Course Syllabus: Introduction to AI - Probabilistic Reasoning and Decision Making

This class, Introduction to AI, is designed to be a junior-level computer science class that will introduce students to the probabilistic and statistical models at the heart of modern artificial intelligence. Possible topics to be covered include: probabilistic methods for reasoning and decision-making under uncertainty; inference and learning in Bayesian networks

1. Critical information, at a glance

- We will use the textbook *Artificial Intelligence: Foundations of Computational Agents*, 2nd ed. by Poole and Mackworth. An online version of this textbook can be found on the publisher's website: https://artint.info/2e/html/ArtInt2e.html. A second reference book is *Artificial Intelligence: A Modern Approach*, 3rd ed by Russell and Norvig.
- You should score at least 55% in the final exam to get a passing grade for this class, regardless of your overall percentage.
- We will have 3 homework assignments over the 4 week period.

2. Pre-requisites

Prerequisites are elementary probability, statistics, linear algebra, and calculus, as well as basic programming ability in some high-level languages such as C, Java, Matlab, R, or Python. (Programming assignments are completed in the language of the student's choice.) Students of all backgrounds are welcome.

3. What you will learn from this class

- Describe and use different probabilistic models including Bayes Nets and EM algorithm
- Apply probabilistic models to solve real-world problems
- Design specific models for AI tasks
- Perform inference using probabilistic models
- Prove relationships between probabilities under different models
- Implement core algorithms of different models
- Describe how agents learn from data using maximum likelihood learning
- Identify ethical concerns related to AI

4. Grading

Your final grade will be determined via the following percentages:
Lecture participation points: 10%
Homework: 45%
Final: 45%

Important grading policies:

- You must score at least 55% on the final exam to pass the course. If you score lower than 55% on the final, you will receive an F for the course, regardless of your overall average.
- You must score at least 55% overall for the homework assignments.
- All homework should be done individually.
- According to Fudan University's policy, there is a threshold on the percentage of students who may receive A or A- in a class. Please keep this policy in mind.

5. Attendance Policy

Students are expected to participate in all lectures and missing more than 3 days of lectures without prior approval from the instructor will result in an F for the course regardless of lab or final exam scores. Based on Fudan University's policy, a student is considered late to class if he or she is late for more than 10 minutes for a class session.