Math 2106 Foundations of Mathematical Proof

Course Information

- **Instructor:** Jennifer Hom (jhom6@math.gatech.edu)
- **Course Prefix and Number:** MATH 2106 HOM
- **Term:** Fall 2026

Course Description

This course will give an introduction to proofs in advanced mathematics and is intended as a transition to upper division courses including Abstract Algebra I and Analysis I. Topics include the fundamentals of mathematical abstraction including sets, logic, equivalence relations, and functions, a thorough development of the basic proof techniques including direct, contrapositive, existence, contradiction, and induction, and an introduction to proofs in analysis and algebra.

Course Learning Outcome

By enrolling in this course, students will gain experience in reading, writing, and understanding mathematical proofs.

Required Course Materials

1. Main textbook: *Book of Proof* by Richard Hammack (3rd edition, 2018). (Available at https://richardhammack.github.io/BookOfProof/)
2. *Abstract Algebra: Theory and Applications* by Thomas Judson (Annual Edition, 2022). (Available at http://abstract.ups.edu/aata/aata.html)
3. *Elementary Analysis: The Theory of Calculus* by Kenneth Ross (2013). (Available online through SpringerLink for GT students: https://link.springer.com/book/10.1007/978-1-4614-6271-2)

Grading Policy

This course is graded on a letter grade basis. The grade will be assigned based homework, quizzes, and exams.

Attendance Policy

You may make up an exam/quiz that you missed due to an institute approved absence or a religious holiday, provided that you email me at least a week before the exam/quiz to schedule a make-up. If you do not contact me before the exam/quiz, you will not be permitted a make-up and you will receive a zero.

Academic and Research Honesty/Integrity Statement

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review the Student Code of Conduct and the Academic Honor Code, especially Appendix A: Graduate Addendum to the Academic Honor Code.

Students are expected to perform research in an ethical and responsible manner. Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Allegations of scientific or scholarly misconduct are handled in accordance with the procedures outlined by the Policy for Responding to Allegations of Scientific or Other Scholarly Misconduct.

Core IMPACTS

Not applicable

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulates some basic expectations that you can have of me and that I have of you. Additional information for research-related work is given in The Expectations of Advisors and Advisees. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.