

Math 4473: Combinatorics

MWF 9 – 10 IN BOYD 304

Instructor: David Leach (cleach@westga.edu)

1 Topics

fundamental principles of counting, combinations and permutations, selections and arrangements, binomial identities, generating functions, partitions, linear recurrence relations, non-homogeneous recurrence relations, inclusion-exclusion, other topics as time allows

2 Objectives

- A thorough understanding of the basic principles of counting, combinations and permutations. (L7, L10)
- An understanding of generating functions. (L7, L10)
- The ability to use combinatorial arguments in proofs. (L2, L10)
- The ability to use combinatorial models in applications. (L9)
- A thorough introduction to the theory of linear recurrence relations. (L7, L9)
- An introduction to Polya counting and combinatorial games. (L10)

3 Prerequisites

MATH 3003 (you may take MATH 3003 as a corequisite with the permission of the instructor)

4 Text

Applied Combinatorics, 4th Edition, by Alan Tucker.

5 Evaluation

Test Average	65%
Assignments	10%
Final Exam	25%

5.1 Homework

We will have homework from each section. Homework will not be graded. You are allowed to work together on the homework assignments.

5.2 Assignments

There will be a few assignments throughout the semester that will account for 10% of your grade.

5.3 Tests

There will be five in-class tests, roughly one every three weeks. **Tentative** dates for the tests are Sept 5, Sept 26, Oct 17, Nov 7, Nov 24. These dates are subject to change.

5.4 Final Exam

The final exam will be held on Wednesday, Dec 10, 8-10 am. It will be comprehensive.

6 Attendance

If you miss a class, you are responsible for obtaining any information that you missed. If you miss a test, you must have a university-approved excuse in order to take a make-up test.

7 Office Hours

My office is 317 Boyd. My posted office hours are 11-12 and 1:30-3:30 on Monday, Wednesday, and Thursday; and 9:00-9:30 and 10:30-11:00 on Thursday. I'm also available at other times – you can call or email me to set up an appointment.

8 Website

My website (<http://www.westga.edu/~cleach/>) contains useful stuff like my schedule, contact information, and links to a few websites about combinatorics. It also contains some useless stuff like GPS maps and a big picture of an iceberg.

9 Other Useful Information

- The final exam is Wednesday, Dec 10, 8-10 am.
- The last day to withdraw is Thursday, October 9.
- Thanksgiving Holidays are November 26-28.