

MATH-1240 PRE-CALCULUS 4 CREDITS

SYLLABUS

CATALOG DESCRIPTION

This course extends students' knowledge of polynomial, rational, exponential and logarithmic functions to new contexts, including rates of change, limits, systems of equations, conic sections, and sequences and series.

Prerequisites: High School Algebra II course grade of C or better, GPA of 3.4 or Math 1215

Semester Offered: Fall, Spring

COMMON STUDENT LEARNING OUTCOMES

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in...

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

COURSE LEARNING OUTCOMES

Upon successful completion of the course, the student will be able to...

1. Functions
 - a. Reinforce recognizing a function from its graph and from its algebraic expression.
 - b. Reinforce identification of a one-to-one function graphically and from its algebraic expression.

- c. Reinforce identification of inverse functions graphically and algebraically.
 - d. Reinforce combining functions arithmetically and compositionally.
 - e. Be able to calculate the average rate of change of a function using the difference quotient and depict it graphically.
 - f. Be able to find a limiting value of a function and be able to identify and use the notation that describes this.
2. Graphing
 - a. Reinforce using key characteristics of functions to graph them.
 - b. Be able to graph conic sections from their key characteristics such as foci, eccentricity and asymptotes.
 - c. Be able to identify all functions mentioned from their graphs, describing their key aspects.
3. Solving
 - a. Exponential/Logarithmic equations using the rules of exponents and logarithms
 - b. Systems of linear equations by elimination.
 - c. Non-linear systems algebraically and graphically.
4. Applications
 - a. Modeling with functions with an emphasis on exponential and logarithmic functions, growth and decay.
5. Sequences and series
 - a. Understand the concept and notation of a sequence.
 - b. Understand the concept and notation of a series.
 - c. Be able to find limits of basic sequences.
 - d. Be able to find sums of basic series.