Course Syllabus

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Office Hours: Monday/Wednesday from 4 - 4:30pm and 6 - 6:30pm, Friday from 4:30 - 5:30pm. Meeting at other times is possible by appointment; to make arrangements, send email with availability.

Lectures: Monday and Wednesday from 4:35 – 5:55 in Skiles 168.


Course Description: "An introduction to proofs in advanced mathematics, intended as a transition to upper division courses including MATH 4107, 4150 and 4317."

Prerequisites: Math 1502: Calculus II or equivalent.

Fine Print: Successful completion of Math 4803–HEH will replace Math 2406 as the prerequisite for Math 4107, Math 4317, and Math 4150. Together with Math 4305, Math 4803–HEH will serve as a prerequisite for Math 4347. MATH 4803–HEH can be substituted for MATH 2406 in BS MATH/DMTH curriculum. Students will not receive graduation credit for both MATH 4803–HEH and Math 2406. MATH 4803–HEH does not count as an upper level Math Elective course in the BS MATH curriculum. For any further questions, concerns, or clarifications, please contact Dr. Enid Steinbart, the SoM Director of Advising and Assessment.

Course Topics: Fundamentals of mathematical abstraction including sets (Ch. 1), logic (Ch. 2), equivalence relations (Ch. 8), and functions (Ch. 9). Thorough development of the basic proof techniques (Ch. 3 – 7): direct, contrapositive, existence, contradiction, and induction. Introduction to proofs in analysis (Ch. 12) and algebra (Ch. 13). Selected additional topics (from Ch. 0, 10, 11 as well as partial orders, upper/lower bounds, and lim sup/lim inf).

Grading Scheme: Grades will be based on exams (80%) and assignments (20%) according to the standard scale: A (90 – 100), B (80 – 89), C (70 – 79), D (60 – 69), F (0 – 59).

Exams: There will be four hourly exams, each worth 20% of the final grade. The exams will be closed book, closed notes, no calculator, individual tests. No makeup exams will be given.
Three exams will be in-class. Exam dates will be reconfirmed at least a week in advance. Hourly 1 is scheduled for Wednesday, Sept. 12th, Hourly 2 for Wednesday, Oct. 10th, and Hourly 3 for Monday, Nov. 5th.
Hourly 4 will be during the final exam period from 2:50 - 4:10pm on Wednesday, Dec. 12th.

Assignments: There will be in-class (individual or group, announced or not) assignments as well as homework. The lowest two scores will be dropped when computing the average. For full credit, all directions must be followed. See below for more details on homework.
Practice Problems: As preparation for in-class and homework assignments, additional “practice problems” will be suggested. You are strongly encouraged to work these problems (and others!) on your own and/or with other students to master fundamental course material.

Homework: Homework will be assigned most weeks, and due one week later (including “Dead Week”) at the beginning of class. Late homework will not be accepted.

A subset of the assigned problems will be selected for grading.

Solutions must meet the formatting requirements below. Illegible and/or unintelligible solutions will receive no credit.

1. Be neatly and clearly written in complete, correct sentences.
2. Be written on the front side of the page only.
3. Be stapled together if having multiple pages.

Collaboration is allowed (and even encouraged) when working on homework problems. However, solutions must adhere to the following content guidelines.

1. Be written independently in a student’s own words.
2. Clearly acknowledge any person with whom any part of the assignment was discussed.
3. Properly credit any outside resource consulted in completing the assignment.

Any solution which violates the content guidelines will receive no credit. Flagrant or repeated violations will be dealt with as a matter of academic integrity.

Attendance: Regular attendance is expected. Exceptions will be accommodated only for valid, documented reasons including (1) official representation of the Institute and (2) medical emergencies. Makeup exams and assignments will not be given.

Exceptions: Any student who may not be able to meet the requirements of the class as stated must speak with me individually within the first two weeks of class.

Academic Integrity: Students are reminded of the obligations and expectations associated with the Georgia Tech Academic Honor Code and Student Code of Conduct, available online through the Office of Student Integrity and the Honor Advisory Council.

Any violations must be reported directly to the Dean of Students.

More Information:

- Grades will be posted on T-Square — http://t-square.gatech.edu
- There is a T-Square Math 4803–HEH forum for online discussion.
- Everything else will be posted on the course website — http://www.math.gatech.edu/~heitsch/4803heh-f12.html

Updates: This syllabus is subject to modification. Any changes will be announced in class and posted on the course website.