

CO 380 Mathematical Discovery and Invention Spring 2010

Lecture Information: TTh 10:00 - 11:20, MC 2054

Instructor Information:

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Office Hours: These will be announced by the instructors.

Calendar Description: A course in problem solving. 100 problems are studied. Problems are taken mainly from the elementary parts of algebra, geometry, number theory, combinatorics and probability.

Objective: The main objective of CO 380 this term will be to extend your mathematical problem solving ability. We will consider some of the most important problem-solving techniques typically encountered in undergraduate mathematics and illustrate their use through interesting examples and assigned problems. Some new mathematical content will be taught when it is deemed necessary for the understanding of certain problems and their solutions.

Prerequisites: MATH 135 or 145, 106/125 or 136 or 146, 138 or 148; Level at least 3A; Not open to General Mathematics students

Textbook: There is no required textbook for this course. Many excellent resource books in mathematical problem-solving have been written. Please speak to your instructor if you feel the need to purchase such a resource.

Website: <http://uwace.uwaterloo.ca>

Calculators: Scientific calculators will be allowed on the Midterm Tests.

Assignments: There will be 4 assignments to be handed in. These are due to be handed in at 10:00 a.m. in class on the following Tuesdays: May 25, June 15, July 6, July 27.

Late assignments will not be graded.

Homework Problems: There will be 10 homework problems to be handed in. These are due to be handed in at 10:00 a.m. in class on the following Tuesdays: May 11, 18, 25, June 1, 8, 22, 29, July 6, 13, 20.

Late homework problems will not be graded.

While you are encouraged to work together to solve the homework problems and the assignment problems, the solutions that you submit must be your own work and so should be written up without any consultation with your colleagues.

Group Problems: There will be approximately 11 group problems to be handed in. These are due to be handed in by 11:20 a.m. in class every Thursday, with the exception of June 10.

Late group problems will not be graded.

You must be in attendance to receive any marks for your group's work.

Midterm Tests: There will be two 80 minute in-class tests. These will occur on Thursday, June 10 and on Tuesday, July 27. Each of these tests will be worth 20% of your mark in the course.

Solutions: Solutions to the Assignments and Tests will be posted on the course web site.

Final Exam: There will be NO final exam held during the examination period.

Grades: Midterm Tests:40%; Assignments:20%; Homework Problems:20%; Group Problems:20%

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. (Check www.uwaterloo.ca/academicintegrity for more information.)

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity (check www.uwaterloo.ca/academicintegrity) to avoid committing an academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate Associate Dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, www.adm.uwaterloo.ca/infosec/Policies/policy71.htm. For typical penalties check Guidelines for the Assessment of Penalties, www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm.

Note for students with disabilities: The Office for Persons with Disabilities (OPD), located in Needles Hall 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.

Course Schedule:

Instructor	Dates	Notes
Eden	May 4, 6	
Eden	May 11, 13	HW #1 due May 11
Eden	May 18, 20	HW #2 due May 18
Vasiga	May 25, 27	HW #3 and Asgn #1 due May 25
Vasiga	June 1, 3	HW #4 due June 1
Vasiga	June 8, 10	HW #5 due June 8, Midterm #1 June 10
VanderBurgh	June 15, 17	Asgn #2 due June 15
VanderBurgh	June 22, 24	HW #6 due June 22
VanderBurgh	June 29	HW #7 due June 29, No class July 1
Pretti	July 6, 8	HW #8 and Asgn #3 due July 6
Pretti	July 13, 15	HW #9 due July 13
Pretti	July 20, 22	HW #10 due July 20
Pretti	July 27	Asgn #4 due and Midterm #2 on July 27