

MATH 331: Problem Solving
Section 201, Winter 2003

When: Tuesdays and Thursdays, 11:00 AM–12:30 PM

Where: Mathematics 229

Course web page: <http://www.math.ubc.ca/~gerg/>

Textbook: Graham, Knuth, and Patashnik, *Concrete Mathematics*, 2nd edition (Addison-Wesley)

Prerequisites: MATH 200 or MATH 226, together with MATH 221 or MATH 223

Instructor: Prof. Greg Martin

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Office hours: Mondays 10:00-11:30 AM and Wednesdays 1:30-3:00 PM

Description: This course presents a collection of techniques for solving concrete mathematical problems. Much of the focus is on simplifying complicated or implicitly-given expressions, and several important mathematical topics that do not fit neatly into other courses are introduced. The main topics will be techniques for evaluating finite sums, binomial coefficients and related combinatorial numbers, recurrence sequences, generating functions, discrete probability, and asymptotic estimation. These topics correspond to Chapters 2 and 5–9 of the textbook.

Use of the web: All homework assignments and solutions will be posted on the course web page, <http://www.math.ubc.ca/~gerg/>. *Assignments and solutions will not be distributed in class.* You may access the course web page on any public terminal at UBC or via your own internet connection. Accounts for the Mathematics department undergraduate computer lab (located in the MSRC building) will be given to any enrolled student who requests one; please email or visit the instructor to request an account.

All documents will be posted in PDF format and can be read with the free Acrobat reader. The course web page contains instructions on how to download the Acrobat reader if you do not already have it.

Evaluation: Every two weeks, there will be a homework assignment, an in-class team problem, and a quiz; there will also be a final exam at the end of the term. The course mark will be computed as follows:

- Homework assignments: 20 percent
- Team problems: 15 percent
- Quizzes: 15 percent
- Final exam (time and place to be announced): 50 percent

You are required to be present at the final exam. No makeups will be given. Non-attendance at the exam will result in a mark of zero being recorded. Unavoidable, documented medical emergencies are the only exception to this policy.

Homework will be due in class every other Tuesday of class starting January 21. *Late homework will not be accepted.* The quizzes will be given on these Tuesdays as well. The in-class team problems will be scheduled for every other Thursday of class beginning with January 16. *No make-up team problems or quizzes will be given.* To account for unforeseen circumstances, each student's lowest team problem score and lowest quiz score will be dropped. Missed assignments will not be excused beyond this point, except for documented medical reasons.

Students are allowed to consult one another concerning the homework problems, but *your submitted solutions must be written by you in your own words.* If two students submit virtually identical answers to a question, both can be found guilty of plagiarism.