CSE 571: Artificial Intelligence
(Fall 2018)

Warning: This class is NOT for the faint-hearted; information herein is subject to change.

1. Course Description:

This course provides a first introduction to a myriad of topics in Artificial Intelligence. The focus of the course is the study of modern approaches to Artificial intelligence. In particular, we will study:

- **Problem solving** deals with general problem solving; techniques behind DeepBlue and AlphaGo.
- **Probabilistic modeling and reasoning** deals with uncertain modeling and reasoning. Almost all real-world problems are subject to uncertainty.
- **Decision making under uncertainty** deals with problem solving and decision making under uncertainty.
- **Machine learning** deals with learning from examples and more advanced learning techniques that contribute to most modern AI applications.

2. Course Information:

Lecture:
T & Th 4:30–5:45 PM   COOR174

Instructor: Yu ("Tony") Zhang   Email: yzhan442@asu.edu

Instructor Office Hours:
T & Th   3:15PM–4:15PM   BYENG 594

TAs: Mehrdad Zaker Shahrak   mzakersh@asu.edu

Office Hours for TAs:
M	3-5PM	BYENG 221	Mehrdad
F	2-4PM	BYENG 221	Mehrdad

Remarks on Electronic Communication: For questions regarding personal issues, email **BOTH** the TA(s) and me. Before sending an email please follow the excellent advice http://www.wikihow.com/Email-a-Professor. For questions about class materials (e.g., homework, quizzes and etc.), see the respective sections below.

3. Textbooks:

Required: Artificial Intelligence - A Modern Approach
        Stuart Russell & Peter Norvig, 3rd Edition

- o **Note**: The 2nd Edition can still be used. However, you might have to consult with your classmates regarding the mapping of homework problems and pages between the two editions.
- o **Note**: International editions of the textbook have different numbering in the exercises. If you are using the international edition, you will have to consult with your classmates regarding the mapping of homework problems and pages between the 2 editions.

Recommended readings:
Probabilistic Robotics
Sebastian Thrun, Wolfram Burgard & Dieter Fox

Deep Learning
Ian Goodfellow, Yoshua Bengio & Aaron Courville
Free online version: https://www.deeplearningbook.org

Supplementary readings: will be announced on BB and via course website.

4. Resources (more may be added):

Course web page (will be active soon):
http://www.public.asu.edu/~yzhan442/teaching/CSE571/ (to be available soon)

Schedule (will be active soon and updated incrementally):
http://www.public.asu.edu/~yzhan442/teaching/CSE571/schedule.html

On-line discussions and polls (Piazza):
http://piazza.com/asu/fall2018/cse571/home
To sign up:
http://piazza.com/asu/fall2018/cse571

5. Homework:

Homework problems will be posted on Blackboard. Submission of homework is done **electronically** via Blackboard before the deadline (specified by date **AND** time). **Single PDF file submission (unless noted otherwise); ONLY TYPED** homework will be accepted; *plagiarism will be checked, penalized and reported*. You can add pictures to explain your solutions. You are encouraged to use Overleaf to typeset your homework. Homework problem solutions are going to be provided on Blackboard after the due date.

General policy:

o If the homework is turned in late **AND within 48 hours of the deadline**, the maximum grade you can expect is **50%** of the total grade (if you do submit a late homework, you need to send BOTH me and the TA(s) an email with the homework as an attachment); **no grade will be given after 48 hours. [**Only under extremely rare situations will exceptions be made. Make sure to plan ahead.]

o If you are stuck, you must **FIRST** consult the textbook, handouts, and notes again to attempt your own solutions. If you are still stuck afterwards, you may post questions on Piazza (about where you are stuck) under the most relevant topic, consult online resources (*NOT* the solution manual), or visit the TA(s) or me during office hours [however, make sure to post on Piazza **BEFORE** visiting us]. **However,** *AT NO POINT OF TIME* **should you blatantly ask for solutions to homework problems on Piazza, or copy others' or online solutions.**

o If you find yourself unable to start **AFTER** consulting the textbook, handouts, and notes, visit the TA(s) or me during office hours.

o If you cannot come up with satisfactory solutions to homework problems, submit your attempted solutions.

o In some cases, the instructor or the TA may send you additional questions or ask you to clarify your solutions. If you get such a message, you must respond **within 2 business days**.

o **If cheating/plagiarism is detected (e.g., directly copying others' or online solutions), then the homework score will be zero AND your final grade will be lowered by an additional 5% AND you will be reported.**

o For questions posted on Piazza, the TA(s) and me will be responding **after 1**

business day. If you plan to rely on our answers, make sure to **PLAN AHEAD**. This will let your classmates enough time to attempt to answer your questions for class participation credit.
- The homework with the **lowest score** will be discarded.

6. Exams and quizzes:

There will occasionally be in-class quizzes **at RANDOM times** during the semester for the materials covered in the previous classes (focusing on the last 1-2 lectures). **Quizzes with the lowest score will be discarded.**

There will only be one final exam for the class:

- **Final**: In class, closed book and closed notes. A cheat sheet (double-sided) will be allowed which must be hand written. Nothing else must be on your desks besides your pen and/or pencil. Not even scrap paper. For scrap paper you can use space on the exam booklet (e.g., backside or blank sheet provided). The final exam is comprehensive. Study guide will be distributed.
- Makeup exams will be given only for medical reasons or other personal emergencies. You must submit **VERIFIABLE** documentation with your petition for a makeup exam.

7. Individual projects:

- Python based project that is composed of several parts covering different topics throughout the class.
- This is an individual project. *Plagiarism will be checked; do NOT bet on your luck.* Your code will be compared among all those who have ever submitted the programming project plus online resources. Detection of copied or isomorphic code will be automatically performed.
- **If cheating is detected, that projection assignment score will be zero AND you will get 10% off your final grade AND you will be reported. Read also the plagiarism section below.**

8. Team project:
- An applied project that tests how you can apply the knowledge that you learn to solve real problems. You may choose from a list of given projects or propose your own project. This is a team project with a maximum of 4 people.

9. Participation:

- **1 extra credit for online (Piazza), 1 extra credit for in-class participation (in-class participation is NOT about whether you show up or not but how you participate in the class discussion), and 1 extra credit for the end-of-semester**

survey.
- o Contributing to both on-line and in-class discussions. This should be an activity throughout the semester.
- o Correcting your instructor and/or TA(s) in class!
- o Helping others figure out fallacies in their line of thought when attempting to solve a problem.
- o Giving hints to your classmates, but not the complete answer.

9. Grading:

Homework	15%
Individual projects	30%
Quizzes	10%
Team project	25%
Final Exam	20%
Participation	3%
Total	103%

Final grades will be determined as follows[*]:
A+   [100-103]
A   [93-100)
A-   [90-93)
B+   [85-90)
B   [80-85)
B-   [75-80)
C+   [70-75)
C   [65-70)
D   [60-65)
E   [0-60)
[*] The instructor reserves the rights to curve if necessary.

10. Grading Questions:

If you believe that there is a mistake in grading, you must inform the TA(s) and/or the instructor **within 2 business days** when the graded work was returned to you.

11. Attendance:

I do not have an attendance policy. Come to class only if you like. Most of the material are available (or will be available) on-line.

However, if you skip classes, **you do miss the chance for in-class participation bonus**

AND may miss the in-class quizzes.

If you cannot come to an exam, then I will need some back-up documentation from a third party, e.g., a doctor, to schedule a make-up exam. Notification: If a student has to miss a test/homework/project for reasons out of his/her control, he/she should send the instructor & TAs an email as soon as possible, but no later than the deadline, with **an official document attached** (e.g., if you are sick, a doctor's note stating that you are unable to attend/work for a specific period).

12. Class evaluations and feedback:

I take very seriously class evaluations and feedback. During the semester, **I will be posting surveys on Piazza** for feedback on both the course organization and the course content. I will appreciate it if you respond to these surveys. Ideally, the changes I implement will help you better succeed in the course.

Finally, it is **extremely important** that you respond to the final anonymous survey solicited by the university at the end of the school year. The overall feedback helps me make changes for the next year. The survey is often released 1-2 weeks before the final at: https://fultonapps.asu.edu/eval/

13. Honors Contract (if you are an under):

- o Extend the class project to use 1-2 AI methods NOT covered in class
- o Solve a real-world problem using the AI methods learned (separate from your team project)
- o 8-10 page report summarizing reading of 4-5 recent AI research papers (after 2010 and from major AI conferences and journals) that are relevant to the class.
- o Come up with your own idea and discuss it with your instructor!

14. Academic Dishonesty:

- Your work for this course must be the result of your own individual effort. Having said that, you are allowed to discuss problems with your classmates, the TA(s), or me, but you must not blatantly copy others' or online solutions.
- Copying (or slightly changing) solutions from online sources, other books or your friends is **easily detectable**.
- **If copying or plagiarism is detected, then a zero grade will be applied to the respective assignment & your final grade will be penalized, and a formal report will be filed!**
- Do not forget that if you can find an answer online, so can we! Actually, the automatic plagiarism-checking system will have many different versions of solutions to check

against your answers for copying.

15. Disability Accommodations.

Suitable accommodations will be made for students having disabilities and students should notify the instructor as early as possible if they will require same. Such students must be registered with the Disability Resource Center and provide documentation to that effect.

16. Sexual Discrimination

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at https://sexualviolenceprevention.asu.edu/faqs.

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, https://eoss.asu.edu/counseling, is available if you wish discuss any concerns confidentially and privately.