INSTITUTE OF MATHEMATICS
College of Science
University of the Philippines Diliman

Math 123.2 Course Syllabus

A. Course Catalogue Description

Course Number	Math 123.2
Course Title	Advanced Calculus II
Course Description	Series of real numbers; series of functions; power series; topology of R^n; limits, continuity and differentiability of functions of several variables; implicit and inverse function theorems; multiple integration; improper integrals; transformations
Prerequisite	Math 123.1
Course Credit	3 units
Number of Hours	3 hours/week

B. Course Content

I. Course Introduction

II. Infinite Series
   1. Limit of an infinite series
   2. Tests for convergence
   3. Series of functions and power series
   4. Fourier Series (optional)

III. The Euclidean Space R^n
   1. Topology of R^n
   2. Sequences in R^n
   3. Metric spaces

IV. Functions of Several Variables
   1. Limit and Limit Theorems
   2. Continuity

V. Derivative of Functions of Several Variables
   1. Partial Derivatives
   2. Directional Derivatives
   3. Differentials
   4. The Derivative of $f : R^n \to R^m$ and its Jacobian
   5. General Chain Rule
   6. The Mean-Value Theorem
   7. Inverse Function and Implicit Function Theorem
   8. Taylor's Theorem (optional)

VI. Integral of Functions of Several Variables
   1. Riemann Sums
   2. Integrability
   3. Change of Variables

For a more detailed syllabus, send an email request to ddapr@math.upd.edu.ph.