Course Description: Algebra from the viewpoint of the elementary curriculum with emphasis on proportional and linear relationships. Also included: 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, scientific calculator, graph paper, and ruler

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

Attendance Policy: Students are expected to attend class regularly. Being absent 15% of the total class hours is considered excessive. A record of attendance will be kept by the instructor. One or more group projects will be done each class. The benefit of working with a group and learning from group members with hands-on materials is hard to simulate outside of class. Therefore, no late work will be accepted; however, at least one project grade will be dropped before computing your final grade.

Grading Policy: Grades will be based on the following:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Grade Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>Exams</td>
<td>50%</td>
<td>91 - 100</td>
<td>A</td>
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<tr>
<td>Group Projects and HW</td>
<td>15%</td>
<td>81 - 90</td>
<td>B</td>
</tr>
<tr>
<td>Portfolio*</td>
<td>10%</td>
<td>71 - 80</td>
<td>C</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
<td>61 - 70</td>
<td>D</td>
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<td>0 - 60</td>
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*If you have less than 2 absences, you may be excused from doing the portfolio.

Requirements:
1. Attend class and participate. 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.

2. 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. Textbook assignments are meant to be self-checking. Students are expected to attempt all problems. Students will have the opportunity to meet with classmates each class to discuss homework and selected problems will be done in class. Students should also seek assistance if necessary from the instructor, other students, or a tutor in the Enrichment Center. All homework assignments should be completed at the time of the exam. Homework will be collected the day of the exam.

3. 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.

4. Keep an organized notebook that includes all notes, journal entries, assignments and projects.

5. Stay current on all assignments. The schedule is tentative and additions or deletions may be made in class. (Note: You may find it helpful to exchange phone numbers with a classmate in case you miss a class.)

6. We accommodate students with documented disabilities. During the first two weeks of the semester, those students should inform the instructor of their particular needs.

Tentative Course Outline

<table>
<thead>
<tr>
<th>Week</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>1</td>
<td>Chapter 9  Algebra</td>
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<tr>
<td>1/19 – 1/21</td>
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<tr>
<td>2</td>
<td>Chapter 9  Algebra</td>
</tr>
<tr>
<td>1/26 – 1/28</td>
<td>Group Project: Algebra Tile Explorations</td>
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<tr>
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<td>1/29 Last Day to add courses or change sections</td>
</tr>
<tr>
<td>3</td>
<td>Chapter 9 Functions and Algebra</td>
</tr>
<tr>
<td>2/2 – 2/4</td>
<td>Group Project: Solving Equations</td>
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<tr>
<td></td>
<td>2/5 Last Day to Drop with a Refund and Without a Grade</td>
</tr>
</tbody>
</table>
Chapter 9 Algebra
2/9 – 2/11
Group Project: Exploring Sequences and Series
2/12 Last day to change grading options

Chapter 9 Algebra
2/16 – 2/18
Group Project: Graphs: Walk the Walk
Group Project: Chalk Board Globs Game

Chapter 7 Proportional Reasoning Explorations
2/23 – 2/25

Review for Test
3/1 – 3/3
EXAM 1

Chapter 15 Statistics
3/8 – 3/10
Group Project: Monday Blues Random Sampling Activity
Homework: Watch cartoons
3/13 – 3/20 SPRING BREAK

Chapter 15 Statistics
3/22 – 3/24
Group Project: Interpreting Graphs and Data Abuse
Group Project: Cartoon Graphs

Chapter 15 Statistics
3/29 – 3/31
Project: How Long is Your Name?
Group Project: Using calculators to explore averages and standard deviation

EXAM 2
4/4 – 4/7
Chapter 16 Probability
Group Project: Happy Birthday Exploration
Group Project: Exploring Probability with M&M’s

Chapter 16 Probability
4/12 – 4/14
Group Project: Two Dice Sum Game
Group Project: Rock, Paper, Scissors
4/10 Last day to withdraw without approval

Chapter 16 Probability
4/19 - 4/21

EXAM 3
4/26 – 4/28

Presentations and Review for Final
5/3 – 5/5

FINAL EXAM Thursday, May 12, 2016, 1:30-3:30