American University of Kurdistan - Math 210 Calculus III

Syllabus – Spring 2019

COURSE DESCRIPTION: Analytic geometry in space; partial differentiation and application; vectors in space; double and triple integrals and integral vector calculus.

INSTRUCTOR: Daner Ferhadi

PRE-REQUISITE: Math120, Math160

TEXT: _Thomas' Calculus Early Transcendentals 13th Edition with SI Units_

COURSE FORMAT: There are two 1.25-hour lectures each week. The sections covered in each lecture is listed on the course objectives and schedule which is contained in this syllabus.

EXAMINATIONS: One 120-minute midterm exam will be given during the semester and a comprehensive final exam will be given during the final exam period.

Following dates:

Midterm I	Late February - Early March (TBA)
Final Exam	April 23rd – May 9th (TBA)

COURSE GRADES: Grades will be assigned on a basis of 550 points, distributed as follows:

Midterm I	100
Homework and Quizzes	150
Final Exam	150
Total	400

HOMEWORK AND QUIZES: Homework will be given out weekly and collected and graded weekly. Quizzes will also be given out weekly.

OFFICE HOURS: Mondays 10:30 AM to 11:30 AM

LEARNING OBJECTIVES: Upon successful completion, the student will be familiar with vectors, vector operations, equations of curves and surfaces in space, calculus calculations involving curves, the calculation and applications of differentiation of functions of several variables, the calculation of double and triple integrals, vector fields, the calculation of line and surface integrals, and theorems relating certain integrals to others. These are covered in Chapters 12-16 of the textbook.

Suggested Schedule of Lectures:

Week	Day	Date	Sections	Topic
1	January	13th	12.1	Introduction into the 3D coordinate system
1	January	15th	12.2	Vectors
2	January	20th	12.3	Dot Product
2	January	22th	12.4	Cross Product
3	January	27th	12.5	Lines and Planes in Space
3	January	29th	12.6	Cylinders and Quadratic Surfaces
4	February	3rd	13.1	Curves in Space and Their Tangents
4	February	5th	13.1	Curves in Space and Their Tangents
5	February	10th	13.2	Integrals of Vector Functions: Projectile Motion
5	February	12th	13.2	Integrals of Vector Functions: Projectile Motion
6	February	17th	13.3, 13.4	Arc Length in Space, Curvature and Normal Vectors of Curves
6	February	19th	13.4	Curvature and Normal Vectors of Curves
8	February	24th	14.1	Functions of Several Variables
8	February	26th	14.1	Functions of Several Variables
9	March	3rd	14.2	Limits and Continuity in Higher Dimensions
9	March	5th	14.2	Limits and Continuity in Higher Dimensions
10	March	10th	14.3	Partial Derivatives
10	March	12th	14.3	Partial Derivatives
11	March	24th	14.4	The Chain Rule
11	March	26th	14.5	Directional Derivatives and Gradient Vectors
12	April	31th	14.5	Directional Derivatives and Gradient Vectors
12	April	2nd	14.6	Tangent Planes and Differentials
13	April	7th	15.1	Double Integrals over Rectangles
13	April	9th	15.2	Double Integrals over General Regions
14	April	14th	15.3	Area by Double Integration
14	April	16th	15.4	Double Integration in Polar Form
15	April	21th	15.5	Triple Integrals in Rectangular Coordinates
15	April	23th	15.7	Triple Integrals in Cylindrical and Spherical Coordinates