M209
(3 Credit Hours)

Textbook: Technical Calculus with Analytic Geometry,
Four Edition, by Peter Kuhfittig

Course Prerequisite: M208

CONTENTS

Applications of the Integral

- Volumes of Revolution: Disk, Washer Method, and Shell Method
- Centroids
- Moments and Inertia
- Work and Fluid Pressure

Integration Techniques

- Power Formula Integration using Substitution
- Integration of Logarithmic and Exponential Functions
- Integration of Trigonometric Functions
- Use technology to perform integration Limits and derivatives

Introduction to Infinite Series

- Test for convergence
- Maclaurin Series
- Computing using Maclaurin and Taylor Series

Differential Equations

- Introduction to Differential Equations
- Solving Differential Equations using Separation of Variables
- First – Order Linear Differential Equations
- Technical applications of First-Order Differential Equations
- Higher-Order Homogeneous Differential Equations
- Auxiliary Equations with Repeating and Complex Roots
- Nonhomogeneous Equations

Sample Math M209 Syllabus

Date	Sections	Topics
26-Aug	5.2	Volumes of Revolution: Disk and Washer Methods
28-Aug	5.3	Volumes of Revolution: Shell Method
2-Sep	5.4	Centroids
4-Sep	5.6	Work and Fluid Pressure
9-Sep	7.1,7.2	The Power Formula, Logarithmic and Exponential Forms
11-Sep	7.3	Trigonometric Forms
16-Sep	Review	
18-Sep	Exam1	
23-Sep	7.4	Further Trigonometric Forms
25-Sep	7.6	Integration by Trigonometric Substitution
30-Sep	7.7	Integration by Part
2-Oct	10.1	Introduction to Infinite Series
7-Oct	10.2	Tests for Convergence
9-Oct	10.3	Maclaurin Series
14-Oct	Review	
16-Oct	Exam2	
21-Oct	10.4	Operations with Series
23-Oct	10.5	Computing using Maclaurin and Taylor Series
28-Oct	11.1	Introduction to Differential Equations
30-Oct	11.2	Separation of Variables
4-Nov	11.3	First-Order Linear Differential Equations
6-Nov	Review	
11-Nov	Exam3	
13-Nov	11.4	Technical Applications of First-Order Differential Equations
		Higher-Order Homogeneous Differential Equations, Auxiliary
18-Nov	12.1,12.2	Equations with Repeating and Complex Roots
20-Nov	12.3	Nonhomogenous Equations
25-Nov	12.4	Applications of Second-Order Equations (If time allows)
2-Dec	Review	
4-Dec	Review	
09-Dec	Final Exam	