math 420/720 . combinatorics

spring 2017   san francisco state university

Combinatorics is the study of possibilities. The goal of this course is for us to become comfortable using combinatorial structures to represent and analyze mathematical and applied situations, answering questions like: Does an object with certain properties exist? What structure do those objects have? How many such objects are there? Which of those objects are the most extreme?

Agreement. This course aims to offer a joyful, meaningful, and empowering experience to **every** participant; we will build that rich experience together by devoting our strongest available effort to the class. You will be challenged and supported. Please be prepared to take an active, critical, patient, and generous role in your own learning and that of your classmates.

Instructor. Federico Ardila . `federico@sfsu.edu` . Thornton Hall 927

Meetings. Tuesdays and Thursdays . 12:35–1:50 . Thornton Hall 211

Office hours. Tuesdays 4:30–5:30 , Wednesdays 1:30–2:30

Course website. `http://math.sfsu.edu/federico/math420.html`

Text. Miklos Bona. A walk through combinatorics. (**3rd edition**)

Homework. Work individually and collectively, write individually.

Diary. After class n you will discuss the material with a classmate. Individually, you will bring a **very** brief summary of the key points of class n to class $n+1$. After discussing these in class $n+1$, you will edit and transcribe your summary of class n into your "diary", in LaTeX or some other beautiful format.

Project. You will write a final project, which will be a chance to go much deeper into a topic of your choice. This could be an expository paper summarizing an aspect of combinatorics, the beginning of an original research project, or (why not?) the solution to an open problem in the field. I will suggest possible topics.

Grading. Your numerical grade will be a combination of
• weekly homework and groupwork (50%),
• notecards (10%) daily and diary (10%) due May 23,
• proposal (5%) due Apr 11 and final project (30%) due May 23.   (I know...)
Your final letter grade will be computed from your numerical grade as follows:

A	A–	B+	B	B–	C+	C	C–	D+	D	D–	F
93–∞	86–92	81–85	76–80	71–75	66–70	61–65	56–60	51–55	46–50	41–45	0–40

Note. No late homework or exams will be accomodated unless you have a serious and documented reason.

Please. No use of laptops or cell phones unrelated to the class, or other disruptive behavior.

Calendar. Here is a short version of the University calendar for Spring, 2017.

Feb. 10	Last day to add, drop, or audit
Mar. 17	Last day to select CR/NC grading
Apr. 24	Last day to withdraw from course / university for serious and compelling reasons
May 16	Last day to withdraw – with documentation
Mar. 20–25	Spring break
May 16	Last day of class
Jun. 1	Grades available

Academic Integrity and Plagiarism. Academic integrity refers to the "integral" quality of the search for knowledge that a student undertakes. The work a student produces, therefore, ought to be wholly hers or his; it should result completely from the student's own efforts. Plagiarism is a form of cheating or fraud; it occurs when a student misrepresents the work of another as his or her own. Plagiarism may consist of using the ideas, sentences, paragraphs, or the whole text of another without appropriate acknowledgment, but it also includes employing or allowing another person to write or substantially alter work that a student then submits as her or his own. Penalties for cheating and plagiarism range from an F on a particular assignment, through an F for the course, to expulsion from the university.

CR/NC Grading. Most Mathematics classes allow CR/NC grading, but many majors – including Mathematics – do not count CR/NC grades towards the major. Mathematics majors should not take their Mathematics classes CR/NC. All other majors should check with their academic advisors before deciding to take a Mathematics class CR/NC. If – after checking with your advisor – you want to apply for CR/NC grading, you must log onto the website `www.sfsu.edu/student` and sign up for CR/NC grading before the Mar. 17 deadline. Your instructor will not pass out a CR/NC sheet in class.

Incompletes. The Incomplete grade (I) is assigned only to students doing satisfactory work until the last few weeks of a course, when events beyond the students' control prevented them from completing the course. If this happens to you, discuss with your instructor the possibility of taking an Incomplete rather than withdrawing from a class that you cannot finish. Incompletes must be made up within twelve months of the date they are assigned. Your instructor will tell you how to make up your incomplete. Do not enroll in the same course again. You can only take a course once.

Late and Retroactive Withdrawals. Petitions for withdrawal from a class after the November 22 deadline, either before the end of the semester (late withdrawal) or after the semester ends (retroactive withdrawal) must be justified by events that occurred after the withdrawal deadline. In general, only petitions for withdrawal from all courses will be approved.

Student disclosures of sexual violence. SF State fosters a campus free of sexual violence including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender discrimination. If you disclose a personal experience as an SF State student, the course instructor is required to notify the Dean of Students. To disclose any such violence confidentially, contact:
The SAFE Place – (415) 338–2208; http://www.sfsu.edu/∼safe_plc/
Counseling and Psychological Services Center – (415) 338–2208; http://psyservs.sfsu.edu/

Students with Disabilities. Students needing reasonable accommodations must bring an official written request to their instructor from the Disability Programs and Resource Center (Student Services Bldg., Rm. 110, (415) 338–2472, `drc@sfsu.edu`). The DPRC will facilitate the reasonable accommodations process.

Religious Holidays. Reasonable accommodations will be made for you to observe religious holidays when such observances require you to be absent from class activities. It is your responsibility to inform the instructor during the first two weeks of class, in writing, about such holidays.