COURSE DESCRIPTION

Dept., Number	Math 261	Course Title	Unified Calculus and Analytic Geometry I
Semester hours	3	Course Coordinators	Tristan Denley, Chair and Associate Professor Marlow Dorrough, Instructor, Director of Freshman Mathematics

Current Catalog Description

Differential and integral calculus; analytic geometry introduced, covered in integrated plan where appropriate. (Four-term sequence for engineering and science majors; 262 terminal course for nonscience major)

Textbook

George B. Thomas, Maurice D. Weir, Joel Hass, and Frank R. Giordano. *Thomas' Calculus,* 11th - edition, 2005, Volume 1 – Custom Edition for the University of Mississippi.

References

Mathematica software package: http://www.olemiss.edu/depts/mathematics/

Course Outcomes

Upon successful completion of this course, the students:

1. understand the concepts and rules of differentiation,

2. know different techniques for finding derivatives,

3. possess enhanced problem-solving skills,

4. can apply the concepts and theories learned in this course to solve application problems that include optimization and curve sketching.

Relationship between Course Outcomes and Program Outcomes

The ABET/CAC criteria for computer science require the study of at least 15 hours of mathematics beyond the precalculus level. The BSCS program requires at least two courses in differential and integral calculus, Math 261 and 262, to satisfy part of this expectation.

All four course outcomes contribute to program outcomes (a) and (j).

Prerequisites by Topic

There are no official prerequisites. However, students entering Math 261 should have studied advanced algebra (e.g., Math 121) and trigonometry (e.g., Math 123) previously at the high school or college level. Math 125 is a precalculus course that provides a unified review of the algebra and trigonometry needed for study of Math 261 and subsequent mathematics courses.

Major Topics Covered in the Course

This course covers differentiation and its applications using chapters 2, 3, and 4 of the textbook. The content includes, but is not limited to, limits and rates of change, continuity, derivatives, derivative rules, higher derivatives, implicit differentiation, and applications of differentiation.

Assessment Plan for the Course

The instructor assesses the student performance related to the course outcomes by using examinations, quizzes, homework assignments, and Mathematica labs.

How Data in the Course are Used to Assess Program Outcomes (unless adequately covered already in the assessment discussion under Criterion 4)

The conduct of this course is not governed by the ABET program faculty. No data are collected that are used to assess program outcomes directly.

Estimate Curriculum Category Content (Semester hours)

Mathematics 3 hours