

# Math 239 Introduction to Combinatorics

## Fall 2007

**Note:** No printed material will be distributed in class. All information about the course will be posted on the course web page:

<http://www.student.math.uwaterloo.ca/~math239>

Sec.	Time	Room	Instructor	Office (Phone)	email
001	11:30MWF	MC StJ 2009	B. Richter	MC 5033 (ext. 84625)	brichter@math
002	12:30MWF	MC 4059	N. Wormald	MC 5034 (ext. 36983)	nwormald@math
003	9:30MWF	MC 4021	D. Jao	MC 5038 (ext. 32493)	djao@math
004	1:30MWF	MC 2035	K. Purbhoo	MC 4029 (ext. 35135)	kpurbhoo@math

### Teaching Assistants:

For contact information for the graduate student TA's, please see the course web site as above

**Textbook:** *Introduction to Combinatorics: Course Notes for Math 239*, available from Campus Copy, MC2018.

**Outline:** The first portion (five weeks) of the course is Combinatorial Analysis. We introduce generating functions and apply them to enumerate compositions of an integer and  $\{0, 1\}$ -strings. We then consider the solution to recurrence equations.

The second portion (seven weeks) of the course is Graph Theory. We introduce graphs, isomorphisms, paths, cycles, trees, and connectivity, and continue with planarity, colouring, bipartite matching, and applications.

The material we will cover corresponds to Sections 1.1–1.5, 2.1–2.2, 2.4–2.5, 3.1 & 3.2, 4.1, 4.3 & 4.4, 5.1–5.4, 6.1–6.5, 7.1–7.3 of the text.

**Tutorial Centre:** Graduate student Teaching Assistants will be in the Tutorial Centre, MC4067, (certain hours on Wednesdays and Thursdays, T.B.A.) beginning September 20, 2007.

**Assignments:** There will be eight assignments. They will be due on Fridays by NOON sharp in the drop boxes opposite MC 4067. The assignments and solutions will be posted on the course web page. The solutions will be posted by 2:00 p.m. on the due date. The first assignment will be available Friday, September 14, 2007, and will be due Friday, September 21. A practice assignment, which will not be submitted for marking, will be available Friday, November 30. Late assignments will not be accepted.

### Assignment Schedule:

The eight assignments to be handed in will be due September 21, & 28, October 12 & 26, November 2, 16, 23 & 30.

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**Tutorials:** Graduate student Teaching Assistants will be responsible for the tutorials. They will present examples, answer student questions, and return marked assignments. They will *not* present solutions to assignment problems before the deadline. However, they can do related examples, and can also answer some specific questions related to an assignment problem (without giving away the solution) provided the problem has been seriously attempted. The tutorials will begin on September 18, 2006.

**Quiz:** There will be one quiz, written in your tutorial on October 16/17.

**Midterm Examination:** Thursday, November 8, 2007, from 4:30-6:20 p.m. in rooms TBA. Please bring any conflicts to the attention of your instructor as early as possible.

**Final grade:** Final exam 55%, Midterm 30%, Quiz 5%, Assignments 10%.

**Policy on Lectures and Assignments:** Students are expected to attend all lectures and tutorials, and to submit all assignments for grading. This is *especially important* for instance when students encounter serious medical difficulties, and academic progress must be estimated.

**Policy on INC Grades:** If a student has not achieved a passing grade on both the **assignments** and the **midterm exam**, we do not consider it appropriate to assign an INC grade, even in the event of serious illness.

**Avoidance of Academic Offences:** Students are expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for their actions. Students who are unsure whether an action constitutes an offence, or who need help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work or collaboration should seek guidance from the course professor, an academic advisor, or the Undergraduate Associate Dean. For information on categories of offences 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>

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**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 for appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.