**1. COURSE TITLE:** Math for the Elementary Teacher II

**2. CATALOG – PREFIX/COURSE NUMBER/COURSE SECTION\*:** MATH 2238

**3. PREREQUISITE\*:** One of the following:

* Math 118 or Math 1118
* Three years of college preparatory math with a grade of C or

Above

**4. COURSE TIME/LOCATION/MODALITY: (Course Syllabus – Individual Instructor Specific)**

**5. CREDIT HOURS\*:** 4 **LECTURE HOURS\*:** 4

**LABORATORY HOURS\*:** 0 **OBSERVATION HOURS\*:** 0

**6. FACULTY CONTACT INFORMATION: (Course Syllabus – Individual Instructor Specific)**

**7. COURSE DESCRIPTION\*:**

This course includes math topics that are fundamental to elementary education. Topics include a review of statistics, probability, Euclidean geometry, measurement, and transformations, with an emphasis on the use of manipulatives and visual representations to teach elementary mathematics.

**8. LEARNING OUTCOMES\*:**

At the completion of this course the student will be able to:

1. Use and interpret appropriate language and symbols for mathematics.
2. Interpret and solve problems using appropriate problem-solving techniques and models.
3. Use manipulatives, pictures, diagrams, and games to explain mathematical concepts.
4. Demonstrate a knowledge of the mathematics standards for the elementary curriculum.
5. Demonstrate an understanding of probability and counting techniques
6. Demonstrate an understanding of the various aspects of statistics including sampling, displaying data, statistical inference, and descriptive statistics
7. Use attributes to identify and classify geometric shapes.
8. Demonstrate an understanding of angles and their connection to parallel lines and geometric shapes
9. Demonstrate ideas of congruence and similarity and use these concepts to solve problems.
10. Understand and perform constructions using a compass.
11. Use coordinate geometry.
12. Understand different systems of measurement and use dimensional analysis to perform conversions.
13. Compute accurate measurements of perimeter, area, and volume.
14. Demonstrate an understanding of transformations.

9**. ADOPTED TEXT(S):**

*A Problem Solving Approach to Mathematics for Elementary School Teachers*

13th edition

Rick Billstein, Barbara Boschmans, Shlomo Libeskind, and Johnny W. Lott

Pearson 2020.

ISBN (loose-leaf): 9780135184172

ISBN (eText): 9780136880141

**10. OTHER REQUIRED MATERIALS: (SEE APPENDIX C FOR TECHNOLOGY REQUEST FORM.)\*\***

A calculator that can perform basic arithmetic operations is required.

**11. GRADING\*\*\*:**

Grading will follow the policy in the catalog. The scale is as follows:

A: 90 – 100

B: 80 – 89

C: 70 – 79

D: 60 – 69

F: Below 60

**12.** **GRADING PROCEDURES OR ASSESSMENTS: *(Course Syllabus- Individual Instructor Specific)***

* 70% - 80% of the student’s grade should be based on assessments (homework, quizzes, or tests) that cover the mathematical content from the K-8 Common Core standards.
* 20% - 30% of the student’s grade should be based on projects, papers, and/or presentations.

**EXAMPLES BELOW:**

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| --- |
| *Example 1 - By Percent* |
| Homework 10%  Quizzes/Tests 65%  Project 15%  Presentation 10%  Total 100% |

|  |  |  |
| --- | --- | --- |
| *Example 2* | | |
| *Category* | *By Total Points* | *% of Grade* |
| Homework (20x10) | 200 | 10% |
| Quizzes/Tests (5x360) | 1800 | 90% |
| Total | 2000 | 100% |

|  |  |  |
| --- | --- | --- |
| *Example 3* | | |
| *Category* | *By Total Points* | *% of Grade* |
| Online Quizzes | 400 | 10% |
| Online Tests (6x100) | 600 | 15% |
| Notebook (2x500) | 1000 | 25% |
| Midterm | 1000 | 25% |
| Final | 1000 | 25% |
| Total | 4000 | 100% |

**13. COURSE METHODOLOGY: *(Course Syllabus – Individual Instructor Specific)***

The course design provides instruction and materials to support the course objectives. Classes may consist of a variety of means to accomplish this including but not limiting to: lectures, class discussions, small group projects, supplemental materials, and outside assignments. Practice is an important part of the learning process. For every one hour of class time, two additional hours of study time should be expected.

**14. COURSE OUTLINE:** ***(Course Syllabus – Individual Instructor Specific)***

Chapter 9: Probability

9.1 Determining Probabilities (obj. 1, 4, 5)

9.2 Multistage Experiments and Modeling Games (obj. 3, 5)

9.3 Simulations and Applications in Probability (obj. 3, 5)

9.4 Counting and Techniques in Probability (obj. 3, 5)

Chapter 10: Data Analysis/Statistics: An Introduction

10.1 Designing Experiments/Collecting Data (obj. 2, 6)

10.2 Displaying Data: Part I (obj. 6)

10.3 Displaying Data: Part II (obj. 6)

10.4 Measures of Central Tendency and Variation (obj. 6)

Chapter 11: Introductory Geometry

11.1 Basic Notions (obj. 7, 8)

11.2 Curves, Polygons, and Symmetry (obj. 7, 8, 9)

11.3 More About Angles (obj. 8)

11.4 Geometry in Three Dimensions (obj. 7, 8)

Chapter 12: Congruence and Similarity with Constructions

12.1 Congruence Through Constructions (obj. 9, 10)

12.2 Additional Congruence Theorems (obj. 9)

12.3 Additional Constructions (obj. 10)

12.4 Similar Triangles and Other Similar Figures (obj. 9)

Chapter 13: Area, Pythagorean Theorem, and Volumes

13.1 Linear Measure (obj. 12)

13.2 Areas of Polygons and Circles (obj. 13)

13.3 The Pythagorean Theorem, Distance Formula, and Equation of a Circle (obj. 11)

13.4 Surface Areas (obj. 13)

13.5 Volume and Mass (obj. 13)

Chapter 14: Transformations

14.1 Translations, Rotations, and Tessellations (obj. 11, 14)

14.2 Reflections and Glide Reflections (obj. 11, 14)

14.3 Dilations (obj. 11, 14)

**15. SPECIFIC MANAGEMENT REQUIREMENTS\*\*\*:**

Students are expected to complete projects and demonstrations that directly relate to teaching mathematics in elementary schools.

Proposed timeline for meeting the course objectives.

Week 1: Chapter 9

Week 2: Chapter 9

Week 3: Chapter 10

Week 4: Chapter 10

Week 5: Chapter 10

Week 6: Chapter 11

Week 7: Chapter 11

Week 8: Chapter 12

Week 9: Chapter 12

Week 10: Chapter 12

Week 11: Chapter 13

Week 12: Chapter 13

Week 13: Chapter 13

Week 14: Chapter 14

Week 15: Chapter 14

Week 16: Finals

**16. FERPA:\***

Students need to understand that your work may be seen by others. Others may see your work when being distributed, during group project work, or if it is chosen for demonstration purposes. Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

**17. DISABILITIES:\***

Students with disabilities may contact the Disability Services Office, Central Campus, at 800-628-7722 or 937-393-3431.

**18. OTHER INFORMATION\*\*\*:**

**SYLLABUS TEMPLATE KEY**

**\*** Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

**\*\*** Any alteration or addition must be approved by the Curriculum Committee

**\*\*\*** Item should begin with language as approved in the master syllabus but may be added to at the discretion of the faculty member.