Mathematical Concepts for Elementary Teachers I -- Math 200 -- Spring 2009

Class Meeting Time: Section 1 - MWF 9:05-10:00 Serra Hall 312

Instructor: Dr. Lynn McGrath   Office: Serra Hall 159 - C
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Office Hours: Monday 8:00-9:00 am, Tuesday - Not On Campus, Wednesday 8:00 - 9:00 am, Thursday 3:00-5:00 pm, Friday 8:00-9:00 am, and by appointment.

Required Texts: Gates of Horn; Syllabus of Elementary Mathematics Dr. Stacy Langton

Purpose of the Course:

Math 200 is a content course designed to improve, broaden and deepen your proficiency, appreciation and understanding of mathematics. Issues such as "the mathematics kids need to know" and "the methods for teaching elementary school mathematics" will be addressed in your mathematics methods course. As future teachers you will be responsible for the mathematical education of children. One of the most important gifts you can give children is to help them grow as discoverers, inventors, and users of mathematics in order to better understand the world. Children can become powerful mathematical thinkers if the learning environment is structured so that children's work in mathematics more closely resembles the work of mathematicians in the field. Since doing mathematics often involves ill-defined situations and complex problems, young mathematicians must develop persistence and flexibility, build on one another's ideas, and communicate and justify their findings. In order for you, the teacher, to help children develop these life-long skills, you too must be successful, confident problem-solvers with a deep understanding of fundamental mathematics. There will be almost no lecturing in this course. To help you develop your intuitive reasoning and problem-solving skills, we will spend most of our class time working on problems in small groups. An important part of learning to solve problems is the willingness to struggle with a problem even after you get stuck, and this is one of the first things you will face this semester. You may be surprised by how much you can do if you just keep at it!

Goals for the Course:

By the end of the course, you will:
1. Learn to value mathematics
2. Become confident in your ability to do mathematics
3. Become mathematical problem solvers
4. Learn to communicate mathematics
5. Learn to reason mathematically
Course Expectations

What I expect from you:

1. You will think of yourself as a future teacher, and will act in a professional and ethical manner as befits the teaching profession. There are people who like mathematics and people who don't like mathematics. Irregardless, mathematics is a subject that is taught every day in the elementary school, so teachers must have a positive attitude towards mathematics.

2. You will take the responsibility for your own learning. You will strive to make sense of mathematics. You will not settle for rules or formulas unless those rules and formulas are fully understood.

3. You will work actively with your peers, sharing, taking and giving.

4. You are expected to have mathematical skills from previous coursework and you are responsible for exhibiting those skills before you can receive a passing grade in this course. The prerequisite skills required for this course will not be taught in class. However, I am available for help during office hours.

What you can expect from me:

1. Respect and encouragement. I respect your decision to continue your education. I assume you are here because you want to be, just as I am. We share a common desire to grow as teachers and learners. You can expect our time together to be productive.

2. I will provide the learning environment and opportunities for you to improve, broaden and deepen your understanding and appreciation of mathematics. I will provide the support necessary for you to succeed in this course, both in and out of class. I am available during my office hours and by appointment, as well as via email.

Attendance Policy

You may miss up to three classes (excused or not) without penalty; after that it affects your grade (your final average will be reduced by 2 points per absence). Arriving late or leaving early counts as half an absence.

Earning Points

Homework and Weekly Quizzes........................................................................................................20%

Exam 1 (Friday, March 6th)........................................................................................................20%

Exam 2 (Wednesday, April 8th )................................................................................................20%

Family Math Night (To Be Announced in Class) and Class Participation..........................10%

Final Exam (Wednesday - May 20th, 8:00 - 10:00 AM).........................................................30%
-Homework
Homework will be assigned at least once a week. All work turned in for a grade must be neatly and clearly written up to receive any credit. No late homework will be accepted under any circumstances.

-Quizzes
Quiz #1 - Friday, January 31st
Quiz #2 - Wednesday, February 4th
Quiz #3 - Wednesday, February 11th
Quiz #4 - Wednesday, February 18th
Quiz #5 - Wednesday, February 25th
Quiz #6 - Wednesday, March 18th
Quiz #7 - Wednesday, March 25th
Quiz #8 - Wednesday, April 1st
Quiz #9 - Wednesday, April 22nd
Quiz #10 - Wednesday, April 29th
There are no makeup quizzes provided, because at the end of the semester I will drop your lowest quiz grade.

-Exams
There will be two in class exams in the course. The dates are given above.

• Cheating
Please be aware of the academic integrity policy of this University. Cheating and plagiarism are serious offenses and will be treated seriously. Although I encourage you to study together, unless specifically designated as a group assignment all work you hand in should be your own.

• Accommodations
Any student with a documented disability needing academic adjustments or accommodations is requested to speak with me during the first two weeks of class. All discussions will remain confidential. A student attempting to access Disability Services for the first time should begin by contacting the Director of Disability Services and/or the Learning Disabilities Specialist in Serra Hall, Room 300 (619-260-4655). It is the student's responsibility to schedule an "intake" meeting with the Director as soon as possible. call Disability Services at: 619-260-4699.
Family Math Night

Our class will be holding a Family Math Night (location and date announced in class) starting at 5pm and ending at 8pm. You are required to attend Family Math Night. It is your responsibility to check your schedule and inform me of any academic conflicts within the first two weeks of the semester. Each group of 2 students will develop a "worthwhile mathematical task" appropriate for elementary school children and their parents. Our goals for the school are to provide positive mathematics experiences for the families, to engage children and their parents in mathematical thinking, to give children an opportunity to see that their parents value mathematics and to help students discover the fun of doing mathematics, reinforcing their positive attitudes. Benefits for you:

1. Make connections between the mathematics you are learning and mathematics that sparks an interest in elementary school children and their families.
2. Recognize the need for a deeper understanding of mathematics.
3. Experience working with elementary school children and their parents.
4. Develop and experience worthwhile mathematical activities.

Your tasks:

1. Develop the activity and present it at the Family Math Night.
2. A report including a description of the development process of your "worthwhile mathematical task," your experience during the math family night, lessons learned, and your reflections. I will provide more details during the semester.