Math 130

Section 2, 11:00-12:15 p.m. TR, B113 Van Vleck

Instructor: Jim Propp
Office: 813 Van Vleck
Phone: 263-5148
email: propp@math.wisc.edu
WWW: http://math.wisc.edu/~propp
Tentative Office Hours: Tuesdays and Thursdays 10:00–10:45 and 2:15–3:00 and TBA (and by appointment)
Text materials: available at Bob's Copy Shop in University Square
Midterm date: Thursday, October 21, 1999
Final exam: Monday, December 20.

This course is the first in a sequence of three designed to help you develop your intuitive reasoning and problem-solving skills. We will spend most of our time in class working in small groups on various problems, usually from the course packet. The problems are designed to be both interesting and nontrivial, so you should be prepared to spend some serious time on solving them (in class, for the most part). You will almost certainly get stuck on a problem at some point in the semester, but don't be discouraged — if you persevere, you'll get through! We will usually discuss the problems in a large group after most groups have finished them. Sometimes you will be asked to write up your ideas and solutions, but *always* you are expected to think about the problems, participate in solving them, and communicate your ideas with others. Communicating your ideas to others is as important as developing them in the first place.

Note that this is a math *content* course, and not a pedagogy course. We hope that taking this course will help you be a better teacher, but more by setting an example rather than teaching you math methods.

GRADES: Your grade for the course will be determined by two exams (20% each), by attendance and participation (20%), and in large part by written work you will turn in (40%).

THE EXAMS will be similar in nature to the problems we work in class, but short enough that you should be able to complete them in the time given. A sample exam will be distributed before the actual exam in order to give you a closer feel for it, though you should not expect it to serve as an *exact* blueprint for the real thing. There will be a midterm and a final exam (locations TBA); the dates are given above. Please mark these dates and times on your calendar now so as to avoid conflicts. In the event that a conflict arises, *please* see me as soon as possible so that we can resolve it.

ATTENDANCE AND PARTICIPATION are a significant part of your grade because this course is as much an experience as a set of material to be learned. Most of what I hope will happen for you in Math 130 will take place inside the classroom, working in groups and talking with others. You may miss up to 3 days for reasons of health, religion, etc. without penalty. Arriving late or leaving early counts as half an absence. If you have special needs, please see me in the first two weeks of the term.

It is also in your interest to participate in the group problem solving sessions since active learning is better than passive learning. Participation includes both small and large group work. If you don't feel comfortable answering questions, *ask* some of your own: that spurs discussion as much as an answer, and you probably won't be the only one with that question.

THE WRITTEN WORK will have two components: write-ups (also called problem reports) and reflections. A write-up is a detailed solution to a problem we discussed in class. These write-ups should be readable independently of any worksheet on which they are based, in good English and either legibly handwritten in ink or word-processed. They should always include the following: 1. a statement of the problem at hand, 2. any strategies you used to attack the problem, 3. the solution you obtained, with an explanation of how you got it (and how you know it is complete), and 4. a conclusion that says what we can take with us from the problem. Communication of what you understand (even if it's not a complete understanding) is at least as much the point as finding the solution. Your first draft of a write-up should always be done on your own; after that, feel free to have your classmates and others critique it.

I will also sometimes ask you to write a reflection on a rather less concrete issue, like "What does it mean to get stuck?" These essays, usually a page or two in length, will be graded more loosely; I'll be looking for signs that you put real thought into the question and then took some time to organize your thoughts in a coherent way.

I will let you know at the time I assign written work when it is due, but typically it will be due in class a week from the time it is assigned, and you will have roughly one assignment due per week.

Optional reference text (for those who feel "It isn't really a course if there aren't any books"): Billstein, Libeskind and Lott, *A problem solving approach to mathematics for elementary school teachers*. Second edition (1984). Menlo Park, CA: The Benjamin/Cummings Publishing Company.