MATH 70 Course Outline as of Fall 2013

CATALOG INFORMATION

Dept and Nbr: MATH 70   Title: PRECALCULUS ENRICHMENT
Full Title: Precalculus Problem Solving Enrichment
Last Reviewed: 4/8/2013

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	1.00	Lecture Scheduled	0.50	17.5	Lecture Scheduled	8.75
Minimum	1.00	Lab Scheduled	1.50	17.5	Lab Scheduled	26.25
		Contact DHR	0		Contact DHR	0
		Contact Total	2.00		Contact Total	35.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 17.50   Total Student Learning Hours: 52.50

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

Catalog Description:
Critical thinking for mathematics using precalculus concepts: cooperative learning study techniques, concept development and use of technology. The instructor will serve as a facilitator to student groups working collaboratively on provided problem sets of topics from Math 25, 27 and 58.

Prerequisites/Corequisites:
Concurrent enrollment in one of the following courses: MATH 25, 27 or 58.

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Critical thinking for mathematics using precalculus concepts: cooperative learning study techniques, concept development and use of technology. The instructor will serve as a facilitator to student groups working collaboratively on provided problem sets of topics from Math 25, 27 and 58. (Grade or P/NP)
Prerequisites/Corequisites: Concurrent enrollment in one of the following courses: MATH 25,

27 or 58.
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

			Effective:	Inactive:
AS Degree:	**Area**		Effective:	Inactive:
CSU GE:	**Transfer Area**		Effective:	Inactive:
IGETC:	**Transfer Area**		Effective:	Inactive:
CSU Transfer:	Transferable	Effective: Fall 2003	Inactive: Fall 2019
UC Transfer:		Effective:	Inactive:

CID:

Certificate/Major Applicable:
Not Certificate/Major Applicable

COURSE CONTENT

Outcomes and Objectives:
Upon completion of course, students will be able to:
1. Apply critical thinking skills to precalculus topics: analytic
   geometry, algebraic functions, trigonometric functions, complex
   numbers, vectors, and sequences and series
2. Discuss non-routine and open-ended precalculus problems in
   collaborative teams, verbalizing concepts, solution strategies
   and constructing written solutions
3. Compare and contrast different approaches to problems; discuss
   the relative merit of each method
4. Use technology to solve applied mathematical problems
5. Develop collaborative working relationships with other students
6. Select appropriate problem solving strategies for a given
   application
7. Adapt general problem solving techniques to a specific application
8. Analyze different forms of solutions to determine which are equivalent
9. Organize a portfolio of problem-solving situations and related
   solutions

Topics and Scope:

I. Functions and graphs
   A. Graphs and graphing utilities
   B. Functions and notation
   C. Graphs and transformations (reflections and translations)
   D. Combinations of functions
   E. Inverse functions

F. Modeling
II. Intercepts, zeros and solutions
   A. Linear equations and modeling
   B. Solving equations graphically and algebraically
   C. Solving inequalities graphically and algebraically
III. Polynomial and rational functions
   A. Polynomial functions of high degree
   B. Complex and real zeros
   C. Fundamental theorem of algebra
   D. Rational functions, graphs and asymptotes
IV. Exponential and logarithmic functions
   A. Graphs of exponential and logarithmic functions
   B. Properties of logarithmic functions
   C. Solving equations
   D. Applications
V. Trigonometric functions
   A. Radian and degree measures
   B. Trigonometric functions and the unit circle
   C. Graphs of trigonometric functions
   D. Inverse trigonometric functions
   E. Applications of trigonometry functions
   F. Identities and equations involving trigonometric functions
VI. Triangles
   A. Solutions of right triangles and oblique triangles
   B. Laws of sines and cosines
VII. Vectors in the plane
   A. Geometric and analytic definitions
   B. Vector operations (sum, difference, scalar multiplication,
     dot products)
VIII. Discrete topics
   A. Sequences (arithmetic and geometric)
   B. Series and summation notation
   C. Finite and infinite geometric series

Assignment:

1. Homework problem sets (5-16)
2. Oral and written presentations of mathematical problems and solutions (5-16)
3. Portfolio (0-1) of assignment sets and solutions
4. Oral and written tests (0-5)

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; oral and written presentations | Problem solving
60 - 100% |

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.

| Objective examinations (multiple choice, true/False or completion) | Exams
0 - 20% |

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

| Portfolio of assignments | Other Category
0 - 20% |

Representative Textbooks and Materials:
Instructor prepared materials