Salisbury University Department of Mathematical Sciences

MATH 160 : Introduction to Applied Calculus
Syllabus (Tentative)

Description: Introductory study of differential and integral calculus with emphasis on techniques and applications. For students in the biological, management, social and behavioral sciences. 3 Hours Credit: Meets three hours per week. Meets General Education IVB or IVC.

Prerequisites: High school Algebra II and plane geometry.

Intended Audience: Students other than mathematics, physics, and chemistry majors who are interested in applications of math to their majors.

Objective: To develop students' problem solving skills using the techniques of calculus through numeric, analytic, graphical, and symbolic approaches.

Textbooks: *Applied Calculus for the Managerial, Life, and Social Sciences: A Brief Approach*, by Tan; Brooks/Cole, Cengage Learning, 10th edition, or SU custom edition.

Technology: WebAssign may be required by some instructors. Use of a graphing calculator or mathematical software accessible via SU computer network may also be required.

Topic	Weeks
Functions	2
Definition of Function and Model; linear and quadratic functions and applications; exponential and logarithmic functions and applications including growth, decay, and compound interest; power functions; polynomials; combinations of functions; logistic functions.	
Differentiation	2
Rate of change and slope, derivatives, interpretations of the derivative, second derivative, marginal analysis.	
Rules for the Derivative	2
Derivative formulas for: power functions and polynomials, exponential and logarithmic functions, the chain rule, products, quotients, and compositions of functions. Applications.	
Applications of the Derivative	3
The use of the first and second derivative in curve sketching and in the qualitative study of curves; optimization and related applications.	
Anti-Derivatives & Definite Integrals	2
Finding anti-derivatives and the substitution method, measuring distance traveled, integrals, area, average value, interpretations of the integral, evaluating integrals using the Fundamental Theorem of Calculus.	
Applications of the Definite Integral	2
Applications to life sciences, economics, and distribution functions.	
Tests, review or optional topics	1
Total	**14**

Evaluation

Homework and Quizzes	25 – 35%
Tests	50%
Final	15 – 25%

- Free tutoring is available for this course in the Spring and Fall semesters.

- Clear descriptions of thought processes, evidence of critical thinking, and effective communication must be demonstrated in written work.
- **Writing Across the Curriculum:** Students will be expected to communicate mathematics and mathematical ideas effectively in speech and writing. At the University Writing Center, trained consultants are ready to help you at any stage of the writing process. In addition to the important writing instruction that occurs in the classroom and during professors' office hours, the Center offers another site for learning about writing. **All students are encouraged to make use of these important services.**
- **NOTE:** Once a student has received credit, including transfer credit, for a course, credit may not be received for any course with material that is equivalent to it or is a prerequisite for it.