

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u>Mathematics</u>
COURSE RUBRIC AND NUMBER	<u>MATH 1350</u>
COURSE TITLE	<u>Mathematics for Teachers I</u> <u>(Fundamentals of Mathematics I) (F)</u>
COURSE CREDIT HOURS	<u>3 3 :</u> <u>Credits Lec Lab</u>

I. Catalog Description

This course is intended to build or reinforce a foundation in fundamental mathematics concepts and skills. It includes the conceptual development of the following: sets, functions, numeration systems, number theory, and properties of the various number systems with an emphasis on problem solving and critical thinking. This course is designed specifically for students who seek teacher certification. **Prerequisite: MATH 1314 or 1324 or 1342 with a "C" or better. (3:0).**

II. Course Objectives

Upon satisfactory completion of the course, the student will be able to:

- A. Unit I: Critical thinking
 - 1. Solve problems using Polya's problem solving principles.
 - 2. Solve problems by introducing and using variables.

- B. Unit II: Sets, whole numbers, and functions
 - 1. Use correct terminology and notation to represent information about sets.
 - 2. Verify properties of sets with Venn Diagrams.
 - 3. Determine whether two sets have a one-to-one correspondence.
 - 4. Determine whether two sets are equivalent.
 - 5. Perform operations (+|-, x |÷) using properties of whole numbers.
 - 6. Determine whether a relation is a function.
 - 7. Identify the domain and range of a function.

- C. Unit III: Numeration and Computation
 - 1. Distinguish between numeration systems which are additive or positional.
 - 2. Perform computations in different numeration systems.
 - 3. Convert values between two base notations.
 - 4. Perform arithmetic operations by different methods.

D. Unit IV: Number Theory and Integers

1. Identify whether a given number is prime or composite.
2. Use divisibility rules to determine the prime factorization of composite numbers.
3. Use prime factorization to determine the greatest common factor (GCF), greatest common divisor (GCD) for a given pair of numbers.
4. Use prime factors to determine the least common multiples (LCM) for a pair of given numbers.
5. Make calculations using clock arithmetic.
6. State the field properties of integers.
7. Perform operations (+|-, x |÷) involving integer values.

E. Unit V: Fractions, Decimals, Rational and Real Numbers

1. Determine the least common denominator (LCD) for a given group of fractions.
2. Find equivalent fractions with or common denominator.
3. Perform basic operations (+|-, x |÷) on a given group of fraction and express result in simplest form.
4. Convert improper fractions to mixed numbers.
5. Convert mixed numbers to improper factors.
6. Apply the transitive property and density property.
7. Convert numbers given as a fraction, decimal, on percent to either of the other notations.
8. Solve problems using scientific notation.
9. Solve problems using ratios or proportions.
10. Solve problems using compound interest.

III. THECB Learning Outcomes (ACGM)

Upon successful completion of this course, students will:

1. Explain and model the arithmetic operations for whole numbers and integers.
2. Explain and model computations with fractions, decimals, ratios, and percentages.
3. Describe and demonstrate how factors, multiples, and prime numbers are used to solve problems.
4. Apply problem-solving skills to numerical applications.
5. Represent and describe relationships among sets using the appropriate mathematical terminology and notation.
6. Compare and contrast structures of numeration systems.

IV. Evaluation

A. Pre-assessment

Instructors will verify each student's prerequisites during the first week of class; those who do not qualify will be required to withdraw from the course.

B. Challenge Exam

There is no challenge exam for this course. There is however, a challenge exam for the prerequisite course. If a student wishes to challenge the prerequisite course, he/she should contact the testing center and the Division Dean so the challenge is completed before the census cut-off date. A student who previously received a W or a letter grade in a course is not eligible to challenge the course.

C. Articulation

Student planning to transfer to a four-year institution to complete an undergraduate degree for teacher certification will need to earn a minimum course grade of C.

D. Graded Assignments

Individual or group projects may be assigned at the instructor's discretion. These may include but are not limited to exploration of teaching methodologies, developing hands on projects or research on specific topics at least one. There will be at least three in class exams (100 points each) and one required in class comprehensive final exam to evaluate student learning for the course. This exam should include questions that require students to demonstrate mastery of both computational and critical thinking skills.

E. Grading Percentages

Grade percentages for determining the course grade will be determined by the individual instructor. The final exam should count no more than 25% of the overall course grade.

F. Remediation

Students may seek additional assistance from videotapes on reserve at the LRC, from tutoring centers at any campus, or from on-line tutorial materials available for the course.

G. Grading Scale:

- A: 90-100
- B: 80-89
- C: 70-79
- D: 60-69
- F: Below 60 or Cheating
- W: Withdraw
- I: Incomplete

Note: "I" and "W" grades will be assigned whenever the appropriate assignments and deadlines have been met. To receive an I, the students must have completed at least 80% of the course with at least a 75 average. The proper forms must also be signed by both the student, and the instructor before being submitted to the registrar.

V. Disability Statement (Americans with/Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.

VII. Title IX and Sex Discrimination

Title 9 (20 U.S.C. 1681 & 34 C.F.R. Part 106) states the following "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving Federal financial assistance." The Violence Against Women Act (VAWA) prohibits stalking, date violence, sexual violence, and domestic violence for all students, employees and visitors (male and female). If you have any concerns related to discrimination, harassment, or assault (of any type) you can contact the Assistant to the Vice President for Student and Enrollment Services at 915-831-2655. Employees can call the Manager of Employee Relations at 915-831-6458. Reports of sexual assault/violence may also be reported to EPCC Police at 915-831-2200.