

Foundations of Mathematics

MATH 220-Section 907, FALL 2018

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Meeting Times-Location

Lectures: MWF 11:30 AM-12:20 PM Classroom: BLOC 148
Office hours: MW 2:30-5pm

Global Course Description

Name: Foundations of Mathematics

Webpage: <http://www.math.tamu.edu/~florent/teaching/220Fall118.html>

Description: Math 220 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.

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

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.

Learning Objectives: 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.

Tentative 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: Exam 1, Section 3.1

Week 6: 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: Thanksgiving Holiday, Section 8.1-8.3

Week 14/15: Sections 9.1-9.3

Exams Policy

Common 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 24th, 2018 7-9 PM location TBA
- Midterm Exam #2: Monday, October 29th, 2018 7-9 PM location TBA

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: Wednesday December 12th, 2018 10:30 AM-12:30 PM, 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.

Quizzes: You will have to take two quizzes on a weekly basis. One quiz will be about definitions and statements of theorems, while the other one will be a short problem. Every quiz is short, 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. Firm deadlines 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 220 is a w-course (writing intensive). About 1/3 of the grade for math 220 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 = 20% final exam + 20% midterm exam #1 + 20% midterm exam #2 + 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 eCampus website. It is your responsibility to verify that the grades reported online correspond to your actual grades.

Attendance and Make-up Exam Policies

- Excused absences: The University views class attendance as an individual student responsibility. It is essential that students attend class and complete all assignments to succeed in the course. University student rules concerning excused and unexcused absences as well as makeups can be found at <http://student-rules.tamu.edu/rule07>. In particular, make-up exams, make-up quizzes or late homework will NOT be allowed unless a University approved reason is given to me in writing. Notification before the absence is required when possible. Otherwise, you must notify me within 2 working days of the missed exam or quiz to arrange a makeup. In all cases where an exam/quiz/assignment is missed due to an injury or illness, whether it be more or less than 3 days,

I require a doctor's note. I will not accept the "University Explanatory Statement for Absence from Class" form. Further, an absence due to a non-acute medical service or appointment (such as a regular checkup) is not an excused absence. 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.

- You will be allowed to make up a missed exam during one of the scheduled make-up times provided by the Math Department. According to Student Rule 7, you are expected to attend the scheduled make-up unless you have a University-approved excuse for missing the make-up time as well. If there are multiple make-up exam times, you must attend the earliest make-up time for which you do not have a University-approved excuse. The list of make-up times will be available at <http://www.math.tamu.edu/courses/makeupexams.html>

Miscellaneous

Academic Integrity Statement

Cheating and other forms of academic dishonesty will not be tolerated.

Aggie Honor Code: "An Aggie does not lie, cheat, or steal, or tolerate those who do"

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information please visit: <http://aggiehonor.tamu.edu>

Disability Services

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit <http://disability.tamu.edu>.

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