

SYLLABUS SPRING SEMESTER 2015  
Math 2010  
Tuesday 5:15 - 7:45  
MATH FOR ELEMENTARY TEACHERS I

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Office Hours: By appointment

**Required Text:** *A Problem Solving Approach to Mathematics for Elementary Teachers* 11th Edition by Billstein, Libeskind, and Lott. The e-book is used by the entire 2010/2020 series. See the attached "MyMathLab" for students registration.

**Optional Text:** *Math On Call* by Great Source. Can be purchased at DSU Bookstore or on Amazon.

**Class Description:** This class is the first of two-semester sequence in mathematics that is appropriate to the needs of elementary and middle school teachers. Topics include: problem solving, sets, numeration systems, whole numbers, algorithms of arithmetic, number theory, rational numbers, and decimals. Both classes in the sequence are required for prospective elementary school teachers.

**Class Prerequisites:** Math 1050/1050E or the equivalent. As of Spring 2013, you must pass a 'Basic Skills Math Test' with 95% or higher. You can take it 5 times during the semester, if needed.

**Class Purpose:** This class is not designed to teach you fundamental skills in elementary math; it presumes prior competency in 'doing' grade-school math. Rather, this class examines the theory (the 'why') behind the 'how' of elementary math. The content and processes of mathematics will be presented in a logically sound approach in order to help you:

- 1) Learn to view mathematics as fascinating and stimulating activity that provides skills, insights, and modes of thinking that are essential to modern life.
- 2) Become a more confident problem solver, who is able to think critically and creatively in a variety of quantitative, spatial and logical situations.

- 3) Become a more accomplished communicator with a capacity to construct well-reasoned explanations of mathematical algorithms.
- 4) See the connections between mathematics and other subjects in real-world applications.
- 5) Learn the foundations necessary to build adequate instructional opportunities for mathematical students across grades K-8.

**Class Objectives:** All mathematics classes at Dixie State University will:

- 1) Require students to perform mathematical processes including fractions, percentages, decimals, proportions/ratios, algebraic equations, and/or calculus techniques.
- 2) Provide students with application problems that use a variety of methods including arithmetical, algebraic, and geometric methods.
- 3) Challenge students to make inferences from mathematical models that include formulas, graphs, and tables.
- 4) Provide students with real-life applications that use a variety of mathematical functions.

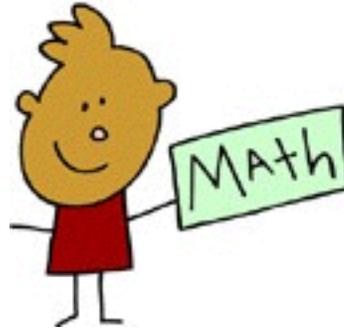
Upon successful completion of Math 2010, a student will demonstrate, through testing, the ability to:

- 1) Identify and apply a sound problem solving process to a variety of mathematical problems.
- 2) Describe and apply a variety of problem solving strategies to individual problems.
- 3) Identify and apply instructional algorithms to basic arithmetic operations.
- 4) Demonstrate elementary arithmetic algorithms using manipulatives that include: mats, strips, units, sets, blocks, and bars.

**Policies and Procedures:**

- 1) Attendance and participation: You are expected to attend class and to participate in all the class activities. Tardiness and unexcused absences may result in the loss of points.
- 2) Hours of class each week: 3 hours
- 3) Plagiarism: You cheat, you fail.

**Accommodation for Special Populations:** Students with medical, psychological, learning or other disabilities desiring reasonable academic adjustment, accommodations, or auxiliary aids to be successful in this class will need to contact the DISABILITY RESOURCE CENTER Coordinator (Baako Wahabu) for eligibility determination. proper documentation of impairment is required in order to receive services or accommodations. Visit or call 652-7516 to schedule appointment to discuss the process. DRC Coordinator determines eligibility for and authorizes provision of services.



**Class Information/Requirements:**

- 1) Completing Homework on each chapter is necessary in order for you to fully explore the subject being discussed. Homework assignments are to be completed by the first class period after they are assigned in the syllabus. Book assignments will be done on-line, and submitted on-line. Other work will be due in class.
- 2) You are to keep a Math Journal. It will be worth 80 points. Your journal will be in a 3-ring notebook (at least 2 inches) with 4 dividers. The 4 dividers will be labeled: Articles, Homework, Notes/Vocabulary, and Participation/Reflections. You may choose to have a 5th divider for 'Masters.'
- 3) There will be three announced exams and each will be worth around 200 points. The final will be comprehensive (Chapters 1-7) and will be worth 200 points as well.
- 4) You will create a project on Fractions (worth 200 points). It will be counted as a Performance Assessment. More information and a rubric will be given in class.
- 5) The total point distribution will be approximately 1200 points.

All information for this course is posted on Canvas.



**Grading Policy:** Grades will be based on the ratio of earned points to possible points. The points are divided into the following categories:

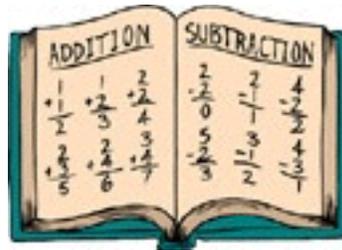
Homework	150 points
Professional Articles	60 points
Journal	80 points
Chapter Reflections	70 points
Participation/Attendance	30 points
Exam 1(Chap 1 and 2)	200 points
Exam 2(Chap 3 and 4)	200 points
Exam 3(Chap 5 and 6)	200 points
Exam 4(Chap 7/Final)	200 points (failure to take, drops grade 1 full letter grade)
Fraction Project	200 points (failure to submit, drops grade 1 full letter grade)

**Grade Scale:** Grades will be assigned by a total percentage earned divided by the total possible. The usual assignment of grades by percentage is as follows:

100 - 94	A	79 - 77	C+
93 - 90	A-	76 - 74	C
89 - 87	B+	73 - 70	C-
86 - 84	B	69 - 60	D
83 - 80	B-	Below 59	F

(I reserve the right to make changes in this syllabus if I think that such changes will enhance your learning more effectively than the original plan).

**Additional Materials needed for Math 2010: colored pencils, scissors, ruler, and glue stick.**



## PROFESSIONAL ARTICLE REVIEW REQUIREMENTS

You will read 3 articles that will be given to you in class (also posted on Canvas). For each article review you will:

- Read the article
- Make a title page with the article title, author, your name, course name, and date. Center this horizontally and vertically.
- Write a review that:
  - Is 1.5 pages to 2 pages
  - Is typed and double spaces
  - Answers the questions: “What I learned” and “How I’ll use this information in my classroom”

Article #1: “Never Say Anything a Kid Can Say!” by Steven C. Reinhart. This article review is due January 20, 2015.

Article #2: “Making Sense of Fractions and Percents” by David Whitin and Phyllis

Whitin. This article is due \_\_\_\_\_.

Article #3: “Leading Classroom Discussions” by Gloriana Gonzalez and Anna F.

DeJarnette. This article is due \_\_\_\_\_.

## All About Fractions Project

This project will have the same value as a test (200 points). You will work on this project out of class. It will be due on Tuesday, \_\_\_\_\_. You will share the completed project with the class as a presentation. You do not need to provide copies for everyone.

Fractions is one of the concepts that many students (and teachers) struggle. We will be discussing different approaches to teaching fractions during chapters 5 and 6.

Be creative and make something that will help you teach fractions for the grade level that you are focusing on. Some ideas (not limited to the list below) are:

- 1) An alphabet book of fractions
- 2) Songs about fractions
- 3) Photos of fractions in our world
- 4) A fraction quilt
- 5) A movie about fractions
- 6) A powerpoint or prezi on fractions

Let your imagination be your limit! I'm looking forward to seeing some awesome, creative projects.

4	3	2	1
Project is applicable for described grade level. Meets the needs of fitted and special needs children.	Project is applicable for described grade level.	Project is too advanced or too elementary for stated grade level. Needs some adjustments.	No grade level is indicated.
Project shows a great deal of creativity in how fractions can be taught to students.	Project shows an adequate amount of creativity.	Project is like many other fraction programs.	Project shows no creativity.
Project is engaging for students.	Project is generally engaging. Could be improved upon.	Project has some engaging components.	Project is not engaging.
Project is teacher friendly. It is easy to use, once its made.	Project is easy to use, but requires extra teacher prep time each time its used.	Project takes time, extra materials, extra prep time.	Project will take additional time to prepare and use.