Course:

Lecture: TTh 8:00–9:20, GAB 543
Final Exam: Thursday, December 14, 2006. 8:00–10:00

Instructor: Roel Morales
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Office Hours: MTWTh 1:30–2:30 and by appointment

Prerequisites: Math 1100 or equivalent with a C or better or consent of department. The deadline for Prerequisite Verification is Sept. 8, 2006. Acceptable forms of verifications are unofficial transcripts, Permit to Enroll forms, or Student Report forms for the Accuplacer test.

Course Description – MATH 1350: 3 hours. Concepts of sets, functions, numeration systems, different number bases, number theory, and properties of the natural numbers, integers, rational and real number systems with an emphasis on problem solving and critical thinking.

Course Goal: What is MATH 1350 about? First of all, this is not a course on how to teach mathematics. It is a course to help you gain a deeper understanding of the mathematics related to what you will be teaching. This does not mean that the course is a remedial course or a review. Rather, the goal is to help you develop the subject matter expertise in arithmetic and the theory of numbers that will prepare you to design lessons, answer questions, and deal with your students diverse ways of thinking. To accomplish this objective, this course will emphasize the development of certain skills that are important in becoming the type of teacher who seeks to cultivate true mathematical ways of thinking in her or his students. As a result this means that this course will not be delivered in a traditional lecture format, as we try to help you to:

- Think, speak, and write mathematically;
- Solve problems that you have not been shown how to do;
- Learn to put your ideas into precise language;
- Prove assertions (when possible);
- Break problems down into smaller problems, use trial and error, generalize, and harness common sense.

Instead of attending lecture sessions, the course will feature a problem-solving, discovery method or Socratic approach where the role of the instructor is to facilitate your learning by providing you guidance in determining your solutions and provide justification for the claims.

You may be thinking, “Why don’t you just tell us what we need to know?”
First, in order to truly understand something, you need to understand why the idea or the procedure works. Without this type of knowledge and understanding on your part, you can’t deliver instruction in a way that will help students go beyond seeing mathematics as something other than a collection of rules and procedures to memorize.

Second, in order to nurture your students’ innate reasoning abilities, you need to be able to learn how to reason, to put ideas together, and to solve problems.

Third, in order to understand your students’ ways of thinking (which may often differ from your own ways of thinking), you need to have a sufficiently deep understanding to encourage your students correct (yet novel) approaches, while at the same time discouraging lines of reasoning that may be faulty.

In short, if you want your students to develop the ability to think and to communicate mathematically and to make meaning out of the mathematics they learn, you must be able to think, to communicate, to reason, and to make meaning out of the mathematics yourself.

**Grading Policy:**

- **A:** 90–100%
- **B:** 80–89%
- **C:** 70–79%
- **D:** 60–69%
- **F:** 0–59%

Problem Writeups: 20%  
Homework: 20%  
Writing Assignments: 10%  
Daily Work: 10%  
Midterm Exam: 20%  
Final Exam: 20%

**Homework:** Homework will be assigned on a regular basis. Typically these assignments will relate to in-class work and it may require you to read the text. Discussion of these problems in class will be kept to a minimum, but discussion of them before or after class or during office hours is more than welcome. Late homework will not be accepted (unless it is the result of an officially excused absence). There will be 3 homework grades that are dropped.

**Exams:** There will be two exams – a midterm and a final. The midterm will tentatively be scheduled for the week of October 17th. The final exam will be cumulative, but with an emphasis on the material covered since the midterm, and is scheduled according to the university final exam schedule.

**Problem Write-ups:** You will be assigned problems to work on in class. For many of these problems you will be asked to write a solution to this problem or a solve a related problem. Each of these assignments will be explained at the appropriate time.

**Writing Assignments:** During the semester you will be asked to complete two writing assignments based on journal readings, other outside readings, or a reflection on topics that have been covered in class. These writings will consist of completing questions related to the articles or the related reflections. College-level writing will be expected in these assignments; this includes the use of proper grammar and spelling. Specific details about each assignment will be given in the future.
**Daily Work:** Daily work consists of all other types of assignments not described above and done in class. Part of this grade will consist of classroom participation given the discovery/cooperative style of learning we are emphasizing in this course. Additionally, you will be required to go to the board at least twice during the semester to present your work, ideas, or solution to a problem. Most of you will be teachers and will be in front of the classroom, so it will serve you well to start practicing. I know you may worried about presenting something wrong but people actually learn more from incorrect answers than from seeing the correct answer the first time. Moreover, someone else may present a solution that you never thought of so you learn a different method to solving a problem giving you further insight into that problem.

**Absences:** Because of the nature of the course attendance is mandatory Students missing more than 2 class periods may have their grades lowered by 5% for each missed class beyond their second absence. Furthermore, every student is responsible for the material covered in class regardless of their attendance.

**Makeup Policy:** If you are not able to turn in an assignment or take an exam because of an unexcused absence, you will not be able to turn the assignment in late or take the exam. If you miss an exam or assignment, an excuse maybe be granted if it is a University excused absence, an emergency, personal illness, or other special circumstances. An exam maybe be taken prior to the scheduled date provided they provide a written request at least a week ahead of the scheduled exam date if the student knows he/she will not be able to take the exam on the scheduled day.
If you miss an exam it is your responsibility to contact me immediately, not at your leisure. Notification is almost always possible immediately upon occurrence of an emergency. Failure to make such timely notification may result in denial of your request for an excused absence.

**Expectations:** I expect that everyone will maintain a classroom atmosphere conducive to learning. Despite the informal, social atmosphere, it must be orderly. Thus, everyone is expected to behave with basic politeness, civility, and respect for others. In particular, talking in class is ok if it’s part of a class discussion or class work, but if someone is presenting something show them the same courtesy you expect. Private communications are not allowed, especially during tests. Reading extraneous materials, using electronic equipment, or sleeping are not permitted either.

**Academic Dishonesty:** Academic dishonesty, in any form, is not permitted and will dealt with in accordance with university and departmental policy.

**Academic Rights and Responsibilities:** For your rights and responsibilities see the webpage [http://www.unt.edu/csrr](http://www.unt.edu/csrr)

**Disabilities:** It is the responsibility of students with certified disabilities to provide the instructor the appropriate documentation from the Dean of Students Office. Please see me within the first week of class and in private, if this applies to you.

**Student Evaluations:** Starting this fall, all Teaching Fellows will have their classes do teaching evaluations for their class online. The site [evaluate.unt.edu](http://evaluate.unt.edu) will open up for student input on November 27th and close December 15th.
In order to get an accurate portrayal of the class ALL students will be required to go to the website and fill out the form in order to receive a passing grade. Instructors will have the ability to determine who has and has not taken the survey but instructors will receive no information to link individual responses to specific students.

*The syllabus is subject to change as the instructor deems necessary. Any changes will be announced during class.*