

Math 5001/7001
Summer Semester 2004
Arithmetic and Problem Solving

Instructor: Dr. Calvin M. Burgoyne
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Office Hours: Daily 10:30 - 11:30 (642 Boyd). You may make an appointment to see me at other times.

Text: *Mathematics for Elementary Teachers Volume I Numbers and Operations, Preliminary Edition.* By Sybilla Beckmann

Syllabus: We will cover most of the Text. See the bi-weekly homework assignments for daily assignments.

Tests & Grades: Three tests (15% each).....45%
Written homework.....20%
Class attendance and participation.....5%
Final Exam.....30%

The written assignments will be graded using the following scale for scoring your work on homework and tests:

- 5 points: Exemplary
- 4 points: Competent
- 3 points: Basic
- 2 points: Emerging
- 0 points: Unsatisfactory

The letter grades for homework is as follows:

$4.25 \leq \text{average}$	A
$3.5 \leq \text{average} < 4.25$	B
$2.75 \leq \text{average} < 3.5$	C
$2 \leq \text{average} < 2.75$	D
$\text{average} < 2$	F

Schedule of tests: No make-up exams will be given without prior approval. Tests will be graded on the basis of 100 points.

Exam 1	Friday June 25	
Exam 2	Tuesday July 13	
Exam 3	Friday July 30	
Final:	Thursday Aug. 5	8:00 am - 11:00 am

Course Objectives: To strengthen and deepen knowledge and understanding of arithmetic and how it is used to solve a wide variety of problems. In particular, to strengthen the understanding of and the ability to explain why various procedures and formulas in mathematics work. To strengthen the ability to communicate clearly about mathematics, both orally and in writing. To promote the exploration and explanation of mathematical phenomena. To show that many problems can be solved in a variety of ways.

Homework

Homework will be assigned on a regular basis. I encourage you to work together on homework (as well as class) problems. Of course, you should adhere to UGA's Academic Honesty Policy, as described on the web-site: <http://www.uga.edu/vpaa/polproc/ahpol/main.html>

Therefore always write your homework up on your own and do not allow anyone to copy your work. If you work with others, it must be a genuine partnership with "give and take" discussions from all partners.

A major goal of the homework is for you to practice writing clear, coherent, logical explanations. *Therefore always explain your answers unless the problem specifically states not to.* Write complete English sentences. Of course you may also include equations, formulas, pictures and diagrams wherever you find them helpful. Write neatly and organize your work. Think critically about your explanations. Please refer to sections 1.5 and 1.6 of the MATH 5001 textbook for additional advice on writing explanations.

Another major goal of the homework is for you achieve a deeper and more flexible understanding of the mathematics you will teach by solving *new, unfamiliar* problems that use only this elementary mathematics. Many problems can be solved in a variety of different ways, so don't expect that there is only one right way to do a problem. A number of homework problems have several parts to them. These parts often guide you through a problem. Strive to understand the "big picture" of how the parts fit together.

Homework is due at the beginning of class. **Late homework will not be accepted.** I will drop your two lowest homework scores – this will compensate for absences due to illness or emergencies.

Tests and final exam

The tests and final exam will be based on the assigned reading, our work in class, and the homework. Expect a number of test questions that ask you to explain reasoning we developed in the class activities. **You will need to understand and be able to explain the "big picture" behind these class activities (and the related reading in the text)** – how the parts fit together and what the lines of reasoning are. The final exam will be on all the material covered during the semester.

Our class work

We will frequently work in small groups during class. When you work in a group, please make sure that everyone in your group has a chance to think about the question and has an opportunity to discuss and debate it. At times, this may mean you should "hold back" a little, at other times you may need to ask your group to wait a moment for you to think about something. The process of really thinking something through carefully is what leads to deep understanding, so you will need to be sensitive to each other to allow everyone some time for this opportunity.

Notice that class participation counts for 5% of your grade. I will determine your participation score by observing your work in class. To receive full score you must engage yourself in the material and be an active and thoughtful participant during small group work and during class discussions.

Attendance is required

Materials you will need:

- A calculator. A simple calculator will be sufficient.

The course syllabus provides a general plan for the course; deviations may become necessary.