

Instructor: Isidora Milin

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Office: 337 Illini Hall (3rd floor)

Office Hours: Mon 10-11:30AM and by appointment

Class Meeting Time: MWF at 9AM in 347 Altgeld

Class Webpage: <http://math.illinois.edu/~imilin/teaching/math181.html>

Textbook: *For All Practical Purposes: Introduction to Contemporary Mathematics, 8th Edition*

1 Course Content and Goals

Math 181 is an introduction to selected areas of mathematics, through its applications to modeling and solving real world problems. Mathematical structures we will encounter include networks, circuits, trees, voting systems, game theory, groups of symmetries, plane tilings, algorithms, codes... Tentative plan is to cover the following topics:

- efficient procedures for route traversal, scheduling, provision of urban services
- different voting systems and their manipulability
- fair division of resources among conflicting parties
- game theory and the mathematics of competition
- encoding information
- symmetry and geometric patterns in nature and art

2 Course Requirements and Grading

2.1 Homework Problems

The homework portion of your grade will come from a mixture of homework assignments and (possibly) group projects. You are free to work in groups on the homework, but you must write up your solutions independently. Homework will be due each Wednesday, at the beginning of class. Try to write up your solutions neatly, with your name and section number (B1) legibly written on the top page. If submitting more than one page, *please staple your homework*. Late homework is not accepted, but the lowest homework grade will be dropped.

2.2 Quizzes

There will be a (short) quiz each Friday, in class (except on exam days). Your lowest quiz grade will be dropped.

2.3 Exams

There will be three in-class exams (50 minutes each) and a three-hour final exam. The dates are as follows:

Exam 1: Friday 10/01

Exam 2: Friday 10/29

Exam 3: Friday 12/03

Final: Tuesday 12/14, 8 - 11AM

2.4 How to Compute Your Grade

Your final grade will be computed with the following weights:

Homework 10%

Each in-class exam 15%

Quizzes 15%

Final exam 30%