

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u>Mathematics</u>
COURSE RUBRIC AND NUMBER	<u>NCBM 0124</u>
COURSE TITLE	<u>Non-Course Based Instruction for Math</u>
COURSE CREDIT HOURS	<u>1 1 : 0</u>
	Credits Lec Lab

I. Catalog Description

Provides a review of the material covered in an Introductory Mathematics for Business and Social Science course. This material is reordered for a “just-in-time” to complement the MATH 1324 material. Students taking this course should have a score of 344-349 or higher on the TSI Assessment. This course is a Non-Course Base Option that supports students whose placement scores indicate that they can succeed in Math 1324 with co-enrollment into Math 0124. **Prerequisite: Score of 344-349 on the TSI Assessment. Corequisite: MATH 1324 (can be taken concurrently). (1:0).**

II. Course Objectives

Upon satisfactory completion of the course, the student will be able to solve mathematical problems that relate to:

- A. Unit I. Linear Equations and Functions
 1. Solve linear equations in one variable.
 2. Solve applied problems by using linear equations.
 3. Determine whether a relation is a function, state the domains and ranges of certain functions, use function notation, perform operations with functions, and find the composite of two functions.
 4. Graph linear functions, find the slope of a line, and write the equation of a line.
 5. Solve systems of linear equations of 2x2.
 6. Solve systems of linear equations of 3x3.
 7. Find marginal profit, revenue, and cost.
 8. Given sufficient information, find the equation of linear total cost and total revenue and profit functions.
 9. Solve problems involving break-even analysis.
 10. Solve problems involving market equilibrium.

- B. Unit II. Special Functions and Matrices
 1. Solve problems involving market equilibrium.
 2. Solve quadratic equations.
 3. Graph quadratic functions.
 4. Find market equilibrium by using quadratic supply and demand functions.
 5. Find break-even points by using quadratic cost and revenue functions.
 6. Maximize quadratic revenue and profit functions.
 7. Graph and apply basic functions including constant, polynomial, rational, absolute value, and piecewise function.
 8. Organize and interpret data stored in matrices.
 9. Add and subtract matrices.

10. Multiply matrices.
11. Use elementary row operations to solve a system of equations (up to three unknowns).
12. Find the inverse of a square matrix.
13. Use the inverse of a matrix to find the solution of a system of equations (up to three unknowns).
14. Use Leontiff models to solve input-output problems.

C. Unit III. Exponential and Logarithmic Functions; Mathematics of Finance

1. Graph exponential and logarithmic functions.
2. Convert equations from exponential form to logarithmic form and vice versa.
3. Use properties of logarithmic functions to simplify expression-involving logarithms.
4. Solve exponential growth or decay problems when sufficient information is given.
5. Solve exponential and logarithmic equations representing cost, revenue, supply, and demand.
6. Find the compounded amount and interest where money is invested compounded at regular intervals or continuously.
7. Find the effective rate of interest if money is invested at compounded interest.
8. Find specified terms and sums of specified numbers of terms of arithmetic or geometric sequences.
9. Find the future value of ordinary annuities and annuities due.
10. Find the present value of ordinary annuities and annuities due.
11. Find the payment amount and total interest paid on a loan.
12. Find the interest part and principal of a payment of a loan.

D. Unit IV. Probability and Statistics

1. Use the fundamental principle of counting, permutation, and combination formulas.
2. Determine the sample space of a probability experiment.
3. Find the probability of a simple event as well as a compound event.
4. Use the conditional probability formula.
5. Determine when events are independent or dependent.

III. THECB Learning Outcomes (ACGM)

Upon successful completion of this course, students will:

1. Apply elementary functions, including linear, quadratic, polynomial, rational, logarithmic, and exponential functions to solving real-world problems.
2. Solve mathematics of finance problems, including the computation of interest, annuities, and amortization of loans.
3. Apply basic matrix operations, including linear programming methods, to solve application problems.
4. Demonstrate fundamental probability techniques and application of those techniques, including expected value, to solve problems.
5. Apply matrix skills and probability analyses to model applications to solve real-world problems.

IV. Evaluation

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. Quiz grades and homework grades may also be used in the evaluation of the final grade, if the instructor so chooses. A comprehensive final exam is mandatory for all students. Students will be assessed on Units I-Unit IV and given a comprehensive final exam.

The course grade will be assigned based on the following scale:

- CR (Credit)...100-70
- NC (No Credit)...Below 69.

I and W Grades: The student is responsible for completing the necessary forms for I or W (except as noted below). I and W grades may be assigned whenever appropriate deadlines are met. To be eligible for an I, the student must complete 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.