

Syllabus for Math 4663: Combinatorial Mathematics

Spring 2016

Instructor:

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Room and time:

MSCS 514, TR 9:00 - 10:15.

Textbook:

Applied Combinatorics (6th edition), by Alan Tucker.

Prerequisites:

Math 2153 and 3013, or permission of instructor.

Office hours:

TR 2:00 - 3:00 (in MSCS 433), W 3:30 - 4:30 (in MLSC). These hours are subject to change. If they're changed, I'll post an announcement and an updated syllabus on D2L.

Online classroom:

We'll use D2L for most course materials and announcements: oc.okstate.edu

Description:

Combinatorics is a far-reaching field of mathematics, studied both for its applicability in many real-world problems and its aesthetic appeal. Many problems in pure and applied mathematics that don't initially appear combinatorial are *reducible* to combinatorial problems, meaning that the essence of the problem requires combinatorics. Thus, a familiarity with combinatorics is something that benefits anyone working in mathematics or a math-heavy science.

Note:

This course, unlike courses in the calculus sequence, will deal with problems requiring a more mature approach. In order to receive full credit on a graded problem, every component of the solution must be expressed clearly and

correctly. We will often deal with proofs, and it is important to understand *when* something is actually a proof. So in a sense this course is really two courses in one; we'll be learning topics in combinatorics, but we'll also be learning how to formulate and communicate sophisticated mathematical arguments.

Sections covered:

Typically, this course covers the following sections in the text: A.1-A.4, 1.1-1.4, 2.1-2.4, 5.1-5.5, 6.1-6.2, 7.1-7.3, 8.1-8.2, 10.1-10.2. I'm planning to cover these sections, though this may change as the semester progresses and I get a better sense of what would best suit our class.

Homework:

We'll have weekly homework assignments, each due at the **beginning** of a Thursday class. If for some reason you are unable to attend class, you may turn in the homework to my mailbox in the Math Department's main office (MSCS 401) or you may email me a legible pdf of the homework (again, by the beginning of class). No late homework will be accepted.

Because of time constraints, the homework will be spot-graded. I.e., you will receive a completion grade for attempting all the problems, plus a correctness grade for certain problems.

In addition, homework assignments should be stapled and legible. If a solution is illegible, you will not receive credit for it.

Grade:

Your final numerical grade will be out of 500 points, distributed as follows.

Homework:	100 points
In-class exams (2):	100 points each
Final exam:	200 points

Although the final course grades may be curved, to be guaranteed a certain grade you should aim for the usual percentage cutoffs. For example, to be guaranteed an 'A,' you should shoot for a final grade of 450.

Graduate credit:

If you are taking the course for graduate credit, I'll assign an additional project for you. This will count for 50 points of your final grade, and your final numerical grade will be out of 550 points rather than 500 (and the cutoffs will be 500, 450, etc).

Exams:

There will be two in-class exams, on Thursday, February 18th and Thursday, March 31st. Our final exam is on Tuesday, May 3rd, from 8:00 to 9:50 AM. If the final exam conflicts with any of your other finals, let me know ASAP.

Calculators:

Calculators are allowed during exams, but nothing more powerful than a TI-89 may be used. Additionally, using the calculator's memory functions to store information pertinent to our course will be considered a violation of academic integrity. I haven't made the exams yet, but my guess is that calculators will rarely be necessary for them. The main reason they're allowed is that most students seem to feel more comfortable having access to one.

Academic integrity:

While you are encouraged to work together on homework, each student's homework should be written up individually. Collaboration involves each member of the group contributing something, and the group coming to a collective solution. If, for example, you simply show up at the end of a problem session and copy solutions from the students who've been working on them, that will be considered a violation. On the exams, any exchange of relevant information between students will be considered a violation. In addition, using the internet or any unapproved source to assist with homework will also be considered a violation.

Special accommodations:

If you have a disability that warrants special accommodations in the course, you should be in touch with the Office of Student Disability Services, in room 315 of the Student Union (744-7116). Please also contact me in private if this is the case.

Attendance:

Regular attendance, though not mandatory, is key to success in the course. Often just one missed lecture has a snowball effect: If you don't fully catch up on what you missed, the next lecture may not make any sense to you. If you don't fully catch up on these TWO lectures, the third lecture may not make any sense, and so on. For this reason, if you must miss a lecture, expect to spend a considerable amount of time and effort catching up on what you missed.

Syllabus attachment:

Please also read the Spring 2016 syllabus attachment, available here:
<http://academicaffairs.okstate.edu/content/resources-faculty-staff>