SYLLABUS

**Course**:          MAT 221 Calculus with Analytic Geometry III

**Text**:               Calculus Early Transcendental Functions, 4th Edition, 2007, Larson, Hostetler, Edwards

**Calculator**:     TI-83 Plus **strongly** recommended

**Catalog Description**

**MAT 221 Calculus with Analytic Geometry III                                                 Credit, 3 sem hrs.**

            *Prerequisite: MAT 122*

A study of numerical methods, infinite series, polar coordinates, and vectors in the plane.

**Rationale**:  Calculus is applicable in diverse fields such as physics, chemistry, statistics, economics, etc., which makes it a valuable subject of study for all serious students of these subjects.  In addition, its mathematical beauty stimulates analytic and creative thinking skills.  This course includes a review of integration plus an introduction to sequences and series,Taylor polynomials, power series, conic sections, parametric and polar equations, vectors, cylindrical and spherical coordinates, and vector-valued functions.

**Objectives**:  Upon successful completion of this course, the student will be able to:

-identify sequences and series

-determine convergence or divergence for sequences

-determine convergence or divergence for infinite series using a variety of tests

-use power series and Taylor polynomials for differentiable functions and determine radius of convergence

-identify and graph conic sections

-graph and solve calculus problems involving parametric equations and polar coordinates

-perform operations on vectors in the plane and vectors in space

-determine equations for lines and planes in 3-space

-use the cylindrical and spherical coordinate systems

-solve problems involving applications of vectors in the plane

-differentiate and integrate vector-valued functions

-apply vector-valued functions to problems such as computing arc length and curvature

**Academic Integrity**:  Honesty and integrity are basic virtues expected of all students at Mississippi College.  The*Mississippi College Tomahawk* lists the policies and penalties for plagiarism and cheating.  This information can also be found online by going to

<http://www.mc.edu/publications/policies/> and following the link to Policy 2.19.

**Disability Accommodation**: If you need special accommodations due to learning, physical, psychological, or other disabilities, please contact Dr. Buddy Wagner in the Counseling and Career Development Center.  He may be reached by phone at 925-3354 or by mail at P. O. Box 4016, Clinton, MS 39058.

**Learning Environment**: The method of instruction will include lecture, group problem solving, individual problem solving, demonstrations, computer lab assignments, video and other library projects, quizzes and examinations.  Each student is expected to have a copy of the text, a calculator (TI-83 Plus **strongly** recommended), writing materials, and an open mind.

**Assessment:**  Assessment of the student's progress will be made through periodic examinations and quizzes as well as through classroom feedback.  There will be three unit examinations (100 points each), daily work (quizzes, projects, etc. for a total of 150 points) and a comprehensive final examination (150 points) which give a total of 600 possible points.  Grades will be assigned as follows:

            Total Points Earned                Grade

                        540-600                         A

                        480-539                         B

                        420-479                         C

                        360-419                         D

                        Below 360                     F

Makeup work is the responsibility of the student and should be cleared with the instructor in advance whenever possible. There are no makeups for quizzes. Out-of-class assignments are to be turned in at the start of the class on the date they are due.  Late work will be accepted only until the next class period and with a grade penalty. The college stipulates that the grade for the course is automatically an F in the event of 8 or more absences.

TENTATIVE ASSIGNMENT SCHEDULE (TR)

Review of Integration                                                  1 class periods

Sequences and Series                                               4 class periods

Function Approximation and Representation             3 class periods

Conic Sections                                                           2 class periods

Parametric Equations and Polar Coordinates            4 class periods

Vectors and the Geometry of Space                          5 class periods

Vector-Valued Functions                                            4 class periods

Leeway and Tests                                                      5 class periods