Course number, title and credits; total time allocation

Course Letter/Number  MAT 151  Credits  4  Title  Calculus I
Lecture/Discussion  4  hrs/semester  Lab  hrs/semester  Clinical  hrs/semester

Catalog Description and Pre- and Co-requisites (Same as taxonomy and catalog)

First calculus course for business, mathematics, engineering and science students explores introductory plane analytic geometry, the derivative, the integral and their applications for algebraic, trigonometric, exponential and logarithmic functions. The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite is more than two years old, then the recommendation is that the course placement exam should be taken or the prerequisite be retaken to ensure the success of the student.

Prerequisite: MAT 141, with 2.0 minimum, within 2 years

Knowledge, Skills and Abilities Students Acquire from this Course (Educational Objectives)

1. Demonstrate understanding of the fundamental concepts of calculus (the limit, derivative and integral) from a graphical, numerical and symbolic perspective.
2. Find and simplify derivatives of algebraic, exponential, logarithmic and trigonometric functions using appropriate techniques of integration.
3. Find integrals using the anti-derivative and u-substitution techniques.
4. Analyze and solve problems requiring application of the derivative and integral including optimization, related rates and area under a curve.
5. Use analytic geometry to understand the relationship between limits, derivatives and the graphs of functions.
6. Demonstrate knowledge of current technology as related to topics in the course.

Associate Degree Outcomes Addressed in this Course (These must appear in course syllabus.)

- ADO 3: Demonstrate computational skills and mathematical reasoning
- ADO 7: Critical Thinking and Problem Solving

Units/topics of Instruction

See course description and educational objectives.

Instructional Techniques and Procedures

Although techniques vary from instructor to instructor, this course usually consists of mostly lecture and group work.

Instructional Use of Computer or Other Technology

A graphing calculator is used extensively in this course. The instructor may choose to incorporate the use of an online homework system.

Instructional Materials and Costs to Students

The instructional material for this course consists of the textbook and a graphing calculator.

Skills and abilities students should bring to the course

Able to read  x  a limited amount of material
____ an average amount of material
____ an above average amount of material

Able to compute  x  basic, pre-algebraic problems
____ simple algebraic problems
____ higher order mathematical problems

Able to read  x  relatively easy material
____ moderately difficult material
____ technical or sophisticated material

Able to write  x  short compositions
____ medium length compositions
____ lengthy compositions

Able to use technology  x  keyboard skills/familiar with computer
x  computer application
x  web navigation

Other necessary abilities
The course is usually scheduled

Day:  x  Fall  x  Winter  x  Spring

Evening:  x  Fall  [ ]  Winter  [ ]  Spring

Prepared by ____________________________________________

Approved by Dept. ______________________________________

Approved by Dean ______________________________________

Approved by Curr. Comm. ________________________________

(Last names, please)

Date __________________________  Date __________________________  Date __________________________

Form Revised 12/4/00