El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA	**Mathematics**
COURSE RUBRIC AND NUMBER	**MATH 0404**
COURSE TITLE	**Fundamentals of Mathematical Reasoning**
COURSE CREDIT HOURS	**4 (Credits) 4 (Lec) : 0 (Lab)**

I. Catalog Description

This course surveys a variety of mathematical topics needed to prepare students for college level statistics or quantitative reasoning or for algebra-based courses. Topics include: numeracy with an emphasis on estimation and fluency with large numbers; evaluating expressions and formulas; rates, ratios, and proportions; percentages; solving equations; linear models; data interpretations including graphs and tables; verbal, algebraic and graphical representations of functions; exponential models. This course is not for college-level credit. Students in this course are required to take a co-requisite student success course. **Prerequisite: MATH 0301 with a "C" or better or NCBM 0101 with a "CR" or better orby placement exam. (4:0).**

II. Course Objectives

Upon satisfactory completion of the course, the student will be able to understand and solve mathematical problems in each of the four units and their objectives below.

A. Unit 1 – Course Introduction, Toolkit Building, Data Displays, and Literacy
Students will be able to:
1. Estimate, round, and interpret large numbers.
2. Work with place value and ratios to interpret reports.
3. Build the classroom community and access campus resources.
4. Write and calculate fluency, percentages, and equivalent forms.
5. Use properties of real numbers and order of operations to make calculations.
6. Display and interpret data and data displays.

B. Unit 2 – Displaying Data, Proportional Reasoning, Complex Use of Percentages, and Probability
Students will be able to:
1. Display data using cumulative frequency.
2. Promote a positive mathematical mindset.
3. Write multi-step instructions; use spreadsheets/formulas, order of operations, properties, and expressions; and use risk factors.
4. Construct two-way tables, conditional probabilities, absolute/relative change, and shifting base values.
5. Create a study plan and study guide, including time management.
6. Read and interpret ratios and absolute and relative change and use critical reading in mathematics to solve problems.

C. Unit 3 – Displaying Data, Data Analysis, Concept of Variable, Geometric Reasoning, and Solving Equations
The student will be able to:

1. Measure and test measures of central tendency and test corrections.
2. Reset student success goals.
3. Evaluate formulas and geometric concepts using multiplication of fractions, dimensional analysis, precision, and variables.
4. Solve equations and algebraic proportions using doing/undoing and formulas.
5. Display and solve multi-step equations.
6. Solve literal equations.

D. Unit 4 – Algebraic Reasoning and Modeling
The student will be able to:

1. Interpret linear models, including representations, rate of change, and contextual interpretation of slope and intercepts.
2. Estimate solutions to a system.
3. Approximate linear models, interpolation/extrapolation, relative increase/decrease, and shifting base values.
4. Use exponential models and simple quadratics to solve problems.
5. Compare exponential models and simple quadratics.

Overarching Content-based Mathematics and Quantitative Literacy Learning Outcomes

- **Numeracy**: Students will develop number sense and the ability to apply concepts of numeracy to investigate and describe quantitative relationships and solve real-world problems in a variety of contexts.
- **Proportional Reasoning**: Students will use proportional reasoning to solve problems that require ratios, rates, proportions, and scaling.
- **Algebraic Competence, Reasoning, Modeling**: Students will transition from specific and numeric to general and abstract reasoning using the language and structure of algebra to investigate, represent, and solve problems.
- **Assessing Risk (Probabilistic Reasoning):** Students will understand and critically evaluate statements involving risk and arguments based on probability that appear in the popular media, especially in presenting medical information.
- **Personal Finance**: Students will understand, interpret, and make decisions based on financial information that is commonly presented to consumers.
- **Civic Life**: Students will understand that quantitative information presented in the media and by other entities can sometimes be useful and sometimes be misleading.

Course Learning Goals

- Communication Goal: Students will be able to interpret and communicate quantitative information and mathematical and statistical concepts using language appropriate to the context and intended audience.
- Problem Solving Goal: Students will be able to make sense of problems, develop strategies to find solutions, and persevere in solving them.
- Reasoning Goal: Students will be able to reason, model, and make decisions with mathematical, statistical, and quantitative information.
- Evaluation Goal: Students will be able to critique and evaluate quantitative arguments that utilize mathematical, statistical, and quantitative information.
- Technology Goal: Students will be able to use appropriate technology in a given context.

III. Evaluation

Along with regular graded homework assignments, 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. The homework grade will be weighted no more than the weight of one unit exam.

A comprehensive final exam is mandatory for all students. The comprehensive final exam cannot be dropped and must be weighted at least as much as one unit exam.

Quiz grades and attendance may also be used in the evaluation of the final course grade.

Grades will be assigned according to the following scale:

Average	Grade
90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59 (or for cheating)	F

I and W grades: The student is responsible for completing the necessary forms for Incomplete, I, or Withdrawal, W, grades (except as noted below). I and W grades may be assigned whenever appropriate deadlines are met. To be eligible for an Incomplete, the student must complete 80% of the course with at least a 75% average. Signatures by both the student and instructor are required in the College's official Incomplete Form submitted to the Registrar.

IV. 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. Any student with a disability believing he/she may need services is encouraged to contact the Center for Students with Disabilities (CSD) to discuss your needs with an EPCC counselor. All discussions and documentation are kept confidential. Offices are located at all campuses: VV Room C-112 (831-2426); TM Room 1400 (831-5808); RG Room B201 (831-4198); NWC Room M-54(831-8815); and MDP Room A-125 (831-7024).

V. 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 a course because exemptions may apply. Refer to the EPCC Catalog and website for additional information.