

Math {3,6}49 — Combinatorics II — Spring '08

MWF 9:30–10:45 in Manchester 124, CRN # $2^2 \cdot 3^2 \cdot 13 \cdot 29$ & $7^2 \cdot 277$

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ABOUT THIS COURSE: Most interesting problems can be approached in a multitude of ways. Generating functions are a general technique that can often be used as a viable approach when sequences of numbers are involved (implicitly or explicitly). They often lead to very elegant solutions.

We will cover the majority of the textbook. Most of the time we will consider the generating functions as formal power series — i.e., as algebraic objects. But at the end of the course we will explore some of the facts we can learn by considering generating functions as analytic functions. This symbiosis between combinatorics and complex analysis is a great example of how many of the divisions in mathematics we have created are truly artificial.

Reading the textbook will be integral to the course. I will expect you to come to class with questions on the reading. For at least the first few weeks, I will ask you to write these down and bring them to class. Once it looks like it is habit, we will deal with it more informally.

TEXT: *Generatingfunctionology*, Wilf. 3rd edition. The online version is the 2nd edition. I haven't checked the differences particularly closely, but I believe they are all minor. The exception is the addition of sections 4.11 and 4.12 (I don't even know if we'll cover these). I'll check to make sure the exercises I assign have the same numbers in both versions. If not, I'll warn you.

WRITTEN HOMEWORK:

- (1) Homework assignments will be due (almost) every Thursday.
- (2) I encourage you to come talk to me with questions on the homework. I don't expect you how to necessarily know how to do each problem right away. The point of the homework is not only to check that you've learned what we have gone over in class. Struggling with the homework problems is also a very important means by which you learn the material.
- (3) Assignments should 1) be stapled 2) have your name on them and 3) be legible. Failure to follow these guidelines will result in points being deducted at the discretion of the grader (me).
- (4) Assignments are due at the beginning of class on the day specified. Late assignments are accepted for good reasons (e.g. — family emergencies, serious illness) without penalty. Otherwise they are accepted at my discretion and with points deducted. If you know you will be absent, please talk to me beforehand or make arrangements to hand in the work.
- (5) You are welcome to work in groups on any of the homework assignments. However, you must hand in your own written work; in particular you must understand what you have written down and cannot just copy from someone else. If your collaborators

are not members of the class, you must list them at the top of your assignment. Please reference any additional sources you use in completing the assignments.

- (6) No homeworks will be dropped. If you miss an assignment for a “good reason” you are responsible for handing it in as soon as circumstances permit.

OFFICE HOURS: You are welcome to stop by my office at any time. During scheduled office hours, I can always be found in my office, Manchester 338; no appointment is necessary. I also check my email frequently and am happy to try to answer questions and/or give hints on homework that way. We can also schedule meetings at times convenient to you.

EXAMS: There will be two exams during the semester and then a final. On each exam, the majority of the points will come from open-book/take-home questions. I may also make part of the exam closed book. For the latter, I may administer it in class or, more likely, let you do it on your own under the Honor Code.

What	Percent of grade	Chapters (roughly)	When
Participation	10%		
Homework	35%		
Exam 1	15%	1 & 2	Due Thu. Feb 14
Exam 2	20%	3	Due Thu. Mar 27
Final	20%	4 & 5	TBA

GRADING: After each exam, I will tell you what your final grade would be if I had to base it solely on the homework and exams completed up until that point. Exam and homework grades will be curved, if necessary, such that at least an A- is earned for an average of 90, at least a B- for an average of 80, etc. If you have a conflict with an exam you *must* talk to me at least a week ahead of time.

ENROLLEES IN 649: You will have additional problems on the homework and/or exams. These personalized problems will enrich your experience and make you better people. Maybe I'll even make you do presentations.