



CSE 471: Artificial Intelligence (Spring 2021)

Warning: This class is NOT for the faint-hearted

Syllabus Disclaimer

The syllabus is a statement of intent and serves as an implicit agreement between the instructor and the student. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. Remember to check your ASU email and the course site often.

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:

MW 4:30–5:45 PM *Online via ZOOM*

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

Instructor Office Hours:

MW 3:00--4:00 PM (tentative)

TAs: Akkamahadevi Hanni (Akku) ahanni@asu.edu

UGTA: Mitchell Bucklew mbucklew@asu.edu

Graders: Piyush

Office Hours for TAs:

Akku: TBD

Michel: TBD

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.

ASU Sync

Our class will be delivered **100% online**. Lectures will alternate between live-sessions via ZOOM and video recordings to provide maximum flexibility in learning.

This course uses Sync. ASU Sync is a technology-enhanced approach designed to meet the dynamic needs of the class. During Sync classes, students learn remotely through live class lectures, discussions, study groups and/or tutoring. You can find out more information about ASU Sync for students here, <https://provost.asu.edu/sync/students> and <https://www.asu.edu/about/spring-2021>.

Your ASU courses can be accessed by both my.asu.edu and myasucourses.asu.edu; bookmark both in the event that one site is down.

To access live sessions of this class, go to myASU and click on the canvas link of the class. Once you are in the canvas page of the class, click on the zoom link on the left panel. You should now be directed to a list of recordings and scheduled classes.

Technology Requirements

ASU Sync classes can be live streamed anywhere with the proper technology. We encourage you to use a PC or Apple laptop or desktop equipped with *a built-in or standalone webcam*. You will need an internet connection that can effectively stream live broadcasts. It is recommended that your internet download speed is at least 5.0 mbps. You can use this [tool to test your current connection](#).

If you are not able to personally finance the equipment you need to attend class via ASU Sync, ASU has a laptop and WiFi hotspot checkout program available through [ASU Library](#).

Who is eligible?

- Any currently enrolled ASU student is eligible to checkout a laptop. The current availability of laptops can be found [here](#).
- Borrowing and returning laptop rules
- Laptops are lent on a first-come, first-serve basis, and cannot be reserved in advance. They can be returned at any time, but will be due at the conclusion of the fall 2020 semester.
- Rentals are limited to one laptop per student.
- Laptops are available for checkout at the following libraries on all four campuses. ([Please check online for current library hours](#))
 - Downtown Phoenix campus Library
 - Polytechnic campus Library
 - Tempe: Hayden and Noble Libraries
 - West campus: Fletcher Library
- Return laptops to any ASU Library Information Desk (not at the drop box or other location)
- [Refer to ASU Library Computer Use Policy and ASU Computer, Internet, and Electronic Communications Policy](#).
- Borrowers are responsible for loss, damage, and theft of the laptop while in their possession. Borrowers should verify the condition of the laptop at the time of check-out and upon check-in.

Additional Requirements:

This course requires the following technologies:

- Web browsers ([Chrome](#), [Mozilla Firefox](#), or [Safari](#))
- [Adobe Acrobat Reader](#) (free)
- [Adobe Flash Player](#) (free)

- Webcam, microphone, headset/earbuds, and speaker
- Microsoft Office or typesetting tools such as LaTeX ([Microsoft 365 is free](#) for all currently-enrolled ASU students).
- Reliable broadband internet connection (DSL or cable) to stream videos.

Student Success

To be successful:

- check the course daily
- read announcements
- read and respond to course email messages as needed
- complete assignments by the due dates specified
- communicate regularly with your instructor and peers
- create a study and/or assignment schedule to stay on track
- access [ASU Student Resources](#)
- [review the Student Tips for Learning with Zoom, https://uto.asu.edu/zoom-learning](https://uto.asu.edu/zoom-learning)

3. Textbooks:

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

- **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.
- **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 Canvas and via course website.

4. Resources

Course web page

<http://www.public.asu.edu/~yzhan442/teaching/CSE471-S21/>

Schedule (A rough schedule; subject to change):

<http://www.public.asu.edu/~yzhan442/teaching/CSE471-S21/schedule.html>

On-line discussions and polls (Piazza):

<http://piazza.com/asu/spring2021/cse471/home>

To sign up:

<http://piazza.com/asu/spring2021/cse471>

5. Homework:

Homework problems will be posted on Canvas. Submission of homework is done **electronically** via Canvas 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 draw pictures to explain your solutions. You are encouraged to use [Overleaf](#) or Microsoft Word to typeset your homework. Homework problem solutions are going to be provided on Canvas after the due date.

General policy:

- 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 the instructor 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.]
- 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 instructor or TA(s) 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.**
- If you find yourself unable to start **AFTER** consulting the textbook, handouts, and notes, visit the instructor or TA(s) during office hours.
- If you cannot come up with satisfactory solutions to homework problems, submit your attempted solutions.
- 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**.
- **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.**
 - 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 frequently be quizzes 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.** If you miss the quiz due to reasons outside of your control (e.g., an emergency), you must inform the instructor and the TAs before or within **24 hours** of the class in which the quiz is published. After 24 hours, we will not consider any request to retake the quiz.

There will be no final exam for the class.

Late or Missed Submissions under Urgent Situations

Notify the instructor and TA(s) BEFORE an assignment is due if an urgent situation arises and you are unable to submit the assignment on time. Attach **VERIFIABLE** documentation with your request.

Follow the appropriate University policies to request an [accommodation for religious practices](#) or to accommodate a missed assignment [due to University-sanctioned activities](#).

Communicating with the Instructor

Community Forum (Piazza)

This course uses a discussion topic called "Community Forum" via Piazza for general questions and comments about the course. Prior to posting a question or comment, check the syllabus, announcements, and existing posts to ensure it's not redundant. You are encouraged to respond to the questions of your classmates.

Email questions of a personal nature to your instructor. You can expect a response within 48 hours.

Chat

Do not use the Chat tool in Canvas. In addition, Chat is not ideal for questions about assignments; instructors are not required to monitor it and conversations may be buried or lost. Use email, Piazza, or chat in Zoom instead.

Email

ASU email is an [official means of communication](#) among students, faculty, and staff. Students are expected to read and act upon email in a timely fashion. Students bear the responsibility of missed messages and should check their ASU-assigned email regularly.

All instructor correspondence will be sent to your ASU email account

7. Individual projects:

- Coding based project that is composed of multiple parts covering various topics throughout the class.
- These are *individual* projects. **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. Participation Credits (Extra Credits):

- **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, office hours, etc.), and 1 extra credit for the end-of-semester survey.**
- Contributing to both on-line and in-class discussions. This should be an activity throughout the semester.
- Correcting your instructor and/or TA(s) in class!
- Helping others figure out fallacies in their line of thought when attempting to solve a problem.
- Giving hints to your classmates, but not the complete answer.

9. Grading:

Homework	35%
Individual projects	50%

Quizzes	15%
Participation	3%
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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 (BEFORE 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. 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.

14. Disability Accommodations.

Students who feel they will need disability accommodations in this class but have not registered with the Disability Resource Center (DRC) should contact DRC immediately. The DRC Tempe office is located on the first floor of the Matthews Center Building. DRC staff can also be reached at: (480) 965-1234 (V) or (480) 965-9000 (TTY). For additional information, visit: www.asu.edu/studentaffairs/ed/drc.

15. Harassment and Sexual Discrimination

Arizona State University is committed to providing an environment free of discrimination, harassment, or retaliation for the entire university community, including all students, faculty members, staff employees, and guests. ASU expressly prohibits discrimination, harassment, and retaliation by employees, students, contractors, or agents of the university based on any protected status: race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, and genetic information.

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 to discuss any concerns confidentially and privately. ASU online students may access 360 Life Services, <https://goto.asuonline.asu.edu/success/online-resources.html>.

Arizona State University is committed to providing an environment free of discrimination, harassment, or retaliation for the entire university community, including all students, faculty members, staff employees, and guests. ASU expressly prohibits [discrimination](#), [harassment](#), and [retaliation](#) by employees, students, contractors, or agents of the university based on any protected status: race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, and genetic information.

16. Policy against threatening behavior, per the Student Services Manual, SSM 104–02

All incidents and allegations of violent or threatening conduct by an ASU student (whether on- or off campus) must be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students. If either office determines that the behavior poses or has posed a serious threat to personal safety or to the welfare of the campus, the student will not be permitted to return to campus or reside in any ASU residence hall until an appropriate threat assessment has been completed and, if necessary, conditions for return are imposed. ASU PD, the Office of the Dean of Students, and other appropriate offices will coordinate the assessment in light of the relevant circumstances. For more information please visit <https://eoss.asu.edu/dos/srr/PoliciesAndProcedures> and <https://eoss.asu.edu/dos/safety/ThreateningBehavior>.

17. Academic Integrity and Copyright Laws

Students in this class must adhere to ASU's academic integrity policy, which can be found at <https://provost.asu.edu/academic-integrity/policy>). Students are responsible for reviewing this policy and understanding each of the areas in which academic dishonesty can occur. In addition, all engineering students are expected to adhere to both the ASU Academic Integrity Honor Code and the Fulton Schools of Engineering Honor Code. All academic integrity violations will be

reported to the Fulton Schools of Engineering Academic Integrity Office (AIO). The AIO maintains record of all violations and has access to academic integrity violations committed in all other ASU college/schools.

Specific academic integrity rules for this class are discussed in earlier sections.

Copyright

Course content, including lectures, are copyrighted materials and students may not share outside the class, upload to online websites not approved by the instructor, sell, or distribute course content or notes taken during the conduct of the course (see ACD 304–06, “Commercial Note Taking Services” and ABOR Policy 5-308 F.14 for more information).

You must refrain from uploading to any course shell, discussion board, or website used by the course instructor or other course forum, material that is not the student's original work, unless the students first comply with all applicable copyright laws; faculty members reserve the right to delete materials on the grounds of suspected copyright infringement.

18. Warning of Offensive Class Materials

When some course content may be deemed offensive by some students, warning may be given. In case of ignorance of such situations, the affected students may directly contact the instructor to have them removed or replaced.

19. Absent Instructor

In the event the instructor fails to indicate a time obligation, the time obligation will be 15 minutes for class sessions lasting 90 minutes or less, and 30 minutes for class sessions lasting more than 90 minutes. Students may be directed to wait longer by someone from the academic unit if they know the instructor will arrive shortly.

20. Requiring Face Coverings at ASU Locations

Everyone will be required to wear a face cover while in ASU buildings. Face coverings will also be required in outdoor community spaces where social distancing isn't possible.