NEW COURSE PROPOSAL

<u>PROGRAM AREAS</u> _____MATH

1. **Catalog Description of the Course.** *[Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]*

    MATH 151 CALCULUS II (4)
    Four hours of lecture per week.

Prerequisite: MATH 150
Topics include: differentiation, integration, sequences, infinite series, and power series.

2. **Mode of Instruction.**

	Units	Hours per Unit	Benchmark Enrollment
Lecture	4	1	24
Seminar	_____	_____	_____
Laboratory	_____	_____	_____
Activity	_____	_____	_____

3. **Justification and Learning Objectives for the Course.** (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*

    The course is a required course for Mathematics majors.

    Through this course, students will be able to

    - Design mathematical models and work with functions
    - Compute integrals, areas, volumes, surface areas
    - Analyze various representations of functions and use them to solve problems
    - Apply modern software to solve problems
    - Apply integral optimization techniques
    - Apply sequences, series and power series to solve problems

    - Explain, using proper terminology, ideas of calculus and solve computational problems using good technique.
    - Express ideas of Calculus in oral and written form.

    This course is not designed to satisfy the University Writing or Language requirements.

4. **Is this a General Education Course   YES**
    If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Mathematics & Sciences)	
C (Fine Arts, Literature, Languages & Cultures)	
D (Social Perspectives)	
E (Human Psychological and Physiological Perspectives)	

5. Course Content in Outline Form. *[Be as brief as possible, but use as much space as necessary]*

The Definite Integral
Fundamental Theorem of
Indefinite Integrals
Substitution Rule
Logarithm as an Integral
Areas between Curves
Volumes
Average Value of a Function
Integration by Parts
Trigonometric Integrals
Trigonometric Substitution
Partial Fractions
Improper Integrals
Arc Length
Surface of Revolution
Sequences
Series
Convergence Tests
Power Series
Application of Taylor Series

6. References. *[Provide 3 - 5 references on which this course is based and/or support it.]*

James Stewart, *Calculus: Early Transcendentals*, fourth edition, Brooks/Cole Publishing Co., 1999.

7. List Faculty Qualified to Teach This Course.

All Mathematics Faculty

8. Frequency.
    a.   Projected semesters to be offered: Fall ___X__   Spring _X____   Summer ___X__

9. New Resources Required.

    a.   Computer (data processing), audio visual, broadcasting needs, other equipment
        Existing computer labs

    b.   Library needs
        Existing library resources.

    c.   Facility/space needs
        Classrooms.

10. Consultation.
Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

_____ Ivona Grzegorczyk _____
Proposer of Course   Date