

## MATH 297R MATHEMATICS SEMINAR SYLLABUS, SPRING 2011

**Instructors:** Fang Chen and Paul Oser

**Meeting time:** Wednesdays, 2 – 3:15 pm

**Course description:** This is mostly a problem solving seminar. We will discuss various problem solving strategies, and the problems will be coming from many different places. It will start at a certain regular level, but the real level will be defined by the students who will be in the course.

Problem solving is an important aspect of mathematics. One cannot learn any mathematics without dirtying his hands and trying out the ideas he has learned. Don't be intimidated. Most people pursue this type of activity almost every day. Think of it as puzzle solving or playing a chess game. If you find that some idea that you have seen or come up with plays some role later, then you will begin to understand the essence of how mathematics develops.

The intention of the course is to show you a variety of topics, objects and techniques through a collection of well-chosen, classic and hopefully intriguing problems. No theory will be developed and no textbook will be followed. You will learn a lot if you spend time thinking on the problems, pay attention to the discussions of the solutions, and try to apply the knowledge and reasoning later on.

In this course, the students will be in charge. You are expected to try to solve problems, learn strategies(possibly knowledge—we will provide) and improve on problem solving skills.

There is a lot of ingenious techniques, but no technique covers all. From time to time, lectures might be given on problems to emphasize the true source of their natural charm — the connection with authentic mathematical experience.

If you like thinking on mathematical questions, enjoy keeping a difficult problem on your mind for a couple of days, can't help chewing on it when you wait in the line at the dining hall or laundry room, then this course might suit you, and most likely during these fifteen weeks you will experience the incredible pleasure of eventually reaching the “Aha-moment”.

**Evaluation:** Your grade will depend on class participation, written solutions to problems and possibly class presentations.