Math 689–603 First Day Handout Fall 1995

Survey of Mathematical Problems I

About the course

This course is designed primarily for current and prospective teachers of mathematics at the secondary school level or higher. The goals of this course are for you:

- to increase your mathematical knowledge and skills;
- to be exposed to the breadth of mathematics and to many of its interesting problems and applications;
- to know how to have fun with mathematics;
- to see the unity of diverse mathematical fields;
- to work creatively;
- to increase your competence with open-ended questions, with questions whose answers are not known, and with ill-posed questions;
- to know how to read and understand mathematics; and
- to know that, when students ask you a question, you will either know an answer or know where to tell them to look for an answer.

We hope that after completing this course, you will have an expanded perspective and renewed enthusiasm for mathematics that you can convey to your own students in the future.

This semester we will emphasize topics from finite and discrete mathematics, such as logic, probability, game theory, number theory, graph theory, algebra, and geometry. A continuation course next semester will concentrate more on topics from continuous mathematics (calculus, differential equations, and so forth).

The prerequisites for this course are a basic knowledge of linear algebra, modern algebra, and advanced calculus at the level of Math 222, Math 415, and Math 409 respectively. There is no required textbook.

The course meets once a week on Tuesday evening from 6:30 PM to 9:30 PM in room 156 of the Blocker building.

About the instructors

Harold Boas	Sue Geller
Milner 322	Milner 206
boas@math.tamu.edu	geller@math.tamu.edu
(409) 845–7269	(409) 845–7531
Office hours: TWR 3:00–4:00 PM	Office hours: MT 2:00–3:00 PM, WF 10:00–11:00 AM

Both instructors are also available by appointment.

About course policies

Grading

Grades will be based on regular homework and quizzes, occasional longer tests and projects, and class participation. The grading scale will be: A = exceeded expectations; B = met expectations; C = did not meet expectations, F = failed to complete a substantial amount of the required work.

Homework

There will be a variety of types of homework: solving typical mathematical problems, reading, inventing problems yourself, doing projects, etc. So that we can provide you with timely feedback, some of the homework will be due on Fridays by 5:00 PM, and some will be due at the beginning of class on Tuesdays. Many of the reading assignments will be photocopies that we will provide you of sections of various books. Please read them carefully and try to understand the details, including the proofs.

We encourage you to work together on homework; during class meetings, we will have formal working groups. Not only will each of you learn more by working together, but it will be more fun. However, you must each write up your own homework solutions individually.

Absences and late work

In-class activities are an integral part of this course, and since the course meets only once a week, you will miss a significant part of the material if you are absent. If an emergency forces you to miss a class meeting, please notify us in advance.

We expect you to come to class prepared and to turn in all assignments on time. If extraordinary circumstances arise that will preempt your work on our course, please make arrangements with us ahead of time.