

Course Information

Number: MATH 300-901

Title: Foundations of Mathematics

Time: MWF: 9:10 - 10:00 a.m.

Location: Blocker 148

Credit hours: 3

Webpage: <http://www.math.tamu.edu/~florent/teaching/300Fall123.html>

Instructor Details

Instructor: Florent BAUDIER

Office: Blocker 525J

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Office hours: MW 11:30 a.m.-12:30 p.m.
or by appointment

Course Description

Name: Foundations of Mathematics

Description: Math 300 is designed to provide a bridge between computational mathematics and theoretical mathematics (“real math”). Thus a major goal is to teach the students how to write proofs. The required core of topics include logic, set theory, number theory, induction, functions, relations, operations, and combinatorics.

Prerequisites

MATH 148, MATH 152 or MATH 172 or equivalent with a grade of C or better.

Calculator Policy: Calculators are not allowed on exams or quizzes, although they may be used, and are often necessary, on homework assignments. Use of a calculator on a quiz or exam is considered academic dishonesty and will be reported to the Aggie Honor Council.

Electronic Device Policy: Cell phones, laptops, and other electronic devices must be silent and put away during class. If you are unable to comply with this policy, you might be asked to leave class and will not be allowed to make-up any assignments missed in class that day.

Course Learning Outcomes

The purpose of the course is to provide students with important foundational skills that will prepare them to be successful in higher level courses. The main thrust is to teach students how to understand, create, and communicate proofs. Some frequently used types of proofs will be introduced. Several mathematical topics from logic, set theory, etc. will be addressed, where the newly learned techniques can be applied.

Textbook and/or Resource Materials

Textbook(s): Tamara J. Lakins, *The Tools of Mathematical Reasoning*, 1st edition, American Mathematical Society, Pure and applied undergraduate texts, The Sally Series.

Grading Policy

Midterm Exams: There will be 2 midterm exams during the semester. Bring your Texas A&M student ID and a pencil to all exams. The dates for the exams are as follows:

- Midterm Exam #1: Monday, September 25, 2023, 7-8 PM, Blocker 150
- Midterm Exam #2: Monday, October 30, 2023, 7-8 PM, Blocker 150

Final exam: The final exam should be considered as a third midterm exam and is required for all students. The day and time of the final exam are determined by the University.

- Final Exam: Friday, December 8, 2023, 8-10 AM, in the regular classroom.

Homework: It will be assigned approximately once per week but does not have to be turned in. Complete solutions will be provided and the students are strongly encouraged to study them, since quizzes and/or exams problems are drawn from those.

Quizzes: You will have to take one quiz on a weekly basis. Every quiz will have questions about definitions and statements of theorems, and will have a short problem. Every quiz will be concise and straightforward. The material for a quiz will be very similar to the material from the homework and/or the lectures. They are excellent indicators to how well you keep up with the pace of the class.

Term Paper: Throughout the semester you will be working on a term paper which is designed to provide training in order to improve your writing skills. Firm deadlines to submit drafts and precise directions will be communicated as the semester progresses. Your term paper will be prepared with the LaTeX (free) software and part of your workload will be to get acquainted with the basic functionalities of the software.

Final Grade: Math 300 is a W-course (Writing intensive). About 1/3 of the grade for MATH 300 should be determined by the writing component of the course, which in this class will comprise the quizzes and the term paper. Students must pass the writing portion of the course to pass. The final grade will be computed as follows: final grade = 15% midterm exam #1 + 20% midterm exam #2 + 25% final exam + 20% quizzes + 20% term paper.

Grading: A 90-100% B 80-89% C 70-79% D 60-69% F 0-59%

Appeal: Due to FERPA privacy issues, I cannot discuss grades over email or phone. If you have a question about your grade, please come see me in person. If you believe an error has been made in grading, you have until the next class period after the exam, quiz, or assignment has been handed back to let me know. Otherwise, you must accept the grade you received. You have the possibility to check your grades via the Canvas website. It is your responsibility to verify that the grades reported online correspond to your actual grades.

Plagiarism: 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). AI text generators should not be used for:

- Creating or revising drafts.
- Editing your work.
- Reviewing a peer's work.

Such use would be considered plagiarism.

Course Schedule

Week 1: general introduction, Sections 1.1
Week 2: Sections 1.2.-2.1
Week 3: Section 2.2
Week 4: Sections 2.3-2.4
Week 5: Section 3.1
Week 6: Exam 1, Sections 3.1-3.2
Week 7: Sections 4.1-4.2
Week 8: Section 4.3, 5.1
Week 9: Section 5.2-5.3
Week 10: Exam 2, Sections 5.4
Week 11: Sections 5.5, 6.1
Week 12: Sections 7.1-7.3
Week 13: Section 8.1-8.3
Week 14: Thanksgiving Holiday, Sections 9.1-9.3
Week 15: Sections 9.1-9.3
Week 16: review for the final

Course Content

We will cover most of Chapter 0 to Chapter 9 of Larkin's book.

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.
- Providing a fake or falsified doctor's note or other falsified documentation is considered academic dishonesty, will be reported to the Aggie Honor Council, and will result in an F in the course.

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, or other reason deemed appropriate by the instructor.
- 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.)

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

■ 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, you 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 Wealth 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 proper self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can 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.

COVID-19 Temporary Amendment to Minimum Syllabus Requirements

Campus Safety Measures

To promote public safety and protect students, faculty, and staff during the coronavirus pandemic, Texas A&M University has adopted policies and practices for the Fall 2020 academic term to limit virus transmission. Students must observe the following practices while participating in face-to-face courses and course-related activities (office hours, help sessions, transitioning to and between classes, study spaces, academic services, etc.):

- Self-monitoring—Students should follow CDC recommendations for self-monitoring. Students who have a fever or exhibit symptoms of COVID-19 should participate in class remotely and should not participate in face-to-face instruction.
- Face Coverings—Face coverings (cloth face covering, surgical mask, etc.) must be properly worn in all non-private spaces including classrooms, teaching laboratories, common spaces such as lobbies and hallways, public study spaces, libraries, academic resource and support offices, and outdoor spaces where 6 feet of physical distancing is difficult to reliably maintain. Description of face coverings and additional guidance are provided in the Face Covering policy and Frequently Asked Questions (FAQ) available on the Provost website.
- Physical Distancing—Physical distancing must be maintained between students, instructors, and others in course and course-related activities.
- Classroom Ingress/Egress—Students must follow marked pathways for entering and exiting classrooms and other teaching spaces. Leave classrooms promptly after course activities have concluded. Do not congregate in hallways and maintain 6-foot physical distancing when waiting to enter classrooms and other instructional spaces.
- To attend a face-to-face class, students must wear a face covering (or a face shield if they have an exemption letter). If a student refuses to wear a face covering, the instructor should ask the student to leave and join the class remotely. If the student does not leave the class, the faculty member should report that student to the Student Conduct office for sanctions. Additionally, the faculty member may choose to teach that day's class remotely for all students.

Personal Illness and Quarantine

- Students required to quarantine must participate in courses and course-related activities remotely and must not attend face-to-face course activities. Students should notify their instructors of the quarantine requirement. Students under quarantine are expected to participate in courses and complete graded work unless they have symptoms that are too severe to participate in course activities.
- Students experiencing personal injury or illness that is too severe for the student to attend class qualify for an excused absence (See Student Rule 7, Section 7.2.2.) To receive an excused absence, students must comply with the documentation and notification guidelines outlined in Student Rule 7. While Student Rule 7, Section 7.3.2.1, indicates a medical confirmation note from the student's medical provider is preferred, for Fall 2020 only, students may use the Explanatory Statement for Absence from Class form in lieu of a medical confirmation. Students must submit the Explanatory Statement for Absence from Class within two business days after the last date of absence.

Operational Details for Fall 2023 Courses

- For additional information, please review the FAQ on Fall 2023 courses at Texas A&M University.

Miscellaneous

Copyright Policy

All printed materials disseminated in class or on the web are protected by copyright laws. While personal use is permitted, sale of any of these materials is strictly prohibited.