MATH 579: Combinatorics
Fall 2018 MWF 11-11:50, E-300

Overview:
This course is concerned with counting finite sets. For example, consider the set of all possible necklaces made with m beads, chosen from a tub of n different beads. Students will learn a variety of tools to compute the sizes of such sets exactly, or sometimes to estimate.

Learning Objectives:
There are three distinct phases to solving a combinatorial problem. Generally, the first phase is the most difficult to learn, and the last phase is the easiest. Students will learn all three in this course. First, the problem must be categorized as to which combinatorial tool would be appropriate. Second, a model must be created that translates the abstract formulation of the problem into the symbols required for the combinatorial tools to work. Third, the combinatorial tools must be applied to the symbols.

Textbook:
None required; any introductory combinatorics text would be helpful. Students are expected to take careful notes in class, and to remedy any difficulties immediately.

Course Mechanics:
Exams will be given on alternate Fridays, and brief quizzes given on all other class days. Quizzes immediately after exams will typically be "second-chance" quizzes on an exam question. Course schedule:

Exams:	Sep. 7,21; Oct. 5,19; Nov. 2,16; Dec. 7
Holidays:	Sep. 3; Nov. 12, 19-23
Quizzes:	All other class days
Final:	Mon. Dec. 17 10:30-12:30, in the usual classroom

Grading:
The quizzes and seven exams are all closed-notes. All grades will be normalized to lie between 50% (blank but present) and 100% (perfect score). Missing grades will still be 0%. The grading policy is as follows:

A	A-	B+	B	B-	C+	C	C-	D+	D	F
92.0	90.0	88.0	82.0	80.0	78.0	72.0	70.0	68.0	62.0	0

The course consists of seven units. Each student will receive a unit grade, which will be ⅔ based on the unit exam (individual) and ⅓ based on the unit quizzes (group).

Each student will earn ten grades: the seven unit grades, and the final exam grade three times. The course grade will be the average of the highest eight out of these ten grades. This policy is in place to accommodate students for whom one (or two) of the measures does not accurately represent their abilities.

Collaboration:

Students are expected to work homework exercises in groups, with weekly meetings. Groups are normally expected to consist of 4 people (3 or 5, with approval only). Initial groups are chosen by the students. After each exam they will be reassigned, by the instructor, to contain people with similar grades. If you have strong preferences for these reassignments, please notify the instructor.

Quiz scores for each group will be averaged, with each member of the group receiving that average quiz grade for the unit. Note that one missing group member will dramatically lower the average for the whole group.

Quizzes and Homework:

All class periods without an exam will have a quiz, of 5-10 minutes duration. These are typically closed-book closed-notes, with no discussion permitted. Occasional exceptions to these rules may occur.

Homework will be assigned, but not collected or graded. Solving exercises is essential to learning the material, do not skip this. Some problems will have solutions on the instructor's webpage. View these at your own risk; seeing the solutions too soon will deprive you of the educational opportunity of solving them yourself.

Attendance:

Students are expected to attend every class, and to get copies of the notes should a class be missed. Makeup quizzes and exams are not given under any circumstances. Under extraordinary circumstances (e.g. hospitalization), an alternative grading policy may be used. If missing a quiz is unavoidable, you may notify the instructor in advance and earn 5/10 (instead of 0/10).

SASC:

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact the Student Ability Success Center at (619) 594-6473. To avoid any delay in the receipt of your accommodations, you should contact SASC as soon as possible. Please note that accommodations are not retroactive, and that accommodations based upon disability cannot be provided until you have presented your instructor with an accommodation letter from SASC. Your cooperation is appreciated.

Online Materials:

The professor maintains a comprehensive website (URL below). Here you may find old exams, solutions, homework, syllabi, course evaluations, grade distributions. Note syllabi carefully, as different courses use different textbooks. He is very diligent and prompt about responding to emails. If you wish to know your grade, please email anytime. However, there is *not* a Blackboard presence for this course, because Blackboard is evil.

Professor:

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