Math 215: Mathematics for Elementary and Middle School Teachers III
Spring 2017   Section 501, T & TH 3:00 PM – 4:15 PM   B-119
Syllabus

Instructor: Jinxia Xie   **Office:** A-123   **Office Phone:** 505-925-8607

Email: jxie@unm.edu or send a message in Blackboard Learn. I will check email regularly unless I am out of town. Expect a response within 24 hours to email messages.

Office Hours:
    A-123:   M 10:30 am – 12:00 pm,   1:00 pm – 2:30 pm; T 10:30 am – 11:30 am
    Math Center: W 10:30 am – 12:00 pm,   1:00 pm – 2:30 pm; or by appointment

Course Description: This course focuses on algebra from the viewpoint of the elementary curriculum with emphasis on proportional and linear relationships. It also includes topics from probability and statistics with connections to other topics in the elementary curriculum. Problem solving is emphasized throughout.

Prerequisite: C or better in Math 111.

Textbook/Materials: Beckman, Sybilla, *Mathematics for Elementary Teachers*, 4th edition.

Internet access is required. I will be posting all homework assignments, projects, as well as many additional readings, messages, and other communications in Learn. In addition, you should purchase the following tools:
- Scientific calculator
- Ruler (with both American Standard and Metric units)
- Grid or graph paper
- Colored pencils, pencil and eraser.

Course Grade
Your Course Grade will come from:
- Attendance and class participation   10%
- Homework assignments   20%
- Group projects   10%
- Unit tests   30%
- Portfolio   10%
- Final exam   20%

Depending on the grading option you have chosen, your final course grade will be determined as follows:
- You will receive an A in the course if you have a weighted average of 90% or better.
- You will receive a B in the course if you have a weighted average of 80% to 89%.
- You will receive a C in the course if you have a weighted average of 70% to 79%.
- You will receive a D in the course if you have a weighted average of 60% to 69%.
- You will receive an F in the course if you have a weighted average less than 60%.

I do not usually give a + grade unless you are on the borderline between two letters in which case I may give the C+ for example instead of the B-. ***You can resubmit any graded assignment <u>once</u> for a higher score if you would like, this includes unit tests but resubmissions are due within a week of when you received it back graded.*** Due dates for all assignments will be announced in class.

Attendance and class participation: : 10% of your course grade

The goal of this class is to understand the mathematical concepts. Many different pedagogical approaches will be used to help you understand the mathematical content. Calculators, computers and manipulatives will be used extensively. You will participate in numerous group projects and exploratory lessons. If you miss three (3) consecutive class periods, you may be dropped from the course.

Homework assignments: 20% of your course grade

Homework assignments will be given from the textbook to reinforce the concepts learned in class. The assigned exercises are considered the minimum requirement for each section. Students are expected to attempt all problems. Students will have the opportunity to meet with classmates and discuss homework problems in class. Students should also seek assistance if necessary from the instructor, other students, or a tutor in Learning Center. All homework assignments should be turned in at the announced time. I will give extensions for three assignments without need for documentation, meaning you can turn them in one class period late for full credit. **I will not accept original assignments that are more than a week late.**

Group projects: 10% of your course grade

At least three group projects will be assigned during this semester. Students are expected to complete the project in small groups (three to four students as a group) either inside or outside of the class. Students will have opportunity to set up groups and discuss plans in class. The due date for each project will be announced.

Unit tests: 30% of your course grade

There will be three unit tests which will collectively count for 30% of your course grade. All exams must be taken on the date scheduled. Arrangements must be made with the instructor if an emergency situation arises which prohibits you from taking a scheduled exam.

Portfolio: 10% of your course grade

Keep an organized notebook that includes all notes, journal entries, assignments and projects, in-class and out-of-class. You will be asked to organize these assignments in a way that is meaningful to you. At the end of the semester you will also be asked to complete a final self-assessment of your work based on these assignments.

Final exam: 20% of your course grade

Final exam will have a group test followed by individual test. The group test will take 30 min out of two hours of the test time, while the individual test will take one and half hours. Details for this will be given separately

Tools for Success

- Plan right now to spend an average of 9 hours per week outside of class doing homework and preparing your unit tests.
- Study groups are a good option. But, do not copy assignments from each other that are to be done individually.
- I have posted face-to-face office hours and am also available online. If the posted times are not convenient for you, let me know and we can schedule a mutually agreeable time. Let me know if you plan to attend office hours so I don't run off to the copy room or something.
- You may find it helpful to exchange phone numbers with a classmate in case you miss a class.

Plagiarism and Not Doing Your Own Work

It's a bad idea to plagiarize or to have other people do your work for you. Refer to the UNM-Valencia Catalog for the campus policy on "Dishonesty in Academic Matters." If I receive assignments from two or more people that are supposed to be done individually (for example, the homework assignments and unit tests) that are basically identical, you will *all* receive a zero for that assignment.

ADA and Students with Disabilities

If you have a documented disability, please provide me with a copy of your letter from Equal Access Services as soon as possible to ensure that your accommodations are provided in a timely manner. The person to call for evaluation and documentation is Jeanne Lujan at (505)925-8910. Also, here is their web site so you can check out accommodations and support that is available to you: http://www.unm.edu/~vcadvise/equalaccess.htm .

Title IX Statement

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see pg 15 - http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: https://policy.unm.edu/university-policies/2000/2740.html.

Student Learning Outcomes

Course Goal #1: Communication
Addresses UNM core area 2/ HED area II: Mathematics (Other College-Level Mathematics)

> **SLO 1:** Students will be able to communicate mathematical ideas and concepts in oral form
> **SLO 2:** Students will be able to communicate mathematical ideas and concepts in written form
> **SLO 3:** Students will use mathematically correct terminology and notation
> **SLO 4:** Students will be able to collect, organize, interpret, and present information relevant to the mathematics teaching field

Course Goal #2: Understand Ratios and Proportion
Addresses UNM core area 2/ HED area II: Mathematics (Other College-Level Mathematics)

> **SLO 1:** Students will be able to identify relationships that are proportional
> **SLO 2:** Students will be able to represent ratios in multiple ways such as pictures or diagrams, equations, and graphs
> **SLO 3:** Students will be able to understand percent as a specific kind of ratio
> **SLO 4:** Students will use ratio and proportionality to solve a variety of applied problems, e.g. percent, discount, and interest problems

Course Goal #3: Understand Algebraic Concepts of the K-8 Curriculum
Addresses UNM core area 2/ HED area II: Mathematics (Other College-Level Mathematics)

> **SLO 1:** Students will be able to represent problem situations with algebraic expressions and equations
> **SLO 2:** Students will understand and interpret slope as a rate-of-change
> **SLO 3:** Students will be able to translate among verbal, tabular, graphical, and algebraic representations of linear functions and describe how slope and intercepts appear in different representations
> **SLO 4:** Students will be able to use systems of equations to solve applied problems

Course Goal #4: Represent and Interpret Data
Addresses UNM core area 2/ HED area II: Mathematics (Other College-Level Mathematics)

> **SLO 1:** Students will be able to represent data in different ways such as tables and bar graphs or histograms, line graphs, circle graphs, and box-and-whisker plots
> **SLO 2:** Students will use descriptive statistics including mean, median and range to summarize and compare data sets
> **SLO 3:** Students will be able to use proportions to make estimates related to a population on the basis of a sample

Course Goal #5: Understand the Basic Concepts of probability

> **SLO 1:** Students will be able to distinguish between theoretical and experimental probability
> **SLO 2:** Students will use theoretical probability and proportions to make approximate predictions
> **SLO 3:** students will be able to make and identify connections between the concept of ratio and the concepts of probability

Tentative Course Outline

Week	Chapter

1
1/17 – 1/19

Chapter 9   Algebra

2
1/24 – 1/26

Chapter 9   Algebra
Group Project: Algebra Tile Explorations
1/27   Last day to ADD sections and CHANGE credit hours on LoboWEB.

3
1/31 – 2/2

Chapter 9   Functions and Algebra
Group Project: Solving Equations
2/3 Last day to DROP without "W" grade and 100% tuition refund on LoboWeb.

4
2/7 – 2/9

Chapter 9   Algebra
Group Project: Exploring Sequences and Series

5
2/14 – 2/16

Chapter 9   Algebra
Group Project: Graphs: Walk the Walk

6
2/21 – 2/23

Chapter 7   Proportional Reasoning Explorations
Out-of-class Project (No class on 2/23)

7
2/28 - 3/2

Review for Test
Unit Test 1

8
3/7 – 3/9

Chapter 15   Statistics
Group Project: Random Sampling Activity
3/12 – 3/19   SPRING BREAK

9
3/21 – 3/23

Chapter 15   Statistics
Group Project: Interpreting Graphs and Data Abuse

10
3/28 – 3/30

Chapter 15   Statistics
Review for Test
 Project: How Long is Your Name?
Group Project: Using calculators to explore averages and standard deviation

11
4/4 – 4/6

Unit Test 2
Chapter 16   Probability
Group Project: Exploring Probability with M&M's

12 4/11 – 4/13	Chapter 16 Probability Group Project: Rock, Paper, Scissors **4/14 Last day to DROP without Dean's Permission on LoboWEB.**
13 4/18 - 4/20	Chapter 16 Probability Review for Test
14 4/25 – 4/27	**Unit Test 3**
15 5/2 – 5/4	Presentations and Review for Final **5/5 Last day to DROP with Dean's Permission with form.**
16 5/11	**FINAL EXAM Thursday, May 11, 3:00 pm – 5:00 pm**