University of Connecticut | College of Liberal Arts and Sciences | Department of Mathematics

Projects
- Q Center
- ACCLAIM PD Program
- Pascal's Triangle from Top to Bottom
- Journal of Online Mathematics and its Applications (JOMA)

Classes
- Math 213: Transition to Adv. Math (Fall 2007)
- Previous Terms

Professional
- Publications
- CV
- Software

Hobbies
- Folkdance
- Gigs
- Learning Japanese
- Taoist Tai Chi

Useful Links

Tom Roby's Math 213 Home Page (Fall'07) "Transition to Advanced Math"



Questions or Comments?

- Send me email (click here and delete "QQQ")
- Homepage: http://www.math.uconn.edu/~troby
- Offices: MBS M404, CUE 123: phone: 860-486-8385
- Office hours: Tuesday 2-3, Thursday 10-11 in MSB 404 a by appointment. You can usually find me in CUE 123 on M 9:30-11:30 (but safest to call first). I'm happy to answer questions anytime by email, which I check frequently.

Class Information

COORDINATES: Classes meet Tues/Thur. 11:00--12:15 in M 219. The registrar calls this Sec 001, #8522

PREREQUISITES: Some calculus, but we won't use it very m More important is the ability to work hard on unfamiliar proble This course itself is a prerequisite for most upper division cou in math.

TEXT: John D'Angelo & Doug West: , Prentice Hall 2000. Sec edition 412+xx pages, 930 exercises, 180 figures ISBN 0-13-014421-6.

WEB RESOURCES: The homepage for this course is http://www.math.uconn.edu/~troby/Math213F07/. It will includ

- **Campus Map**
- **Math Links**
- **UConn Links**

copy of the syllabus and list of homework assignments. I will l this updated throughout the quarter.

GRADING: Your grade will be based on a midterm exam, a fi exam, homework, and quizzes.

The breakdown of points is:

Midterm	Final	Quizzes	Homework/Participation
25%	40%	15%	20%

EXAMS: The exam dates are already scheduled, so please m your calendars now. No makeups will be given; instead if you have an approved reason for missing an exam, the final will c for the appropriately higher percentage. If you know you have conflict, please let me know asap.

CONTENT: This content of this course is how to **DO** mathem The specific choice of topics is less important than your abilit come to grips with different kinds of mathematical thinking an writing. We plan to cover most of Chapters 1-8 and 13-14 of t text.

- Numbers, Sets, and Functions
- Language and Proofs
- Induction
- Bijections and Cardinality
- Combinatorial Reasoning
- Divisibility
- Modular Arithmetic
- The Rational Numbers
- The Real Numbers
- Sequences & Series

LEARNING GOALS: By the end of the course you should be to

- Explore unfamiliar mathematical problems using example
- Formulate precise mathematical statements ("conjectures that can be proven or disproven.
- Understand how to negate a mathematical statement and

to disprove a conjecture using a counterexample
- Use various methods of proof, including mathematical induction, bijections, contradiction, and some epsilonics, t demonstrate the truth of mathematical facts.
- Be able to communicate mathematics clearly orally and in writing
- Discriminate between correct proofs, informal reasoning, wishful thinking, and falsehoods.

LEARNING: **The only way to learn mathematics is by doin** Complete each assignment to the best of your ability, and get when you are confused. Come to class prepared with questio Don't hesitate to seek help from other students. Sometimes th point of view of someone who has just figured something out be the most helpful.

We will often spend classtime doing things in groups, present mathematics to one another, or having interactive discussion: There will not be time for "cover" all material in a lecture form: you will need to read and learn some topics from the book.

DISABILITIES If you have a documented disability and wish t discuss academic accommodations, or if you would need assistance in the event of an emergency, please contact me a soon as possible.

HOMEWORK: Homework will be assigned weekly I will collec homework and grade a pseudorandom sample of it.

You may find some homework problems to be challenging, leading you to spend lots of time working on them and someti get frustrated. This is natural. I encourage you to work with ot people in person or electronically. It's OK to get significant he from any resource, but in the end, please write your own solu in your own words. Copying someone else's work without cre plagiarism and will be dealt with according to university policy also is a poor learning strategy.

215 LECTURE AND ASSIGNMENT SCHEDULE

Date	Sections	Topics	DUE

8/28 T	Ch. 1	Quad. Formula, Inequalities, Sets	Handout
8/30 R	Ch. 1	Functions	
9/4 T	Ch. 2		Quiz #1
9/6 R	Ch. 2		HW1 due: Ch. 1: #11,20,21,25,27,46,50
9/11 T	Ch. 0	Building Evacuation (No Class) :-(	
9/13 R	Ch. 2	Quantifiers, Truth tables	HW2 due: Ch.2: #10, 22, 26, 36, 45,48, 51b
9/18 T	Ch. 2	Contradiction, sqrt(2) irrational	Quiz #2
9/20 R	Ch. 3	Induction (triangle numbers)	
9/25 T	Ch. 3	Induction, Inequal 3.19, HW1 issues	Quiz 3
9/27 R	Ch. 3	Strong Induction	HW3:Ch. 3:#16,18,23,28,37,39,49ab,5 **Now due 10/2**
10/2 T	Ch. 4	Bijections	Quiz #3 Rewrite, Quiz #4
10/4 R	Ch. 4	Cardinality	HW4: #1,2,5,7,11,12,21,25cc
10/9 T	Ch. 1-5	Catchup Day, Combinations	Quiz #4
10/11 R	Ch. 1-4	Review Day	Practice Midterm

TUESDAY 16 OCTOBER: MIDTERM EXAM

10/18 R	Ch. 5	Permutations	
10/23 T	Ch. 5	Combinations & Identities	
10/25 R	Ch. 6	Divisibility	HW5: Ch.5: #10,11,12,30,39,49,52,58
10/30 T	Ch. 6	Divisibility	Quiz #5 (Ch. 6(-) probs.)
11/1 R	Ch. 7	Modular Arithmetic	HW6: Ch.6: #8b,9cd,18,23,24,28,30,34,3
11/6 T	Ch. 7	Modular Arithmetic	Midterm Rewrites due
11/8 R	Ch. 8	Rational Numbers	HW7: Ch7: #6,13,15,17b,21,24,34,35,43
11/13 T	Ch. 13	Real Numbers	
11/15 R	Ch. 13	Real Numbers	HW8: ch5:13,42,57; ch6:40; ch7:19,23,31; ch8:1,12
11/27 T	Ch. 13-14	Sequences & Limits	HW8 due; Quiz #7 (Ch. 13(-) probs.)
11/29 R	Ch. 14	Series	HW9: Ch13: 8,10,16,22,25,27,30,34
12/4 T	Ch. 14	Series	Quiz #8 (Ch. 14(-) probs.)
12/6 R	All chapters	Review Day	Practice Final
12/7 F	Midterm & Rewrites	Review Session	MEET AT 3:00pm in ROOM (Meet in MSB 219 else)

MONDAY 10 DECEMBER 3:30-5:30 FINAL EXAM IN M 219