Syllabus
University of New Mexico Valencia Campus
Mathematics for Elementary and Middle School Teachers III
Math 215
Spring 2007

Instructor: Julie DePree, Ph.D.   Office: Academic Building A-142C
Phone: 925-8607    E-Mail: jdepree@unm.edu
Office Hours: T&TH 12:00-2:00 and 9:45-10:15 Website: www.unm.edu/~jdepree
W 12:00-1:30 and 1:30-3:00 every 4th
and 5th W or by appointment

Course Description: Topics to be covered in Math 215 include; probability, statistics, algebra,
measurement, coordinate geometry, applications in mathematics, elements of logic and introduction
to computers. Multiple modes of teaching and assessment will be used using the NCTM Standards as
a guide. The goal of this course is to gain a deep understanding of the mathematical concepts
through a hands-on, project based approach.

Prerequisite: C or better in Math 111 and Math 112

Textbook/Materials: Sonnabend, Thomas. Mathematics for Elementary Teachers: An Interactive
Approach. 3rd Edition, scientific calculator, graph paper, and ruler

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>
</tr>
</thead>
<tbody>
<tr>
<td>Exams</td>
<td>50%</td>
<td>91 - 100</td>
</tr>
<tr>
<td>Group Projects</td>
<td>15%</td>
<td>81 - 90</td>
</tr>
<tr>
<td>Portfolio*</td>
<td>10%</td>
<td>71 - 80</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
<td>61 - 70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 - 60</td>
</tr>
</tbody>
</table>

* If you have no 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.)

Major Course Objectives:

1. The student will do experiments in class to determine probabilities.
2. The student will use stem and leaf plots, frequency tables, pictographs, and circle graphs to depict statistics.
3. The student will determine the mean, median, and mode for a data set.
4. The student will calculate and understand the meaning of the standard deviation and the variance from a set of data.
5. The student will graph functions.
6. The student will translate words into algebraic expressions, translate tables and graphs into equations.
7. The student will solve problems with formulas, tables, and graphs.
8. The student will explore the use of computers.
9. The student will investigate systems of measurement and use them.
10. The student will learn how to find area, volumes, and lengths for various figures.

* Students with special needs please see me as soon as possible to ensure that needs are met in a timely manner.
### Tentative Course Outline

<table>
<thead>
<tr>
<th>Week</th>
<th>Chapter</th>
</tr>
</thead>
</table>
| 1    | Introduction to Course and Group Work  
1/17  | Chapter 10 Measurement  
Introducing the Metric System  
Assignment: Metric Scavenger Hunt |
| 2    | Chapter 10 Measurement  
1/24  | Group Project: Exploring Area and Perimeter with Geoboards  
Group Project: Exploring Pi  
1/26 Last day to add courses or change sections |
| 3    | Chapter 10 Measurement  
1/31  | Group Project: Discovering the Pythagorean Theorem  
Group Project: Toothpicks and Raisins Pyramids and Prisms  
Group Project: Squash Ball Containers  
2/2 Last day to add courses or change sections |
| 4    | EXAM 1  
2/7   | Group Project: Algebra Tile Explorations  
2/9 Last day to drop with a refund |
| 5    | Introduction to Functions  
2/14  | Chapter 11 Algebra and Coordinate Geometry  
Group Project: Coordinate Puzzle  
Group Project: Graphing Calculator Explorations of Functions  
Group Project: Chalk Board Globs Game |
| 6    | Chapter 11  
2/21  | Project: Explorations with Graphing Calculators and CBL  
Group Project: Identifying Qualitative Graphs  
2/23 Last day to drop a course without a grade |
| 7    | Chapter 11  
2/28  | Working with Algebraic Equations  
Group Project: Using Algebraic Equations in Physical Education  
(Bring tennis shoes for a trip to the gym!!) |
<p>| 8    | EXAM 2 |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Chapter</th>
<th>Activity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/7</td>
<td>Chapter 12 Statistics</td>
<td>Introduction to Graphs</td>
<td>Group Project: Interpreting Graphs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><em>Homework: Watch cartoons</em></td>
</tr>
<tr>
<td>3/11</td>
<td></td>
<td></td>
<td><em>3/11-3/18 Spring Break</em></td>
</tr>
<tr>
<td>3/14</td>
<td>Chapter 12 Statistics</td>
<td>Group Project: Cartoon Graphs</td>
<td>Group Project: Data Abuse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Group Project: What Color are You Wearing?</td>
</tr>
<tr>
<td>3/21</td>
<td>Chapter 12 Statistics</td>
<td>Project: How Long is Your Name?</td>
<td>Group Project: Using calculators to explore averages and standard deviation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapter 13 Probability</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Group Project: Happy Birthday Exploration</td>
</tr>
<tr>
<td>4/4</td>
<td>Chapter 13 Probability</td>
<td>Group Project: Exploring Probability with M &amp; M's</td>
<td></td>
</tr>
<tr>
<td>4/11</td>
<td>Chapter 13 Probability</td>
<td>Group Project: Two Dice Sum Game</td>
<td>Group Project: Rock, Paper, Scissors</td>
</tr>
<tr>
<td>4/19</td>
<td>EXAM 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/24</td>
<td></td>
<td>Presentations and Review for Final</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>FINAL EXAM</td>
<td>Wednesday, May 9, 2006, 3:00-5:00</td>
<td></td>
</tr>
</tbody>
</table>