

Math 249 — Introduction to Combinatorics (advanced section)

MWF 10:30-11:20, PHY 150

Instructor: Prof. Kevin Purbhoo

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Course webpage: <http://www.math.uwaterloo.ca/~kpurbhoo/math249/>

References: Prof. Goulden's notes (on webpage); Math 239 Course Notes (from Campus Copy).

Topics: Part 1 – Enumeration and Combinatorial Analysis: binomial coefficients, generating functions, formal power series, linear recurrence relations, Catalan numbers, compositions and partitions, enumeration of strings, Stirling numbers. Part 2 – Graph Theory: isomorphisms, connectivity, cycles, trees, planarity, colourings, matchings.

Prerequisite: (Math 136 or 146) and (Math 138 or 148).

Marking scheme: 20% homework + 25% midterm + 55% final exam

Homework: There will be weekly assignments, due in class. You are expected to turn in all assignments. Normally, late homework will not receive any credit. Extensions may be granted under exceptional circumstances, but must be requested at least two days before the assignment is due.

Midterm: The midterm exam will be held on Thursday March 7, from 16:30–18:20, in RCH 204. Any student who misses the midterm without a legitimate reason (i.e. medical, or with the instructors prior permission) will receive a mark of zero for the exam.

Policy on missed final exam: In the case of illness during the final exam, a make-up exam or incomplete will only be granted to students who have completed the required term work to satisfactory standards.

Avoiding academic offenses: Students are expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for their actions. Students who are unsure whether an action constitutes an offense, or who need help in learning how to avoid offenses (e.g., plagiarism, cheating) or about “rules” for group work / collaboration should seek guidance from the course professor, TA, academic advisor, or the Undergraduate Associate Dean. For information on categories of offenses and types of penalties, students should refer to Policy #71, Student Academic Discipline,

<http://www.adm.uwaterloo.ca/infosec/Policies/policy71.html>

Students who believe that they have been wrongfully or unjustly penalized have the right to grieve; refer to Policy #70, Student Grievance,

<http://www.adm.uwaterloo.ca/infosec/Policies/policy70.html>

Note for students with disabilities: The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.