

Course Information

Course Number: *MATH 300*
Course Title: *Foundations of Mathematics*
Section: *904*
Time: *TR 2:20-3:35*
Location: *BLOC 148*
Credit Hours: *3*

Instructor Details

Instructor: *Sarah Witherspoon*
Office: *BLOC 513B or BLOC 314A*
E-Mail: *sjw@tamu.edu*
Office Hours: *Tuesdays 10-11 am, Wednesdays 2:30-3:30 pm, or by appointment*
All scheduled office hours are by Zoom (link provided by email)
Appointments may be made for in person or Zoom meetings

Course Description

Foundations of mathematics including logic, set theory, combinatorics, and number theory. We will cover Chapters 1-7 in the text, and parts of Chapters 8 and 9, as time permits.

Course Prerequisites

Grade of C or better in Math 148, Math 152, or Math 172, or equivalent.

Special Course Designation

This is a W (writing intensive) course. Emphasis throughout the course is on communication and precision in the language of mathematics, and on writing mathematical statements and proofs. There will be a term paper as well as written homework assignments. As this is a W course, no student can pass the course without a passing grade on the writing components.

Course Learning Outcomes

This course provides a foundation for mathematics courses beyond calculus, which often involve theory and proof writing. The topics of logic and set theory form a bridge between computational mathematics and theoretical mathematics. Upon successful completion of the course, students will be able to:

- Recognize and identify frequently used types of proofs.
- Organize and write their mathematical reasoning.
- Present proofs, definitions, and statements of theorems.

Textbook and/or Resource Materials

Mathematical Reasoning: Writing and Proof, version 2.1, author Ted Sundstrom
There are optional screencasts for use with the textbook

Grading Policy

There is a term paper worth 1/5 of your grade. Homework is worth 1/5 of your grade. Two in-class exams are worth 1/5 of your grade each. The final exam is worth 1/5 of your grade. Grades are assigned as follows based on your average: A (90-100%), B (80-89%), C (70-79%), D (60-69%), F (0-59%).

Late Work Policy

Late work (that is, work turned in after the deadline without a university approved excuse) will not be accepted. See [Student Rule 7](#).

Homework Policy

Homework will be assigned approximately once per week. For full credit, show all work and justify all answers, writing in complete sentences. Emphasis will be placed on writing carefully and precisely. Working together on homework is fine and encouraged, but each should write up their own solutions.

Electronic Device Policy

Cell phones should only be used in class in cases of emergency. Other electronic devices should only be used for class activities such as taking notes.

Course Schedule (tentative)

- Week 1 (1/18-1/21): 1.1, 1.2, 2.1
- Week 2 (1/24-1/28): 2.2, 2.3, 2.4
- Week 3 (1/31-2/4): 3.1, 3.2, 3.3, paper proposal due 2/3
- Week 4 (2/7-2/11): 3.4, 3.5, 3.6
- Week 5 (2/14-2/18): Exam Thursday 2/17
- Week 6 (2/21-2/25): 4.1, 4.2, 4.3,
- Week 7 (2/28-3/4): 5.1, 5.2, 5.3
- Week 8 (3/7-3/11): 5.4, 5.5, 6.1, paper outline due 3/8
- Week 9 (3/21-3/25): 6.2, 6.3, 6.4
- Week 10 (3/28-4/1): 6.5, Exam Thursday 3/31
- Week 11 (4/4-4/8): 6.6, 7.1, 7.2
- Week 12 (4/11-4/15): 7.3, 7.4, 8.1, paper draft due 4/12
- Week 13 (4/18-4/22): 8.2, 9.1
- Week 14 (4/25-4/29): 9.3, paper due 4/28
- FINAL EXAM: Tuesday, May 10, 1:00-3:00 pm

Learning Resources

The University Writing Center is a resource to help you develop writing skills important to success. The Math Learning Center offers various forms of support for Math 300. The textbook has accompanying screencasts.

University Policies

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7.

Please refer to [Student Rule 7](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor ([Student Rule 7, Section 7.4.1](#)).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" ([Student Rule 7, Section 7.4.2](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See [Student Rule 24](#).)

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" ([Section 20.1.2.3, Student Rule 20](#)).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below) Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss

their disability related needs with Disability Resources and their instructors as soon as possible.

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention - including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with [Counseling and Psychological Services \(CAPS\)](#).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](#).

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus

Students who need someone to talk to can contact Counseling & Psychological Services (CAPS) or call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.