on the due date. I will allow you to turn in your assignment up to one class late with no penalty. After that, it will no longer be accepted under any circumstance.

### **Collaboration policy**

You may work on the assignments in pairs if you prefer. If you choose to work with someone, please be sure to indicate this via the `partners.txt` file in your Subversion repository.

### **Examinations**

There will be a midterm held in class on **Tuesday, October 13**. This will count for 25% of your grade. The final exam will be held on **Wednesday, December 16**, from 3:30–5:30 PM. This will count for another 25% of your grade.

### **Grading**

Your final grade will consist of the following weighted components:

| component            | %   |
|----------------------|-----|
| programming projects | 50% |
| midterm              | 25% |
| final exam           | 25% |

I will determine grade boundaries based on the distribution of final weighted grades.