MATH 25 Course Outline as of Fall 2013

CATALOG INFORMATION

Dept and Nbr: MATH 25   Title: PRECALCULUS ALGEBRA
Full Title: Precalculus Algebra
Last Reviewed: 2/8/2021

Units			Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00		Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00		Lab Scheduled	0	6	Lab Scheduled	0
			Contact DHR	0		Contact DHR	0
			Contact Total	3.00		Contact Total	52.50
			Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00   Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable
Grading: Grade Only
Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:
Formerly:

Catalog Description:
Topics from college algebra, including analytic geometry, functions and their graphs, complex numbers, sequences and series.

Prerequisites/Corequisites:
Completion of MATH 154 or MATH 155 or higher; or Qualifying Placement from Math Assessment.
See Student Success & Assessment Services (assessment.santarosa.edu) for more information about the assessment process.

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Topics from college algebra, including analytic geometry, functions and their graphs, complex numbers, sequences and series.   (Grade Only)
Prerequisites/Corequisites: Completion of MATH 154 or MATH 155 or higher; or Qualifying Placement from Math Assessment.

See Student Success & Assessment Services (assessment.santarosa.edu) for more information about the assessment process.
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;UC.
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area		Effective:	Inactive:
	B	Communication and Analytical Thinking	Fall 2006	
	MC	Math Competency	Fall 1981	
CSU GE:	Transfer Area		Effective:	Inactive:
	B4	Math/Quantitative Reasoning	Fall 2006	
IGETC:	Transfer Area		Effective:	Inactive:
	2A	Mathematical Concepts & Quantitative Reasoning	Fall 2006	

CSU Transfer:	Transferable	Effective:	Fall 2006	Inactive:
UC Transfer:	Transferable	Effective:	Fall 2006	Inactive:

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Outcomes and Objectives:
Upon completion of the course, students will be able to:
1. Perform advanced operations with functions (using symbolic, graphical, and numerical representations) and apply knowledge to modeling problems.
2. Define and graph inverse functions.
3. Define and apply characteristics of functions (including intercepts, turning points, intervals of positive/negative, increasing/decreasing value, transformations, symmetry) in graphing polynomial, rational, absolute value, radical, exponential, and logarithmic functions.
4. Solve selected algebraic equations over the complex numbers.
5. Solve algebraic equations graphically and symbolically, including absolute value, polynomial, radical, rational, logarithmic, and exponential.
6. Graph circles, functions, and parametric equations.
7. Graph asymptotes and recognize a hole in the graph.
8. Perform operations with complex numbers.

Topics and Scope:

I. Equations and Inequalities
   A. Graphical and algebraic solutions to radical and quadratic-form
      equations, and to absolute value equations and inequalities
   B. Solutions to systems of nonlinear equations
II. Complex Numbers
   A. Definition
   B. Operations with complex numbers
III. Analysis of Functions and Their Graphs
   A. Definition
   B. Notation
   C. Domain
   D. Range
   E. Operations, including difference quotients and composition of functions
   F. Catalog of functions
   G. Symmetry
   H. Even and odd functions
   I. Shifts
   J. Scaling
   K. Reflections of graphs, along with modeling
IV. Polynomial and Rational Functions
   A. Linear, quadratic, polynomial functions of higher degree and
      their graphs
   B. Long division of polynomials
   C. Graphs of rational functions
   D. Asymptotes and holes
   E. Introduction to limit concepts and notation
   F. Solutions of polynomial and rational equations and inequalities, using
      real numbers and complex numbers as appropriate
V. Inverse, Exponential and Logarithmic Functions
   A. Definitions
   B. Properties
   C. Graphs
   D. Equations
   E. Applications
VI. Sequences and Series
   A. Finite and infinite geometric sequences and series
   B. Summation of powers of integers
VII. Topics from Analytic Geometry
   A. Midpoint and distance formulas
   B. Circles
   C. Parametric equations

Assignment:

1. Daily reading outside of class (20-50 pages per week).
2. Problem set assignments from required text(s) or supplementary
   materials chosen by the instructor (1-6 per week).
3. Quizzes (0-4 per week).
4. Exams (3-8 per term).
5. Projects (for example, computer explorations or modeling activities, 0-10 per term).

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.

Writing
0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems

Problem solving
5 - 20%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations
0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Multiple choice and free response exams; quizzes

Exams
70 - 95%

Other: Includes any assessment tools that do not logically fit into the above categories.

Projects

Other Category
0 - 10%

Representative Textbooks and Materials:
College Algebra (6th ed). by Stewart, Redlin and Watson; 2012

College Algebra Enhanced with Graphing Utilities (5th ed.). Sullivan, Michael and Sullivan III, Michael. Prentice Hall: 2009.