

Math 579, Combinatorics
Fall 2007, 5:35–6:50 MW, C-9

Instructor: Imre Tuba
Office: East Faculty 106
Phone: 768-5606
E-mail: ituba@mail.sdsu.edu

Office hours: 4–5 MW, 5–6 Tu.

Prerequisites: Math 245 (Discrete Math) is required. In fact, if you earned less than a B in that course, you are likely to find this course very challenging. Math 254 is recommended but is not required.

Required text: Harris, Hirst, Mossinghoff: *Combinatorics and Graph Theory*. We will cover Ch. 2 and parts of Ch. 1. If we get really carried away, we may do some of Ch. 3.

Course objective: This is an introductory course in combinatorics intended for advanced undergraduate math majors. We will cover some fundamental concepts and theorems in combinatorics. While the material is introductory, the treatment will be rigorous. You will be expected to know precise definitions, statements of theorems and how to prove them. You will also be asked to use this knowledge to solve familiar and unfamiliar problems and prove/disprove familiar and unfamiliar statements whose level of difficulty is appropriate for the course.

Website: www.rohan.sdsu.edu/~ituba/math579. I will also use Blackboard to post your exam grades periodically.

Homework and reading will be posted on the class website regularly. You will be able to follow the progress of the course using the website. HW is an essential part of your learning. Take it very seriously. It is extremely important that you keep up with the HW. If you do not, you will quickly find yourself lost in class and at a great disadvantage during exams. Treat the HW as a learning opportunity, rather than something you need to get out of the way. Reread, revise, and polish your solutions until they are correct, concise, efficient, and elegant. This will really deepen your understanding of the material. You are unlikely to succeed in a math class without doing all of the HW.

Homework will not be collected. You will instead keep a notebook with all your homework solutions separate from your lecture notes—I recommend a 3-ring binder. You will be allowed to use your notebook during the first half of every exam.

I strongly encourage you to seek feedback on your work. You can discuss it with me during office hours or submit it to me so I can correct it and comment on it.

Collaboration on the HW: Limited collaboration with your fellow students in the class is OK. The idea is to let you discuss and critique each other's ideas and not to let you split the workload. Keep collaboration constructive and reasonable. You are expected to fully understand the solution and write it up on your own. Your understanding of the material will be tested on the exams.

If you are approached by another student from the class who wants to copy your homework notes—this may happen just before an exam—keep in the mind that the class is curved. By sharing your work with your friend, you are not only helping them out, but also raising the curve which determines your grade.

Exams: There will be three in-class exams as well as a final exam. Your two highest scores on the in-class exams and your score on the final will be used to determine your grade. The in-class exams will be on Oct 1, Oct 24, and Nov 21.

Final exam: 5-7 PM on 12/12 in C-9.

Problem of the fortnight: The Mathematics Department in San Diego posts an interesting

problem every two weeks. Many of these problems are of a combinatorial nature. I will give you extra credit for every problem to which you submit a correct solution to the organizers of the contest. You can also win a t-shirt and if your solution is deemed the best, a book. You will find a link to these problems on the class website.

Grading scheme:

In-class exams (two highest scores)	30% each
Final exam	40%
Problem of the fortnight	1% each

A score of 90% or more will guarantee an A, 80% a B, 70% a C, and 60% a D. The curve may be adjusted lower than this.

Quality of work: It is important that you work neatly on the assignments. The quality of your work will affect your grades on the exams. Quality has to do with how easy it is for someone else to read your solution to a problem. It is not enough to do the math right, you must also communicate it well.

Students with disabilities: If you need special arrangements, let me know well in advance so we can plan to accommodate your needs.

Another general note: Learning math is much like learning to ride a bicycle in that you learn by doing it and not by watching someone else do it. Attending class and reading the textbook won't be enough to do well on the exams. You should work through every example and proof in the book and in your class notes and expect to have to re-read everything several times. It's slow, but then your reading list for this class is short.