

# Math 500 I: Arithmetic and Problem Solving

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## About the Course

The arithmetic we use every day is full of rich and complex ideas! In Math 500I you will explore mathematical ideas such as fractions and long division to discover why and how they work. You will also further develop problem-solving skills, and you will practice communicating mathematics effectively by writing and discussing mathematics.

Math 500I is a *math content* course for future teachers. You will work to explain mathematics so that it is understandable to children, and you will sometimes consider children's approaches to math problems. However, you will learn about concepts on a deeper level than you might ask your future students. You will also consider ideas and perspectives that might not be appropriate for your students, but these ideas and perspectives will help you to better guide your students' learning.

The textbook for the course is *Mathematics for Elementary School Teachers* (by Sybilla Beckmann, Pearson Education, Inc. 2005) and the accompanying activities manual. Topics will come from Chapters 1-7 of the text.

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## My Contact Information

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Office Hours: Mondays 4-4:45PM, Wednesdays 1-2PM, Thursdays 9-10AM, and by appointment

Email Contact: Please feel free to email me. I will respond to emails **within one business day**.

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## Expectations and Assignments

*Participation:* This class is centered on student activities. You will work on these activities individually and in a small group, and you will discuss your questions and solutions in a small group and with the whole class. The nature of the class makes it essential that you actively participate in the class.

*WebCT Homework:* This homework will be assigned 1-2 times per week and will be submitted via WebCT. **Please have your submission in by 8AM the morning of the next class meeting.** You should also be prepared to discuss the daily homework at the beginning of the next class after it is assigned.

*Reading:* Readings from the text, which follow class work, will be assigned on a regular basis. At the end of each section of the text, there are *Practice Problems*, a set of

problems with brief solutions. Along with reading the text, you should work through the practice problems and read their solutions.

*Graded Homework:* Each week I will assign 1-2 homework problems to be turned in. Graded homework must be submitted by 3pm the day it is due. If you are not in class, it is your responsibility to get homework assignment to me. **No late homework will be accepted.**

*Quizzes, Tests, Midterm and Final Exam:* There will be 1 quiz, 3 short tests, a midterm exam, and a final exam given in this class.

The dates of the quiz, tests and midterm exam will be announced in class, 1-2 weeks ahead of time. If you are unable to come to a quiz, test, or exam, please contact me as soon as possible.

The final exam will be cumulative.

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### **Academic Honesty**

I encourage you to discuss the daily homework and graded homework with your classmates and with me. However, you should write your homework on your own and in your own words. You should not allow anyone to copy your work.

All work for this course must meet the standards contained in “A Culture of Honesty.” You are responsible for informing yourself about those standards. More information about academic honesty can be found at <http://www.uga.edu/ovpi/honesty/acadhon.htm> .

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### **Grades**

Your final score for the course will be out of 200 points, broken down as follows:

- *12 points: Participation*  
Your class participation will be evaluated 3 times during the semester; each evaluation is out of 4 points. See the attached guidelines for more on how this grade will be determined.
- *9 points: WebCT Homework*  
There will be approximately 20 WebCT assignments throughout the semester. Each assignment is worth ½ point, and (the top) 18 assignments will count toward your final grade. These assignments are *NOT* graded, but you will not receive credit for a response that shows little or no effort.
- *35 points: Graded Homework*  
There will be approximately 15 graded homework assignments, and your top 14 graded homework scores will determine graded homework grade.
- *143 points: Quiz, Tests, Exams*  
There will be one quiz, worth 10 points, and 3 short tests, each worth 15 points, a midterm exam worth 32 points, and a final exam, worth 56 points.
- *1 point: Completion of Course Evaluation.*  
The online course evaluations are completely anonymous, and I will not see them until after I have submitted your final grades. I will receive a list of students who have completed the evaluation—but not your comments—at the end of the semester so that I can factor this into your grade.

*Attendance:* Because much of the learning in this course occurs in class, your regular attendance is essential. You are allowed 3 absences without penalty. **Your absence is recorded independent of your reason for missing class, so use these absences wisely!** For each additional absence after the first 3 absences, 2 points will be deducted from your cumulative score for the class. For each additional absence after the first 6 absences, 5 points will be deducted from your cumulative score.

Your final score will determine your grade for the class as follows:

Grade	Final Score	Grade	Final Score
A	≥ 190	C+	≥ 154
A-	≥ 182	C	≥ 147
B+	≥ 175	C-	≥ 140
B	≥ 168	D	≥ 120
B-	≥ 161	F	< 120

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This syllabus is a general plan for the course. However, deviations may be necessary and will be announced to the class.

## Participation/Daily Homework Rubric

Preparation	1	Arrives to class on time. Brings activity manual to class.
	1/2	On multiple occasions, arrives to class late or does not have activity manual.
	0	Frequently arrives to class late or does not have activity manual.
Small Group Work	3/2	Listens respectfully to other students. Regularly participates in the conversation by offering solutions or asking questions.
	1	Listens respectfully to other students. Occasionally participates in the conversation by offering solutions or asking questions.
	1/2	Listens respectfully to other students.
	0	Does not participate in small group discussion.
Class Discussion	3/2	Listens respectfully to other students. Regularly participates in the conversation by offering ideas or asking questions.
	1	Listens respectfully to other students. Occasionally participates in the conversation by offering ideas or asking questions.
	1/2	Listens respectfully to other students.
	0	Does not participate in the class discussion.

You do not have to have the "right answer" to make a valuable contribution to the discussion in this class. By offering your ideas for solving or explaining a problem, you may provide a good starting point for further explanation or a perspective that others have not thought of, or you may highlight an obstacle that many others face. By asking a question you may bring up an issue that many students are having trouble with or challenge other students by forcing them to better explain their ideas.

All students are expected to be courteous and respectful to others during any class discussion.

## Graded Homework Rubric

5 Excellent	<ul style="list-style-type: none"><li>• Work is mathematically correct or has only minor, inconsequential errors.</li><li>• Work addresses the question(s) asked and provides a detailed and focused explanation to support solution. Key ideas are emphasized and only relevant information is included.</li><li>• Explanations are well-reasoned and convincing, with no logical gaps.</li></ul>
4 Good	<ul style="list-style-type: none"><li>• Work is largely mathematically correct.</li><li>• Work addresses the question asked and provides a detailed explanation to support solution.</li><li>• Arguments are well-reasoned, with only minor logical gaps.</li></ul>
3 Basic	<ul style="list-style-type: none"><li>• Work has mathematical merit but may contain significant errors.</li><li>• Work addresses the question(s) and gives some explanation.</li><li>• Explanation may contain significant logical gaps or is difficult to follow.</li></ul>
2 Needs Improvement	<ul style="list-style-type: none"><li>• Work contains significant mathematical errors.</li><li>• Explanation is minimal or illogical.</li></ul>
0	<ul style="list-style-type: none"><li>• No work turned in or no effort shown.</li></ul>

All graded homework should be typed. However, you are welcome to write in any mathematical symbols and hand-draw any pictures you wish to include.

Graded homework is due by 3pm the day it is due. If you are not in class to turn it in, it is your responsibility to get it to me. No late homework will be accepted.