

## Administrative Master Syllabus

### Course Information

<b>Course Title</b>	Mathematics for Teachers II (Fundamentals of Mathematics II)
<b>Course Prefix, Num. and Title</b>	MATH 1351
<b>Division</b>	Math & Physical Sciences
<b>Department</b>	Mathematics
<b>Course Type</b>	Academic WCJC Core Course
<b>Course Catalog Description</b>	This course is intended to build or reinforce a foundation in fundamental mathematics concepts and skills. It includes the concepts of geometry, measurement, probability, and statistics with an emphasis on problem solving and critical thinking.
<b>Pre-Requisites</b>	MATH 1314 – College Algebra
<b>Co-Requisites</b>	None

### Semester Credit Hours

<b>Total Semester Credit Hours (SCH): Lecture Hours:</b>	3:3:0
<b>Lab/Other Hours</b>	
<b>Equated Pay Hours</b>	3
<b>Lab/Other Hours Breakdown: Lab Hours</b>	0
<b>Lab/Other Hours Breakdown: Clinical Hours</b>	0
<b>Lab/Other Hours Breakdown: Practicum Hours</b>	0
<b>Other Hours Breakdown</b>	0

### Approval Signatures

Title	Signature	Date
<b>Department Head:</b>		
<b>Division Chair:</b>		
<b>VPI:</b>		

## Additional Course Information

**Topical Outline:** Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

### Unit 1 – Probability

Section 9.1 – Determining Probabilities

Section 9.2 – Multistage Experiments and Modeling Games

Section 9.3 – Simulations and Applications in Probability

Section 9.4 – Permutations and Combinations in Probability

### Unit 2 – Data Analysis and Statistics

Section 10.1 – Designing Experiments/Collecting Data

Section 10.2 – Displaying Data: Part I

Section 10.3 – Displaying Data: Part II

Section 10.4 – Measures of Central Tendency and Variation

### Unit 3 – Geometry; Congruency and Similarity

Section 11.1 – Basic Notions

Section 11.2 – Curves, Polygons, and Symmetry

Section 11.3 – More About Angles

Section 11.4 – Geometry in Three Dimensions

Section 12.1 – Congruence Through Constructions

Section 12.2 – Additional Congruence Theorems

Section 12.3 – Additional Constructions

Section 12.4 – Similar Triangles and Other Similar Figures

### Unit 4 – Area, Pythagorean Theorem, and Volume

Section 13.1 – Linear Measure

Section 13.2 – Areas of Polygons and Circles

Section 13.3 – The Pythagorean Theorem, Distance Formula, and Equation of a Circle

Section 13.4 – Surface Areas

Section 13.5 – Volume, Mass, and Temperature

### Unit 5 – Transformations

Section 14.1 – Translations, Rotations, and Tessellations

Section 14.2 – Reflections and Glide Reflections

Section 14.3 - Dilations

## Course Learning Outcomes:

### Learning Outcomes – Upon successful completion of this course, students will:

1. Apply fundamental terms of geometry such as points, lines, and planes to describe two and three dimensional figures.
2. Make and test conjectures about figures and geometric relationships.
3. Use a variety of methods to identify and justify congruency and similarity of geometric objects.
4. Perform geometry transformations.
5. Demonstrate fundamental probability techniques and apply those techniques to solve problems.
6. Explain the use of data collection and statistics as tools to reach reasonable conclusions.
7. Recognize, examine, and utilize the basic principles of describing and presenting data.

8. Perform measurement processes and explain the concept of a unit of measurement.
9. Develop and use formulas for the perimeter, area, and volume for a variety of figures.

**Methods of Assessment:**

Final Exam (Required)

Other Methods of Assessment:

- Hour Exams
- Homework
- Quizzes
- Short Answer
- Discussion Board
- Participation
- Projects

**Required text(s), optional text(s) and/or materials to be supplied by the student:**

“A Problem Solving Approach to Mathematics for Elementary School Teachers” by Billstein/Libeskind/Lott, Pearson, 13<sup>th</sup> edition.

Students must have computer access to the WCJC website, their WCJC student email and online accounts. WCJC has open computer labs, with internet access, on all campuses for students to use.

**Suggested Course Maximum:**

35

**List any specific or physical requirements beyond a typical classroom required to teach the course.**

None

**Course Requirements/Grading System:** Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

- A. Final Exam: 15 – 30%
- B. Other Course Requirements: 70 – 85%

A = 90 – 100

B = 80 – 89

C = 70 – 79

D = 60 – 69

F = 59 or below

**Curriculum Checklist:**

- Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
- Administrative WCJC Core Course** – Attach the Core Curriculum Review Forms
  - Critical Thinking
  - Communication
  - Empirical & Quantitative Skills



***Wharton County  
Junior College***

- Teamwork
- Social Responsibility
- Personal Responsibility

**WECM Course** – If needed, revise the Program SCANS Matrix and Competencies Checklist

## Core Curriculum Review Form

**Foundational Component Area:** Core 020: Mathematics

**Course Prefix & Suffix:** MATH 1351 - Mathematics for Teachers II

**Core Objective:**

**Critical Thinking Skills**—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

### Student Learning Outcome Supporting Core Objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Demonstrate fundamental probability techniques and apply those techniques to solve problems. (SLO 5)	A word problem (application) where the student must identify variables, assemble the correct formulas and solve for the desired result, including a brief paragraph explaining what was done.	A quiz, test, or discussion board artifact showing the student's written answer. Grading for correctness and the rubric for critical thinking will assess this objective.
Choose a SLO status.	Insert SLO (from Administrative Master Syllabi)	Provide a brief name and description of the sample learning activity.	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective.
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### Core Curriculum Review Form

**Foundational Component Area:** Core 020: Mathematics

**Course Prefix & Suffix:** MATH 1351 - Mathematics for Teachers II

**Core Objective:**

**Communication Skills**—to include effective development, interpretation and expression of ideas through written, oral and visual communication

**Student Learning Outcome Supporting Core Objective:**

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Demonstrate fundamental probability techniques and apply those techniques to solve problems. (SLO 5)	A word problem (application) where the student must identify variables, assemble the correct formulas and solve for the desired result, including a brief paragraph explaining what was done.	A quiz, test, or discussion board artifact showing the student’s written answer. Grading for correctness and the rubric for critical thinking will assess this objective.
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## Core Curriculum Review Form

**Foundational Component Area:** Core 020: Mathematics

**Course Prefix & Suffix:** MATH 1351 - Mathematics for Teachers II

**Core Objective:**

**Empirical and Quantitative Skills**—to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

### Student Learning Outcome Supporting Core Objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Demonstrate fundamental probability techniques and apply those techniques to solve problems. (SLO 5)	A word problem (application) where the student must identify variables, assemble the correct formulas and solve for the desired result, including a brief paragraph explaining what was done.	A quiz, test, or discussion board artifact showing the student's written answer. Grading for correctness and the rubric for critical thinking will assess this objective.
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