MAT 371 — ADVANCED CALCULUS I — SPRING 2001

Line No.:	76093
Time:	MWF 10:40-11:30 AM
Room:	PSF-208
Instructor:	Jack Spielberg
Office:	PSA-747
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Text:	*Introduction to Analysis, 5th ed.*, Edward D. Gaughan, Brooks/Cole

Note: The information in this syllabus may be modified during the semester at the instructor's discretion. Changes will be announced in class.

Points:	Final:	30%
	3 midterms @ 10:	30%
	Homework and Quizzes:	40%

Dates:	Final:	May 7 (Monday), 12:20-2:10 PM
	Midterm 1 (sctns 0.4–5 and chap 1):	February 21-22 (Wed/Th, testing center)
	Midterm 2 (chap 2-3):	March 21-22 (Wed/Th, testing center)
	Midterm 3 (chap 4-5):	April 11-12 (Wed/Th, testing center)
	Drop/Add Ends:	January 19
	Unrestricted Withdrawal Deadline:	February 9
	Restricted Course Withdrawal Deadline:	March 30
	Spring Break:	March 12-16
	Restricted Complete Withdrawal Deadline:	April 5

The homework problems are the **most** important part of the course. You should expect to spend a large amount of time on them every week. In particular, very few students will be able to earn much credit on an assignment worked just a day or two before it is due. You may find it useful to talk to other students about the problems, and I encourage you to work together. However, each student must write up his/her solutions in his/her own words.

Homework will be due by 5:00 pm on Wednesdays. You may hand it in at PSA-216 (in which case you should put my name on the first page as well as yours), or slip it under my office door. Write **neatly** and **legibly**, print your name, and STAPLE the pages together. **All** homework problems in this course are proofs, and must be written with correct English and syntax. You should make an effort to read over your proofs for intelligibility before copying them out to hand in. Assignments will ****NOT**** be announced in class, but will be posted on my webpage. You must check there regularly for updates.

Reading the text is a crucial part of the course. I will **NOT** be able to mention in class everything from the text that you will need to know. I expect that, beginning in the second week, you will have read the relevant sections BEFORE the class period when they are discussed. Reading assignments will be included with the homework problems. It is your responsibility to keep reading ahead.

A missed midterm exam can be made up only in the case of a documentable emergency, or because of a conflict with a university-sanctioned activity. In the latter case you must notify me well in advance, and provide me with a copy of your travel schedule and the name and phone number of the appropriate university sponsor. The Mathematics Department has an extremely strict policy regarding missed final exams. You may view this policy via a link on my webpage.

During class I welcome questions at any time. (The only exceptions are questions about the grading of your own homework or exam. Please bring these questions to me before or after class, or during office hours.) Please feel free to come by my office at any time, either for a quick question or a longer discussion. If it is not a designated office hour, and I am too busy, we can set up another time. If you want to come by when it is not a designated office hour, you may call to see if I am in. You may also send me questions by e-mail.
(OVER)

Homework 1, due Wednesday, 1/24

Read sections 0.4, 0.5, 1.1.

Problems: p.29, # 32, 33, 41, 42, 44

Homework 2, due Wednesday, 1/31

Read sections 1.2-1.4.

Problems:

1. p. 29, # 43.
2. Use problem 1 to prove that $\mathbf{Q}$ does not satisfy the completeness axiom.
3. Prove that if $a > 0$, then there exists $n \in \mathbf{J}$ with $\frac{1}{n} < a$. Use this to prove that $\cap_{n=1}^{\infty} \left(0, \frac{1}{n}\right) = \emptyset$.
4. p. 54, # 3.
5. Let $\{a_n\}_{n=1}^{\infty}$ converge to 4. Prove that $\{3a_n\}_{n=1}^{\infty}$ converges to 12, and that $\{a_n^2\}_{n=1}^{\infty}$ converges to 16. (Do not use results from section 1.3.)

Extra Credit Problem

7. p. 55, # 13.