UNIVERSITY OF CALGARY

FACULTY OF SCIENCE
Department of Mathematics and Statistics

Mathematics 267 University Calculus II

Calendar Description: H(3-1T-1.5)
Sequences and series, techniques of integration, multiple integration, applications; parametric equations.

Prerequisite(s): Mathematics 249 or 265 or 275 or 281 or Applied Mathematics 217.

Antirequisite(s): Credit for more than one of Mathematics 267, 277, 349, or Applied Mathematics 219 will not be allowed.

Syllabus

Topics	**Number of Hours**
Sequences and Series, Taylor series	13
Techniques of integration	6
Applications of integration: volume, arc length, surface area	4
Parametric equations, polar coordinates	3
Multiple Integration, cylindrical and spherical coordinates	8
TOTAL HOURS	**36**

See accompanying page for a detailed breakdown of instructional hours.

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2014:06:13 Effective: Fall 2014
VS.jlong
Calendar description change Fall 2014

Detailed breakdown of instructional hours

Math 267 University Calculus II

SEQUENCES AND SERIES	Hours
Sequences and convergence	(1)
Monotone Convergence Theorem	(1)
Infinite series, convergence, geometric series, n-th term test	(1)
Series of positive terms. Integral test. Harmonic p-series	(1)
Series of positive terms. Comparison test and Limit Comparison Test	(1.5)
Series of positive terms. Ratio test and Root test	(1.5)
Alternating series test	(1)
Absolute convergence and conditional convergence	(1)
Power series, Radius of convergence, interval of convergence	(1)
Manipulating power series, differentiation and integration	(1)
Taylor series and Maclaurin series	(1)
Applications	(1)
TECHNIQUES OF INTEGRATION	
Review: Indefinite integral, u-substitution	(0.5)
Integration by parts	(1.5)
Trigonometric integrals	(1)
Trigonometric substitutions	(1)
Integral of rational functions using partial fractions	(2)
Introduction to WolframAlpha	(1)
APPLICATIONS OF INTEGRATION	
Review: Area, Riemann sum and the definite integral, Area between curves	(1)
Volume of solid – Slicing	(1)
Volume of solid of revolution – Shell method	(1)
Length of arc	(0.5)
Area of surface of revolution	(0.5)
PARAMETRIC EQUATIONS	
Parametric equations	(1)
Calculus of parametric equations	(1)
Polar coordinates	(1)
MULTIPLE INTEGRALS	
Functions of two variables and their graphs	(1)
Double integral, iterated integration (Rectangular coordinates)	(2)
Double Integration in polar coordinate system	(1)
Functions of three variables, triple integral, iterated integration	(2)
Cylindrical coordinates and triple integration in cylindrical coordinate system	(1)
Spherical coordinates and triple integration in spherical coordinate system	(1)

Total = (36)