MATH 196: PRECALCULUS

1. Course Information

Subject
MATH - Mathematics

Course Number
196

School
Science, Technology, Engineering, Mathematics

Course Title
Precalculus

2. Hours

Semester Hours
4

Lecture
4

Lab
0

Practicum
0

3. Catalog Description

For display in the online catalog
This course prepares students for the study of Calculus. Critical thinking skills will be developed by analyzing various topics from algebraic, analytic, and geometric perspectives. Precalculus includes equations and inequalities, relations and functions, polynomial and rational functions, exponential and logarithmic functions, trigonometric functions, inverse trigonometric functions, trigonometric identities and equations, applications of trigonometry, systems of equations, and complex numbers. Additional topics include polar coordinates, parametric equations, sequences and series. Technology will be utilized throughout the course.

4. Requisites

Prerequisites
Math 161 or higher or appropriate score on the Math Placement test.

5. Course Type

Course Fee Code
1

Course Type for Perkins Reporting
non-vocational (not approved for Perkins funding)

6. Justification

Describe the need for this course
This course is designed to provide students with the mathematical knowledge
needed to successfully integrate mathematics into their chosen area of study or career path.

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?
Yes

General Education Category
Mathematics

General Education Status
Approved

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:

	Add item
1	Demonstrating the college's commitment to offer comprehensive educational programs that develop learners of all ages. (Mission Statement)
2	Seeking to ensure that students will thrive in an increasingly diverse and complex world. (Vision Statement)
3	Preparing students for successful transfer to other educational institutions and/or for entrance into the workforce. (Academic Master Plan)
4	Seeking to empower students through the mastery of intellectual and practical skills. (Academic Master Plan)
5	Challenging students to transform information into knowledge and knowledge into action. (Academic Master Plan).

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Institution
Atlantic Cape CC

Course Title
Precalculus

Course Number
Math 150

Number of Credits
4

Institution
Mercer County CC

Course Title
Precalculus

Course Number
MAT 146

Number of Credits
4

Institution
Middlesex County College

Course Title
Precalculus

Course Number
MAT 129

Number of Credits
4

Institution
Rowan College at Burlington County

Course Title
Precalculus

Course Number
MTH 130

Number of Credits
4

Transferability of Course

Georgian Court University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
MA 110 Precalculus	General Ed. Mathematics	

Kean University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
MATH1054 Pre-Calculus	General Ed. Mathematics	

Monmouth University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
MA 109 Pre-Calculus Mathematics and MA 001 (100 LEVEL Math ELECT)	General Ed. Mathematics	

Rowan University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
Math01122 Pre-Calculus	General Ed. Mathematics	

Rutgers - New Brunswick, Mason Gross School of the Arts

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
01640115 Precalculus College Mathematics	General Ed. Quantitative Information, Quantitative Reasoning	

Stockton University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
Math1100 Precalculus Mathematics	General Ed. Mathematics, Quantitative Reasoning Intensive Course	

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	Perform operations with functions including composition and transformations.
CLO2	Generate and interpret the graphs of polynomial, inverse, rational, exponential, logarithmic, trigonometric, and inverse trigonometric functions.
CLO3	Perform operations in the complex number system
CLO4	Understand and apply right triangle trigonometry and the unit circle.
CLO5	Apply trigonometric identities to recognize equivalent statements and to solve equations.
CLO6	Solve systems of equations and application problems.

CLO7	Use trigonometric functions and right triangle trigonometry to solve application problems.
CLO8	Develop and apply parameteric equations and polar coordinates.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
TO1	Polynomial and rational functions	Homework	Quizzes/Exams	CLO1, CLO2
TO2	Complex number system	Homework	Quizzes/Exams	CLO3
TO3	Exponential and logarithmic functions, graphs and applications	Homework	Quizzes/Exams	CLO1, CLO2
TO4	Trigonometric functions, graphs and applications	Homework	Quizzes/Exams	CLO2, CLO4, CLO7
TO5	Inverse trigonometric functions and their graphs	Homework	Quizzes/Exams	CLO2
TO6	Analytic trigonometry including trigonometric identities and trigonometric equations	Homework	Quizzes/Exams	CLO4, CLO5, CLO7
TO7	Systems of equations and inequalities with applications	Homework	Quizzes/Exams	CLO6
TO8	Polar coordinates and graphs of polar equations	Homework	Quizzes/Exams	CLO4, CLO7, CLO8
TO9	Parametric equations	Homework	Quizzes/Exams	CLO8
TO10	Partial Fractions	Homework	Quizzes/Exams	CLO1, CLO6

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized?
Lecture, Class Discussion, Group Discussion, Graphing technology applications

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

_____

Quantitative Knowledge and Skills
Yes

Related Course Learning Outcome
All

Related Outline Component
All

Assessment of General Education Goal (Recommended but not limited to)
Student Exams

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14. Needs

Instructional Materials (text etc.):
Appropriate textbook and online resources selected by the department

Technology Needs:
Access to graphing utilities for instruction and student use

Human Resource Needs (Presently Employed vs. New Faculty):
Presently Employed

Facility Needs:
None

Library needs:
None

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

16. Board Approval

History of Board approval dates
Board of Trustees Approval Date: January 25, 2024