BERGEN COMMUNITY COLLEGE
SCHOOL OF MATHEMATICS, SCIENCE AND TECHNOLOGY
DEPARTMENT OF MATHEMATICS

COURSE SYLLABUS

MAT-281 Calculus II

COURSE DESCRIPTION: Calculus II is a study of differentiation and integration of transcendental function; methods of integration; applications of the integral; indeterminate forms; improper integrals; infinite series; and applications.

CREDITS/HOURS: 4 credits, 4 hours

PREREQUISITE: MAT-280 Calculus I with a grade of C or better or by permission of the Department Chair

GENERAL EDUCATION COURSE: Yes

STUDENT LEARNING OBJECTIVES: **Upon successful completion of this course, students will be able to:**

1. Evaluate derivatives and integrals of logarithmic, exponential and other transcendental functions.
2. Demonstrate ability to solve applications involving integrals.
3. Evaluate integrals using appropriate integration techniques and rules.
4. Analyze indeterminate forms.
5. Evaluate improper integrals.
6. Test for convergence of infinite series.
7. Analyze parametric equation.
8. Apply polar coordinates in the solution of problems.

ASSESSMENT MEASURES: Each of the above listed student learning objectives will be assessed by:

1. Written assignments and/or quizzes.
2. Written examinations.
3. Other, as announced by the instructor.

COURSE GRADE: Students should refer to the instructor's grading policy which will be distributed during the first meeting of the class.

TEXTBOOK: Calculus, Early Transcendental Functions, 6th edition, Larson and Edwards, Cengage Learning, 2015.

COURSE CONTENT:

TOPIC	CHAPTER	SECTIONS
Integration by Substitution	5	5 (Review)
Numerical Integration		6
Inverse Trigonometric Functions: Integration		8
Hyperbolic Functions		9 (Optional)
Differential Equations: Growth and Decay	6	2
Differential Equations: Separation of Variables		3
Differential Equations: The Logistic Equation		4 (Optional)
Area of a Region Between Two Curves	7	1 (Review)
Applications of Integration		2 – 5
		6 (Optional)
Integration Techniques	8	1 - 6
Indeterminate Forms and L'Hopital's Rule		7
Improper Integrals		8
Infinite Series	9	1 – 6
Taylor Polynomials		7
Power Series and Taylor Series		8 – 10
Parametric Equations	10	2 – 3
Polar Coordinates and Polar Graphs		4
Area and Arc Length in Polar Coordinates		5