



Course Information

Course Title	Mathematics for Teachers II (Fundamentals of Mathematics II)
Course Prefix, Num. and Title	Math 1351
Division	Math & Physical Sciences
Department	Mathematics
Course Type	Academic WCJC Core Course
Course Catalog Description	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.
Pre-Requisites	Math 1314- College Algebra
Co-Requisites	None

Semester Credit Hours

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

Approval Signatures

Title	Signature	Date
Prepared by:		
Department Head:		
Division Chair:		
Dean/VPI:		
Approved by CIR:		

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

- 9-1 Determining Probabilities
- 9-2 Multistage Experiments and Modeling Games
- 9-3 Simulations and Applications in Probability
- 9-4 Permutations and Combinations in Probability

Unit 2: Data Analysis and Statistics

- 10-1 Designing Experiments/Collecting Data
- 10-2 Displaying Data: Part I
- 10-3 Displaying Data: Part II
- 10-4 Measures of Central Tendency and Variation

Unit 3: Geometry; Congruency and Similarity

- 11-1 Basic Notions
- 11-2 Curves, Polygons, and Symmetry
- 11-3 More About Angles
- 11-4 Geometry in Three Dimensions
- 12-1 Congruence Through Constructions
- 12-2 Additional Congruence Theorems
- 12-3 Additional Constructions
- 12-4 Similar Triangles and Other Similar Figures

Unit 4: Area, Pythagorean Theorem, and Volume

- 13-1 Linear Measure
- 13-2 Areas of Polygons and Circles
- 13-3 The Pythagorean Theorem, Distance Formula, and Equation of a Circle
- 13-4 Surface Areas
- 13-5 Volume, Mass, and Temperature

Unit 2: Transformations

- 14-1 Translations, Rotations, and Tessellations
- 14-2 Reflections and Glide Reflections
- 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 geometric 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, 13th 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
- Teamwork
- Social Responsibility
- Personal Responsibility

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



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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Date: 11-21-2019



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 communication 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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Date: 11-21-2019



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 EQS 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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Date: 11-21-2019