COURSE SYLLABUS

Ohio Northern University
College of Arts and Sciences
Department of Mathematics

Date: Fall/Winter/Spring 2008-09

Course MATH - 165 Name: Calculus 3

Credit hours: 4 Lecture hours/week: 4 Lab hours/week: 0

Instructor: Staff

Usual student level: Freshmen

Course required of students in: Mathematics, Engineering, Physics, Chemistry

Course frequency per quarter/year: Fall, Winter, Spring

Average enrollment per year: 150

This course has a prerequisite: MATH 164 (Calculus 2)

This course is a prerequisite for: MATH 263 (Calculus 4)

Catalogue Description:

Sequences and series, Taylor series, parametric curves, polar coordinates, conic sections, vectors, planes and lines in space.

Course Objectives:

To give students the necessary tools, concepts and methods to work in engineering, science and mathematics.

Textbook: Calculus, 6th Edition, by J. Stewart
A graphing calculator is required too.

Outline of content follows:
(see attached)

Course Outline
MATH - 165
Title: Calculus 3

Section	Topic	Days
7.8	Indeterminate forms and L'Hospital's Rule	2
8.8	Improper integrals	2
Infinite Sequences and Series		
12.1	Sequences	2
12.2	Series	2
12.3	The integral test	1
12.4	The comparison tests	1
12.5	Alternating series	1
12.6	Absolute convergence & the ratio & root tests	1
12.7	Strategy for testing series (review)	1
12.8	Power series	1
12.9	Representation of functions as power series	2
12.10	Taylor and Maclaurin series	4
12.11	Applications of Taylor polynomials	1
Parametric Equations and Polar Coordinates		
11.1	Curves defined by parametric equations	2
11.2	Calculus with parametric curves (omit surface area)	2
11.3	Polar coordinates	2
11.4	Areas and length in polar coordinates	1
11.6	Conic sections in polar coordinates (optional)	1
Appendix G	Complex numbers	2
13.2	Vectors	1
13.3	The Dot product	1
13.4	The Cross Product	1
13.5	Equations of lines and planes	1
13.6	Cylinders and Quadric Surfaces (optional)	1

This is a total of about 35 hours and about 5 hours are left for testing and reviews.

REMARKS:
1) It is expected that the instructor will do at least one of 11.6 and 13.6
2) To keep pace in chapter 12 it may be necessary to rely on intuitive procedures and methods.