Salisbury University Department of Mathematical Sciences

MATH 202 : Calculus II
Syllabus (Tentative)

Description: Applications and techniques of integration, areas and volumes, infinite sequences and series, introduction to differential equations. 4 Hours Credit: Meets four hours per week. Meets General Education IVB or IVC.

Prerequisites: C or better in MATH 198 or MATH 201 or equivalent.

Intended Audience: Students wanting an intermediate Calculus course that prepares them for further study in mathematics, science, and engineering.

Objective: To better understand the mathematics which is the foundation for modern science, with emphasis on applications, approximations, and the role of proof. To develop higher level thinking skills; in particular, to practice drawing on previous knowledge to approach new problems.

The Calculus ushered in modern science and challenged the vision of poets, theologians and philosophers. It serves as the basis for much of today's science and technology.

Textbooks: *Calculus: Early Transcendentals, by Stewart; 9th edition, Brooks/Cole Publishing. Note: Access to WebAssign is also required for the course. This is provided through inclusive access in MyClasses and a charge for it will be billed through your SU account.*

Technology: *Mathematica (computer software is available to current SU students) and WebAssign accessed via the license described above.*

Topic	Weeks
Applications of Integration (Chapters 5 and 6 Sections 5.4, 5.5, 6.1 - 6.4)	2.5
Length, area, surface area, volume, and a physical application.	
Integration Techniques (Chapter 7 Sections 7.1 - 7.8)	2
Integration by parts, inverse trigonometric functions and trigonometric substitutions, partial fractions, numerical integration, and improper integrals.	
Infinite Sequences and Series (Chapter 11 Sections 11.1 - 11.7)	3
Convergence of sequences and series; tests for convergence; estimating and calculating the value of a series; absolute and conditional convergence.	
Series Representation of Functions (Chapter 11 Sections 11.8 − 11.11)	2.5
Power series; Taylor and Maclaurin polynomials and series; differentiation and integration of power series; and applications.	
Parametric Curves (Chapter 10 Sections 10.1 - 10.4)	1.5
Parametrizing circles, ellipses, function graphs and line segments; tangent lines and concavity. Integral Calculus on parametric curves, Polar Coordinates, and area and length.	
Differential Equations (Chapter 9 Sections 9.1 - 9.3)	1.5
Modeling with differential equation; direction fields, separable equations.	
Testing	1
Total	**14**

Evaluation

Homework or Quizzes	$20 - 40\%$
In-class examinations	$40 - 60\%$
Comprehensive Final Exam	$20 - 40\%$

- 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.