

MATH 280 OUTLINE
CALCULUS AND ANALYTIC GEOMETRY
 TEXT: Calculus, 5th Edition, Stewart

Approved:

Effective:

MATERIAL TO BE COVERED	SECTIONS FROM TEXT	TIME LINE
Vector-valued functions, vector parametrizations for space curves, limits, derivatives, and integrals of vector-valued functions; projectile motion; arc length, curvature; normal and tangential components of acceleration'; Kepler's laws.	14.1 - 14.4	8.25 Hours
Functions of several variables, level curves and level surfaces, limits and continuity, partial derivatives, tangent plane, linear approximation, total differential, the chain rule.	15.1 - 15.5	6.5 Hours
Directional derivatives and the gradient, extrema of functions of several variables with the second partials test, Lagrange multipliers.	15.6 - 15.8	8 Hours
Double and triple integrals, including evaluation, application to plane area, volume, moments and centers of mass, surface area; polar, cylindrical, and spherical coordinates; the Jacobian and change of variables in multiple integrals.	16.1 - 16.9	14.5 Hours
Vector fields, line integrals, work, independence of path, potential functions and conservative fields.	17.1 - 17.3	6.5 Hours
Green's theorem, surface area and surface integrals, flux, parametrized surfaces, divergence and curl, Stokes's theorem, the Divergence theorem.	17.4 - 17.9	8.5 Hours

*** One hour = 1 hour of face time. ****This outline allows for 4 hours of exams.

16 Week Term: 1 week = 3.75 hours (face time) 6 Week Term: 1 week = 10 hours (face time)

NOTES:

1. It is expected that a student leaving this course will have had experience with a computer algebra system. A minimum of two computer assignments is required.
2. A computer algebra system handout and the Logic handout should be distributed to all students; ALL STUDENTS need to be exposed to proofs and logic.
3. At least 25% of the grade should be based on student performance without the aid of a graphing calculator or computer.

**** See reverse side for important Department Policy****

Submitted by: Guth