

COLLIN COLLEGE EXPANDED GENERIC COURSE SYLLABUS

COURSE INFORMATION

Course Number: MATH 1376

Course Title: Calculus for Bus and Econ II

Credit Hours: 3

Lecture Hours: 3

Lab Hours: 1

Prerequisite

Math 1325

Course Description

In this course, application of differential equations, functions of several variables, Lagrange Multipliers, Least Squares Modeling, multiple integrals and infinite series will be covered. Basic concepts are related to multivariable calculus. Lab required.

Textbook/Supplies

Calculus with Applications by Lial / Greenwell / Ritchey, 12th edition available at Collin's Bookstores, Pearson Education.

Supplies: Graphing calculator required.

STUDENT LEARNING OUTCOMES (SLO)

Upon completion of this course the students should be able to do the following:

1. Evaluate definite, indefinite and improper integrals including application to finding areas, consumer and producer s surpluses and volumes of solids.
2. Use partial derivatives to determine local and absolute extrema with applications to continuous money flow, Lagrange Multipliers and total differentials. (Critical Thinking, Communication Skills)
3. Solve double integrals, separable and first order differential equations and find initial value problems.
4. Find geometric and infinite series. (Critical Thinking, Empirical/Quantitative Skills)
5. Solve Annuity and amortization problems with applications to business and economics (Critical Thinking, Communication Skills)

REQUIRED CORE OBJECTIVES FOR MATHEMATICS

As per the Texas Higher Education Coordinating Board, mathematics students must develop and demonstrate the following three required core objectives:

- Critical Thinking Skills - creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- Communication Skills - effective development, interpretation and expression of ideas through written, oral and visual communication.
- Empirical and Quantitative Skills - manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

METHOD OF EVALUATION

Course requirements

Attending class, completing homework assignments, completing labs, and completing required exams.

Course format

Lecture, lab, and guided practice.

A minimum of four proctored exams, a lab component grade, and a proctored comprehensive final exam will be given. Homework and/or quizzes may be used in place of one exam or in addition to exams. The weight of each of these components of evaluation will be specified in the individual instructor's addendum to this syllabus. All out of class course credit, including home assignments, service-learning, etc. may not exceed 25% of the total course grade; thus, at least 75% of a student's grade must consist of proctored exams, and no student may retake any of these exams.

COURSE POLICIES

College-wide policies are pre-loaded into the Concourse Syllabi and are not duplicated in the Expanded Generic Syllabi for each course.

Instructor specific policies should be added to the Concourse Syllabus.

COURSE CONTENT

Proofs and derivations will be assigned at the discretion of the instructor. The student will be responsible for knowing all definitions and statements of theorems for each section outlined in the following modules.

Module 1: Integration

The student will be able to:

1. Learn about antiderivatives and indefinite integrals. SLO 1
2. Learn integration by substitution. SLO 1
3. Learn about definite integral and area. SLO 1
4. Evaluate definite integrals using the Fundamental Theorem of Calculus. SLO 1
5. Find area between two curves. SLO1

Module 2: Further Techniques and Applications of Integration

The student will be able to:

1. Learn integration by parts. SLO 1
2. Find volume and average value of a function. SLO 1
3. Learn about continuous money flow. SLO 1
4. Solve improper integrals. SLO 1

Module 3: Multivariable Calculus

The student will be able to:

1. Learn equations and functions of several variables, surfaces and level curves. SLO 2
2. Find partial derivatives. SLO 2
3. Find relative maxima and minima. SLO 2
4. Learn Lagrange multipliers. SLO 2
5. Learn the chain rule and approximation by total differential. SLO 2
6. Learn double integrals. SLO 3

Module 4: Differential Equations

The student will be able to:

1. Find solutions of elementary and separable differential equations. SLO 3
2. Solve linear first order differential equations. SLO 3
3. Learn applications of differential equations. SLO 3

Module 5: Sequences and Series

The student will be able to:

1. Learn about Geometric sequences. SLO4, SLO 5
2. Learn about annuities. SLO4, SLO 5
3. Learn about infinite series. SLO 4, SLO 5