MATC44H3  Introduction to combinatorics  Winter 2012

General course information

Instructor: Balázs Szegedy  Office: IC458  e-mail: szegedyb@gmail.com


Prerequisites: MATB24 (Linear Algebra II)

Course overview and syllabus: MATC44 is an introductory course in combinatorics.

1. Chapter 5: General counting (The addition and multiplication principles, Permutations, combina-
nations, binomial coefficients)

2. Chapter 6: Generating functions. (polynomials, power series, polynomial expansions, coefficient
   calculations, partitions, exponential generating functions)

3. Chapter 7: Recurrence relations. (general recurrence, linear recurrence, connection to generating
   functions)

4. Chapter 8: Inclusion-exclusion. (Venn Diagrams, Inclusion-exclusion formula)

5. Chapter 1-2: Elements of graph theory, graph colorings, Euler and Hamiltonian cycles.

6. Chapter 3-4: Trees, spanning trees, shortest path, network flows, algorithms.

Grading scheme:

Assignments (probably six)  30% (your lowest assignment is omitted)
Midterm Test  25% (date/time/place TBA)
Final Examination  45% (date/time/place TBA)

Assignments Assignments will be posted on my website and handed-out in class. You may cer-
tainly collaborate with your colleagues in trying to solve the assignment problems. However, your
submitted work must be written in your own words. If your work appears too often to be too simi-
lar to another students work, all such students will be called in to question for plagiarism and the
assignment mark of all offending students will be appropriately penalized. Assignments are due not
later than 10 minutes past the hour beginning the lecture due day. Assignments received the after
this time on the due day will be accepted for grading, but will earn a 50% reduction their mark.
Assignments received after the due day will earn a score of zero. Detailed solutions to assignments
will be posted at the website.

Calculators: The following are prohibited during test/exam writing: calculators, I-Pods, Black-
berry, Laptop computers, Cell Phones and any other electronic calculating or data storage device.

Office Hours: I will have office hours in my office on Tuesdays and Thursdays. You may also
make an appointment with me to get individual or small group help.