MATH 201: PRECALCULUS TECHNIQUES AND APPLICATIONS

1. Course Information

Subject
MATH - Mathematics

Course Number
201

School
Science, Technology, Engineering, Mathematics

Course Title
Precalculus Techniques and Applications

2. Hours

Semester Hours
4

Lecture
4.00

3. Catalog Description

For display in the online catalog
This is an accelerated review of algebraic, geometric, and trigonometric topics for the highly motivated student. Critical thinking skills will be developed through the study of polynomial, rational, trigonometric, logarithmic, and exponential functions and their graphs from algebraic, analytic, and geometric perspectives. Other topics to be studied are system of equations and inequalities, matrices and determinants, sequences and series, and mathematical induction. Technology and mathematical modeling will be utilized throughout the course.

4. Requisites

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	This course helps to prepare students to become intentional learners who will be able to understand and employ quantitative analysis to solve problems, and demonstrate intellectual agility in mathematics.

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
MATH 146

Number of Credits
4

Institution
Middlesex County College

Course Title
Precalculus I

Course Number
MATH 129

Number of Credits
4

Institution
Rowan College at Burlington County

Course Title
Precalculus

Course Number
MATH 130

Number of Credits
4

Transferability of Course

Georgian Court University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
GENED G6, Gen Ed Math,	Gen Ed	

Kean University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
MATH 1054, 3	Gen Ed	

Monmouth University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
MA109, Pre-Calculus Mathematics, 4	Gen Ed	

Rowan University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
MATH0112, Precalculus, 4	Gen Ed	

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, 4 cr.	GenEd Area(s): Quantitative Information, Quantitative Reasoning	

Stockton University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
MATH1100, PreCalculus Mathematics, 4 cr	GenEd, Mathematics, Quantitative Reasoning Intensive Course	

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	analyze functions, their graphs, transformations, and inverses
CLO2	model functions from applications.
CLO3	analyze polynomial and rational functions and their graphs
CLO4	perform operations in the complex number system
CLO5	analyze exponential and logarithmic functions, their graphs and applications
CLO6	analyze the unit circle and apply trigonometric functions.
CLO7	analyze trigonometric functions and their graphs
CLO8	analyze right triangle trigonometry through applications
CLO9	apply trigonometric identities, utilize formulas, and solve equations
CLO10	solve systems of equations and inequalities through matrices and applications
CLO11	graph conic sections.
CLO12	demonstrate an understanding of sequences and series.

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	Functions: characteristics, graphs and inverses	Homework	Quizzes/Exams	CLO1, CLO2, CLO3

TO2	Polynomial and rational functions	Homework	Quizzes/Exams	CLO1, CLO2, CLO3
TO3	Complex number system	Homework	Quizzes/Exams	CLO4
TO4	Exponential and logarithmic functions, graphs, and applications	Homework	Quizzes/Exams	CLO2, CLO5
TO5	Trigonometric functions, graphs and applications	Homework	Quizzes/Exams	CLO2, CLO6, CLO7, CLO8, CLO8
TO6	Inverse trigonometric functions and their graphs	Homework	Quizzes/Exams	CLO6, CLO7, CLO8, CLO9
TO7	Analytic trigonometry including trigonometric identities and trigonometric equations	Homework	Quizzes/Exams	CLO2, CLO6, CLO7, CLO8, CLO9
TO8	Conic sections	Homework	Quizzes/Exams	CLO11
TO9	Systems of equations and inequalities including matrices	Homework	Quizzes/Exams	CLO10
TO10	Sequences and series	Homework	Quizzes/Exams	CLO12
TO11	Mathematical induction	Homework	Quizzes/Exams	CLO12

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized?

o Lecture
o Class discussion
o Group discussion
o Computer applications
o Graphing calculator 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 department

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

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

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
Revised: December, 1990
Revised: February 27, 1996
Revised: April 30, 1996
Revised: December, 1998
Revised: May 4, 2004
Revised: August 18, 2005
Revised: August 27, 2007
Revised: April 27, 2009
Revised: May 22, 2012
Board of Trustees Approval Date: January 26, 2016