



"I THINK YOU SHOULD BE MORE EXPLICIT
HERE IN STEP TWO."

CSE 259: Logic in Computer Science (Fall 2019)

M W 12:15 PM--1:30 PM SCOB228

Instructor: Yu ("Tony") Zhang

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URL: www.public.asu.edu/~yzhan442

Course website:

<http://www.public.asu.edu/~yzhan442/teaching/CSE259F19-LCS>

Any information in this syllabus may be subject to change with reasonable advance notice.

For links that are unavailable, please check back later.

1. Course Description:

Logic has often been dubbed the "calculus of computer science". The argument is that logic plays a fundamental role in computer science, similar to that played by calculus in physical sciences and other engineering disciplines. Indeed, logic has been applied to computer architecture (Boolean logic, digital gates, hardware verification), software engineering (specification, verification), programming languages (semantics, type theory, logic programming), databases (relational algebra, database query language), artificial intelligence (automated theorem proving, knowledge representation), algorithms and theory of computation (complexity, computability, expressiveness), etc.

This course provides a mathematically solid introduction to propositional logic, first order logic, logic programming, and their applications in computer science and other fields. **Broad Topics Covered:**

1. Propositional logic
2. First-order logic
3. Logic programming
4. Applications of logic programming

The first two topics provide the mathematical foundation of logic while the latter two discuss the more practical side of logic.

2. Course Information:

Lecture: M & W 12:15 PM--1:30 PM SCOB 228

Office Hours: M & W 11:00 PM— 12:00 PM BYENG 594

***Appointments may be made via email directly to the instructor or TAs outside of normal office hours.**

TA: Mehrdad Zakershahrak Email: mzakersh@asu.edu
Akshay Sharma Email: ashar204@asu.edu

Graders: Andrew Boateng Email: aoboaten@asu.edu
Nikhillesh Sadassivam Email: nsadassi@asu.edu

TA Office Hours: TBD

***Recitations will be led by the TAs. Check your session.**

Remarks on Electronic Communication: For questions regarding class issues, email me or post it on class *piazza* (preferred). Before sending an email please follow the excellent advice <http://www.wikihow.com/Email-a-Professor>. For questions about class materials (e.g., homework, projects and etc.), see the respective sections below.

3. Textbook and Handouts:

- Textbook (**Recommended**):
Logic in Computer Science: Modeling and Reasoning about Systems (2nd edition), Huth and Ryan, Cambridge (ISBN-13: 978-0521543101)
- Handouts:
Problem sets and additional materials may be provided as handouts by the instructor

4. Resources:

Course website:

<http://www.public.asu.edu/~yzhan442/teaching/CSE259F19-LCS/> (to be available soon)

Schedule (will be active soon and updated incrementally):

<http://www.public.asu.edu/~yzhan442/teaching/CSE259F19-LCS/schedule.html>

On-line discussions and polls (Piazza):

<http://piazza.com/asu/fall2019/cse259/home>

To sign up:

<http://piazza.com/asu/fall2019/cse259>

Piazza:

Discussions, questions & answers are handled *via Piazza*. Send emails of questions directly to the instructor or TAs only if absolutely necessary. The instructor and TAs will try to respond to any question as soon as possible and within **48 hours (weekends excluded)**. *Please check existing questions before posting a new one since it may have already been asked and answered.*

5. Exams:

There will one mid-term exam and a final team project in lieu of the final exam.

Mid-term exam: In class, open books and notes. Mid-term exam will be more focused on the mathematical foundation of logic.

6. Individual Projects (Not the final project):

- Individual projects are composed of several parts. 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.
- **Submission of your individual project is done electronically via Canvas.**
- **Late submission:** During the semester, **you can submit one individual project late within 48 hours of the deadline without penalty.** Otherwise, any late project submitted within 48 hours will be discounted by 50%. After 48 hours, no credit

will be given.

7. Final Team Project:

An applied project that tests how you can apply the knowledge that you learned. There is a *project proposal phase* where you must propose what your plan is for the team project and obtain approval before starting the team project. The team project also has a *presentation* phase (details will be announced). **A final project report with your code must be submitted.** 2-3 students per project.

8. Participation:

- *Contributing to both on-line and in-class discussions!* This should be an activity throughout the semester.
- Correcting your instructor 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 answer.

9. Grading:

Homework	30%
Individual projects	20%
Pop-up Quizzes	10%
Team project	20%
Mid-term Exam	20%
Participation	3% (in-class 1%; recitation 1%; online 1%)
End-of-semester survey	1%
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Total	104%

Final grades will be determined as follows*:

A+	[100-104]
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. Attendance policy:

I do not have an attendance policy. Come to class only if you like. All the course materials will also be made available online.

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

The TAs will lead recitation sections to help you solve example problems and clarify subject matter that was either difficult to understand or inadequately addressed in the limited time of lecture. You are strongly encouraged to attend one of the sessions. If you skip all session of a week, **you do miss the chance for recitation participation bonus.**

If you have to skip a class or recitation due to Religious Practices, University-Sanctioned Activities, or other valid reasons (the instructor reserves the sole rights to define “other valid reasons”), please inform your instructor or TAs **within 3 days of the missed class or recitation (request outside of the window cannot be considered).** In such a case, accommodations may be made for missed quizzes, etc., after proper proofs have been provided if necessary.

11. Homework Submission:

Several times during the semester you will receive e-mail messages or printouts with homework problems. **Submission of homework is done in class; submissions should be a typed PDF file_PRINTED OUT (the easier method is to use Word and then save it as a PDF).** If you are familiar with Overleaf or LaTeX, you are welcome to use it for typesetting your document.

- When you work on these problems, you may **ONLY** consult the textbook, handouts, and your notes. You may discuss with your peers the class materials **but should not discuss the solutions to the problems themselves or share any written solutions, including solution sketches.**
- **Late homework will NOT be accepted** (except for reasons out of the student’s control).
- If you cannot come up with a satisfactory solution, submit your attempted solutions **AND** explain why you think it is not completely satisfactory.
- 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 24 hours**; otherwise, we will **NOT** be able to consider your response. You’re responsible for any credit loss due to late responses.
- **Late submission:** During the semester, **you can submit one homework late within 48 hours of the deadline without penalty. Otherwise, any late homework submitted within 48 hours will be discounted by 50%. After 48 hours, no credit will be given.**
- **If you cannot submit your homework on time due to** Religious Practices, University-

Sanctioned Activities, or other valid reasons (the instructor reserves the sole rights to define “other valid reasons”), please inform your instructor or TAs **within 3 days of the missed deadline (request outside of the window cannot be considered)**. In such a case, accommodations may be made after proper proofs have been provided if necessary.

12. Grading Questions:

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

13. Class Surveys:

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/>

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 instructor, classmates, the TAs and graders, 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. Students needing accommodations must register with the ASU disabilities resource Center and provide

documentation of that registration to the instructor. Students should communicate the need for an accommodation in sufficient time for it to be properly arranged.

16. 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>.

Mandated sexual harassment reporter: As an employee of the University I am considered a mandated reporter and therefore obligated to report any information regarding alleged acts of sexual discrimination that I am informed of or have a reasonable basis to believe occurred.

ASU Counseling Services, <https://eoss.asu.edu/counseling>, is available if you wish to discuss any concerns confidentially and privately.

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

Students, faculty, staff, and other individuals do not have an unqualified right of access to university grounds, property, or services. Interfering with the peaceful conduct of university-related business or activities or remaining on campus grounds after a request to leave may be considered a crime. 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.

18. 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.

19. 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.

20. 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.