

Mathematics 502, MWF 11:00, WB223

Lecturer: Alexander Hulpke, Weber 206B

Office Hours: TBA

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WWW: Canvas

Topics

MATH 502 is the second part of a 2-semester graduate introduction to combinatorics. Roughly, while 501 emphasized enumeration, 502 will emphasize structures. I will not assume that you have taken 501 (beyond some basic undergraduate material). We will need some material from undergraduate abstract algebra.

Pacing and coverage will be commensurate with this being a graduate class in mathematics.

Grades

will be based on homework (70%), and a final exam (30%) that will also serve as qualifier exam for those desiring it. variant

Homework will be handed out weekly (in first approximation), I will count completion of 80% of the assigned problems as 100% for grading purposes.

Prerequisites: We will need only standard material of an undergraduate mathematics education: Sets and functions, equivalence classes, proof by induction, basic graph terminology, polynomial rings, finite fields, linear algebra, permutations and groups, and a little bit of Calculus. This seemingly broad spectrum of topics is an indication of combinatorics' centrality to mathematics.

Textbook: There are many nice books about combinatorics, but it is hard to find one that hits the right topics and the right level. I will provide, on the Canvas pages, notes to accompany the class. The bibliography lists a number of further textbooks that cover similar material.

Covid Precautions

(The campus Teaching Continuity team requests that each instructor add the following COVID-19 information to their spring 2021 course syllabus:)

Important information for students on COVID-19:

All students are required to follow public health guidelines in any university space, and are encouraged to continue these practices when off-campus(es). Students also are required to report any COVID-19 symptoms to the university immediately, as well as if they have potentially been exposed or have tested positive at a non-CSU testing location. If you suspect you have symptoms, please fill out the COVID Reporter (<https://covid.colostate.edu/reporter/>). If you have COVID symptoms or know or believe you have been exposed, it is important for the health of yourself and others that you complete the online COVID Reporter. Do not ask your instructor to report for you; if you report to your instructor that you will not attend class due to symptoms or a potential exposure, you are required to also submit those concerns through the COVID Reporter. If you do not have access to the internet to fill out the online COVID-19 Reporter, please call (970)491-4600.

If you report symptoms or a positive test, your report is submitted to CSU's Public Health Office. You will receive immediate, initial instructions on what to do and then you will also be contacted by phone by a public health official. Based on your specific circumstances, the public health official may:

- choose to recommend that you be tested and help arrange for a test

- conduct contact tracing
- initiate any necessary public health requirements or recommendations and notify you if you need to take any steps

If you report a potential exposure, the public health official will help you determine if you are at risk of contracting COVID.

For the latest information about the University's COVID resources and information, please visit the CSU COVID-19 site (<https://covidrecovery.colostate.edu/>).

Academic Integrity

This course will adhere to the CSU Academic Integrity Policy as found on the Student Responsibilities page of the CSU General Catalog and in the Student Conduct Code.

At a minimum, violations will result in a grading penalty in this course and a report to the Office of Student Resolution Center.

You are explicitly forbidden to post course material, full or part) on websites outside the university (such as “homework help” or “discussion”), or to use such websites to get help on solutions. Doing so will be considered a violation of academic integrity. We actively monitor such web sites.

Disability Accommodations

If you are a student who will need accommodations in this class due to a disability or chronic health condition, please provide me with the SDC (Student Disability Center) accommodation letter. If you do not already have these accommodation letters, please contact the SDC as soon as possible to initiate the process of setting up accommodations. The SDC is located on the room 121 of the TILT building. You can reach them by phone at 970-491-6385 or visit www.disabilitycenter.colostate.edu.

I wish you success with this course and all the best for the coming semester.