



Division:	Science/Mathematics	Area:	Mathematics
Course Number:	MATH 172	Course Name:	Calculus II
Prerequisite:	MATH 171		
Corequisite:	NONE		
Hours Required:	Class: 60	Lab: 0	Credits: 4 (four)

Course Description/Purpose

This course is a continuation in the study of calculus with an emphasis upon integration. Topics included are algebraic and transcendental functions, techniques of integration, improper integrals, infinite series, plane analytic geometry, parametric equations and polar equations. The purpose of the course is to continue the study of calculus of single variable functions with a more in-depth study of integration and various infinite series.

Major Units

- Applications of Integration (Areas, Volumes, Average Value)
- Techniques of Integration
- Further Applications of Integration
- Parametric Equations and Polar Coordinates
- Sequences and Series

Educational/Course Outcomes

Student learning will be assessed by a variety of methods, including, but not limited to, quizzes and tests, journals, essays, papers, projects, laboratory/clinical exercises and examinations, presentations, simulations, portfolios, homework assignments, and instructor observations.

Cognitive: Each student will be expected to *Identify/Recognize*. . .

- the rules of differentiation and integration;
- the trigonometric identities;
- the differences between sequences and series;

Performance: Each student will be expected to *Demonstrate/Practice*. . .

- Application of Methods of Integration:
 - algebraic substitution
 - integration by parts
 - trigonometric identity substitution
 - trigonometric function substitution
 - partial fraction decomposition;

Performance: Each student will be expected to *Demonstrate/Practice*. . . (continued)

- Integrate:
 - trigonometric functions
 - inverse trigonometric functions
 - hyperbolic functions
 - inverse hyperbolic functions
 - improper integrals;
- Test Infinite Series for Convergence;
- Apply Infinite Series.