

Syllabus

Mathematics for the Elementary School Teacher I

Course: MA 150, 4 Credits

Term: Winter 2016

Assistant Professor: Dr. Amy E. Barnsley

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Office Hours & Location: Jamrich Room 2210, Mon & Wed 12:00- 1:50 pm, Thur 9-11am. Other times by arrangement.

Optional Textbook: *Mathematics for Elementary School Teachers* (ISBN-13: 978-0-321-44804-0), Fourth Edition, by O'Daffer, Charles, Cooney, Dossey & Schielack; Pearson Addison-Wesley, 2008).

Required Supplies: MyMathLab, 1 semester access
Course code: barnsley58085

Classroom: 3-3:50 pm, WS3806

Course Description: This course is designed to examine elementary school mathematics from an advanced standpoint. The emphasis is on the development of the system of real numbers and the language, models, concepts, and associated operations. Quantitative thinking skills are developed through application and problem solving situations.

Course Goals: Students will develop more competence with respect to the abilities articulated in the program standards outlined in the *Principles and Standards for School Mathematics*, National Council of Teachers of Mathematics. Specifically:

- **Mathematical Problem Solving:** You will become a more powerful and more confident problem-solver.
- **Mathematical Reasoning and Proof:** Your ability to use reasoning- deductive, inductive and intuitive- will grow, and you will be able to explain your solutions paths.
- **Mathematical Communication:** You will appreciate the role of discussion in learning mathematics, and you will appreciate the value of vocabulary and notation at tools, which makes communication easier.
- **Mathematical Connections:** You will be more aware of connections between various mathematical topics and of connections between mathematics and other areas.
- **Mathematical Representation:** You will increase your ability to represent problems in effective ways.

Student Learning Outcomes: Upon successful completion of this course, a student will be able to:

- Compare the characteristics of different numeration systems from a historical perspective
- Examine the structure and properties of whole numbers, integers, rational and real numbers
- Develop concrete and conceptual models for each of the operations and their algorithms
- Identify and apply various problem solving strategies
- Develop skills for applying number theory to elementary school mathematics
- Use mental computation and estimation in appropriate situations
- Use technology as a tool in problem solving
- Apply the process of mathematical proof through logical, intuitive reasoning

Prerequisites: Passing grade in MA 100 or satisfactory score on math placement exam.

Technology requirements: Computer with internet access, scientific calculator

Grades are based on the following scale:

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

Course grade have the following weighted components:

Problem Sets	20%
Projects	20%
In class	10%
Quizzes	10%
Exams	40%

For written work (Practice exams, exams, and final exams) you are graded not only on correctness, but also on clarity of work. If I can't read your writing, then a correct answer **will not** get you full credit. You must show all steps. Just giving the answer will not earn full credit. Again, you must show all work. Word problems can often be solve by just "thinking" about it. In this class you must use algebra and show all work to earn credit.

Math Tutoring Room: Extra help is available for free. Tutors are available Monday-Friday 9 am- 4 pm to help with questions in West Science Room 3810. Study groups with classmates are encouraged.

Disability needs: If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Dean of Students Office at 2001 C. B. Hedgcock Building (227-1700). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines. Here is the website for disability services: <http://www.nmu.edu/disabilityservices/node/1>

Academic Integrity: Students are expected to do their own work and follow the university academic honesty policy. This policy can be found in the student handbook. See link here: <http://www.nmu.edu/dso/studenthandbook>

Drop Date: Last day to drop a class with no course record is January 22, 5pm. Drop procedure: <http://www.nmu.edu/records/adddropprocedure>

Withdrawal Date: Last day for course withdrawal is March 25, 5pm. I will recommend withdrawal for any student earning below 60%. A W grade and an F grade have the same effect on your full time status. The difference is that an F grade hurts your GPA, but a W grade does not. It always benefits you to get a W, instead of an F. Withdrawal procedure: <http://www.nmu.edu/records/node/19>

Final exam: Given in regular classroom, April 26, 2-3:50pm

Tentative Schedule

Week	Sections	Notes
1	1.1, 1.2	
2	1.2, 1.3	Set 1
3	2.1, 2.2, 2.3	Project 1
4	2.3, 2.4	Set 2
5	3.1, 3.2	Exam 1
6	3.3, 3.4	Project 2
7	4.1, 4.2	Set 3
8	5.1	Exam 2
9	5.1, 5.2	
10	6.2, 6.3	Project 3
11	6.4, 6.5	Set 4
12	7.1, 7.2	Exam 3, Project 4
13	7.2, 7.3, 7.4	Set 5
14	7.4	Exam 4