

MTH 342: Set Theory.

Instructor: Jun Li, Ph.D **Email:** jli004@udayton.edu
Section 03 : SC 300 Tu,Th 2:00pm-3:15 pm,
Instructor's Office Hours: Tu, Wed, Th 12:15pm - 1:15 pm (SC329G), or by appointment
Instructor's Office: Science Center 329G

Main Reference: 1) Set theory for Computer Science, by Glynn Winskel, Cambridge University.
2) Set theory, by Andrew Marks, UCLA.
3) For applied topics, we will pick up more references, and those will be on Isidore.

Learning Objectives: The objective of MTH 342 is to give students a solid understanding of axiomatic set theory, mathematical logic, and their applications. The main learning outcomes of this course are:

- Understand the motivation and constructions of axiomatic set theory (ZFC system). We will mainly follow 1).
- Give an introduction of Gödel Incompleteness theorem. We will mainly follow 2).
- Take a quick glance at applied topics of the interest of the audience, including but not limited to information theory, zero-knowledge proof, and automated proofs(Lean).

Communications with Students: Announcements and important course information may be sent out via official University email or through Isidore. It is the student's responsibility to check regularly for messages and announcements. I strongly encourage you to contact me using my email jli004@udayton.edu

Office Hours: The instructor and the teaching assistants will provide office hours every week for students to ask questions about the course.

Classroom Protocol: The following principles have been conceived with the objective of maximizing the safety of students and faculty.

- The instructor reserves the right to cancel a classroom lecture if, in his opinion, the safety of those attending is compromised.
- Students are encouraged to sanitize their workspace upon entering the classroom.
- If a student feels sick or has reasons to suspect an exposure to Covid19 then this person must not attend the lectures. It is encouraged in this case to contact the health services of the university right away.
- No food or drinks of any kind are allowed during classroom lectures. No cell phone.
- As members of the University of Dayton, we are a community and we have a moral obligation to ourselves as well as others to follow the health guidelines of the university.
- Students are expected to follow the honor code of the university.

Classroom Attendance: Students are expected to attend the classroom for every lecture, including problem sessions.

Grading: The final grade of this course will be computed from in-class quizzes/homework, exams, and participation of Stander Symposium.

In-class quizzes (100 points total) We have about 5 in-class HWs, where dates are random. Those are given for **your** benefits. Half of the questions are there to help understand key concepts and methods, the other half are related to exams. (**Although we don't have exactly the same questions in exams.**)

There will be Midterm Exams.

Midterm Exams(100 points).

Tentative midterm schedule: Apr 4, Tu, SC300.

Stander Symposium (30 bonus points) We encourage people to participate (making posters or giving presentations).

Grading:

homework, the skill tests, and the quizzes. This number will be a percentage of the total number of points possible (700 points). The final grade will then be assigned according to this percentage as follows:

$100 \geq A \geq 93 > A- \geq 90 > B+ \geq 87 > B \geq 84 > B- \geq 81 > C+ \geq 76 > C \geq 73 > C- \geq 69 > D \geq 60 > F$

Academic Honesty and Contract Cheating: You are not allowed to look at your notes, the textbook or the internet while answering a quiz, an exam or the final. Students who get caught cheating will be reported to their colleges and their grade in the corresponding assignment will be a zero. Contract cheating occurs when a student pays someone (such as a person or company found online) to write essays or complete assignments for a class. This defeats the purpose of the course and I encourage students to follow the academic honor code and seek to develop a personal sense of academic integrity which lays the foundation for an ethical life. Contract cheating is especially dangerous because of the risk of bribery and extortion (potentially for an entire life after college!). Students are often lured into contract cheating by signing up for online tutoring services.

Dropping the Course: You are responsible for understanding the university's policies and procedures regarding withdrawing from courses. You should also be aware of the current deadlines and penalties for dropping classes. Information on withdrawal from courses is available in the Academic Catalog under Grades and Scholarship. You may also want to speak with your academic advisor or the Dean's Office from your college or school.

Monday, Jan 30, 2023 is the last day to drop the course without record; **Monday, Apr 3, 2023** is the last day to drop the course with record of "W". It is important for your academic records that you officially withdraw from the class, rather than simply ceasing to attend.

Students with Disabilities:

If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact the LTC's Office of Learning Resources (OLR) to discuss reasonable accommodations. Please contact OLR at 937-229-2066 (TTY 937-229-2059 for deaf/hard of hearing), by email at disabilityservices@udayton.edu or stop by OLR in the LTC, room 023 Roesch Library (Use this as a last option. For safety reasons, try to contact them online). If you have an Accommodation Letter provided by OLR, please contact me to discuss. If you need assistance accessing print material including textbooks and electronic material such as PDF documents, please review the OLR website information about alternative formats under Disability Resources. Go to <https://www.udayton.edu/ltc/learningresources/onlineforms/index.php> and click on Alternative Formats.

Important Note:

In case the university campus shuts down again and we need to move to fully online lectures, I will revise and update this syllabus within one week. I reserve the right to alter the course schedule to meet the needs of students and/or achieve the learning outcomes for the course. If such changes occur, I will notify students in class and via e-mail. The information contained in this syllabus is subject to change at any time and at the sole discretion of the instructor.

Your success is in your hands! Enjoy this semester!