

EDUC 140: MATHEMATICS FOR THE PROFESSIONAL EDUCATOR

1. Course Information

Subject

EDUC - Education

Course Number

140

School

Business and Social Sciences

Course Title

Mathematics for the Professional Educator

2. Hours

Semester Hours

3.00000

Lecture

3

Lab

0

Practicum

0

3. Catalog Description

For display in the online catalog

This is a course for students seeking to pursue a career in education. This course is a study of fundamental mathematic topics and teaching strategies for use in the mathematics classroom. Emphasis will be on preparation for the Praxis Core Academic Skills for Educators: Math Test.

4. Requisites

Prerequisites

MATH 151 OR HIGHER

Corequisites

None

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 aspiring to be future educators with the knowledge needed to master essential mathematics topics, while incorporating strategies for teaching those topics. It provides review and support for success on the Praxis Core Academic Skills for Educators: Math Test. It will become part of the planned A.A. in Education program.

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?

No

If the course does not satisfy a general education requirement, which of the following does it satisfy:

Elective

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 intentional 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 transfer information into knowledge and knowledge into action. (Academic Master Plan)

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Institution

Raritan Valley CC

Course Title

Math Reasoning for Educators I

Course Number

MATH 107

Number of Credits

3

Transferability of Course

Georgian Court University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
Education Elective	Elective	

Kean University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
MATH 1010; MATH 1030	Major	

Monmouth University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
Education Elective	Elective	

Rowan University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
Education Elective	Elective	

Rutgers - New Brunswick, Mason Gross School of the Arts

Course Code, Title, and Credits	Transfer Category	If non-transferable; select status
Education Elective	Elective	

Stockton University

Course Code, Title, and Credits	Transfer Category	If non-transferable; select status
EDUC 1151	Major	

10. Course Learning Outcomes**Learning Outcomes**

Students who successfully complete this course will be able to:	
CLO1	Demonstrate appropriate strategies for the instruction of mathematical concepts.
CLO2	Use and explain problem-solving strategies involving algebra and geometry topics.
CLO3	Explain complex mathematics concepts to classmates.
CLO4	Apply appropriate formulas to solve algebra and geometry problems.
CLO5	Articulate the meaning of various mathematical terms.
CLO6	Apply various geometric theorems to find missing measurement.
CLO7	Recognize the connection between algebra and geometry and use that connection to solve problems.

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)
T01	Algebra and Functions 1. Apply understanding of arithmetic to algebraic expressions 2. Solve real life and mathematical problems using numerical and algebraic expressions 3. Use properties of operations to generate equivalent expressions 4. Practice appropriate instructional strategies	Writing Assignment Homework Textbook Reading Practice Praxis Questions Class Discussion	Writing Assignment Tests Quizzes	CLO1, CLO2, CLO3, CLO4, CLO5, CLO6, CLO7
T02	Reasoning of equations and inequalities 1. Understand the connections between proportional relationships, lines and linear equations 2. Understand solving equations as a process of reasoning and explain the reasoning 3. Reason about and solve one-variable equations and inequalities 4. Solve equations and inequalities in one variable 5. Analyze and solve linear equations and pairs of simultaneous linear equations 6. Represent and solve equations and inequalities graphically of sociology 7. Practice appropriate instructional strategies	Homework Textbook Reading Practice Praxis Questions Class Discussion	Presentation of problems to the class Tests Quizzes	CLO1, CLO2, CLO3, CLO4, CLO5, CLO6, CLO7

T03	Functions 1. Interpreting functions 2. Building functions 3. Practice appropriate instructional strategies	Homework Textbook Reading Practice Praxis Questions Class Discussion	Presentation of problems to the class Tests Quizzes	CLO1, CLO2, CLO3, CLO4, CLO5, CLO6, CLO7
T04	Congruence and similarity 1. Draw, construct and described geometrical figures and the relationship between them 2. Experiment with transformations 3. Practice appropriate instructional strategies	Homework Textbook Reading Practice Praxis Questions Class Discussion	Presentation of problems to the class Tests Quizzes	CLO1, CLO2, CLO3, CLO4, CLO5, CLO6, CLO7
T05	Right triangles 1. Understand and apply the Pythagorean Theorem 2. Practice appropriate instructional strategies	Homework Textbook Reading Practice Praxis Questions Class Discussion	Presentation of problems to the class Tests Quizzes	CLO1, CLO2, CLO3, CLO4, CLO5, CLO6, CLO7
T06	Circles 1. Understand and apply theorems about circles 2. Practice appropriate instructional strategies	Homework Textbook Reading Practice Praxis Questions Class Discussion	Presentation of problems to the class Tests Quizzes	CLO1, CLO2, CLO3, CLO4, CLO5, CLO6, CLO7
T07	Geometric measurement 1. Solve real life problems involving angle measure, area, surface area and volume. 2. Explain and use area and volume formulas 3. Practice appropriate instructional strategies	Homework Textbook Reading Practice Praxis Questions Class Discussion	Presentation of problems to the class Tests Quizzes	CLO1, CLO2, CLO3, CLO4, CLO5, CLO6, CLO7
T08	Basic statistics and probability 1. Develop understanding of statistical variability 2. Summarize can describe distributions 3. Use random sampling to draw inferences about a population 4. Investigate chance processes and develop, use, and evaluate probability models 5. Investigate patterns of association in bivariate data 6. Using probability to make decisions 7. Use probability to evaluate outcomes of decisions 8. Practice appropriate instructional strategies	Homework Textbook Reading Practice Praxis Questions Class Discussion	Presentation of problems to the class Tests Quizzes	CLO4, CLO5

12. Methods of Instruction

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

Lecture

Class discussion

Group work

Computer software / graphing calculators

Support services may be provided depending on available college resources, e.g. Center for Academic Success, Mathematics Tutoring Center.

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

CLO1, CLO2, CLO3, CLO4, CLO5, CLO6, CLO7

Related Outline Component

TO1, TO2, TO3, TO4, TO5, TO6, TO7, TO8

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

Presentation of problems to the class

Tests

Quizzes

Independent/Critical Thinking

Yes

Related Course Learning Outcome

CLO1, CLO2, CLO3, CLO4, CLO5, CLO6, CLO7

Related Outline Component

TO1, TO2, TO3, TO4, TO5, TO6, TO7, TO8

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

Presentation of problems to the class

Tests

Quizzes

14. Needs**Instructional Materials (text etc.):**

Department approved text

Technology Needs:

Math software

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

Instructor with a Math Education credential

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: March 29, 2018