COQUITLAM COLLEGE
Established 1982

COURSE OUTLINE

Effective: Spring 2023

COURSE INFORMATION

Course Title: Multivariable Calculus **Course Number:** MATH 201 **Credits:** 3

Total Weeks: 14 (Fall, Spring)
12 (Summer)

Total Hours: 39

Course Level: ☐ First Year ☒ Second Year
☐ New ☐ Revised Course
☐ Replacement Course

Department: Mathematics **Department Head:** G.Belchev **Former Course Code(s) and Number(s) (if applicable):** N/A

Pre-requisites (If there are no prerequisites, type NONE): MATH 102 with MATH 232 recommended

Co-requisite Statement (List if applicable or type NONE): NONE

Precluded Courses: N/A

COURSE DESCRIPTION

This is the first course in multi-dimensional calculus. Topics include vectors, solid analytic geometry, differential calculus of several variables, multiple integrals, cylindrical and spherical coordinates and line integrals.

LEARNING OUTCOMES

Upon successful completion of the course, students will be able to:

- Analyze and visualize curves, surfaces, and regions in 2 and 3 dimensions, in Cartesian, polar, cylindrical, and spherical coordinates
- Perform calculus operations on vector-valued functions including limits, derivatives, integrals, curvature, and the description of motion in space
- Perform calculus operations on functions of several variables including limits, partial derivatives, directional derivatives, and multiple integrals
- Find and classify critical points and tangent planes of functions of two variables
- Apply the computational and conceptual principles of calculus to the solutions of various scientific and business applications

INSTRUCTION AND GRADING

Instructional (Contact) Hours:

Type	Duration
Lecture	39
Seminars/Tutorials	
Laboratory	
Field Experience	
Other (*specify):*	
Total	39

Grading System: Letter Grades ☒ Percentage ☐ Pass/Fail ☐ Satisfactory/Unsatisfactory ☐ Other ☐

Specify passing grade: 50%

Evaluation Activities and Weighting (total must equal 100%)

Assignments: 10%	Lab Work: %	Participation: %	Project: %
Quizzes/Test: 25%	Midterm Exam: 30%	Final Exam: 35%	Other: %

TEXT(S) AND RESOURCE MATERIALS

Provide a full reference for each text and/or resource material and include whether required/not required.

James Stewart, Multivariable Calculus: Concepts & Contexts

COURSE TOPICS

Week	Topic	
Week 1	3D Coordinate Systems; Vectors	9.1, 9.2
Week 2	Dot Product; Cross Product	9.3, 9.4
Week 3	Eqns. Of Lines & Planes; Vector Functions & Space Curves	9.5, 10.1
Week 4	Derivatives & Integrals of Vector Functions; Arc Length	10.2, 10.3
Week 5	Motion in Space; Functions of Several Variables	10.4, 9.6, 11.1
Week 6	Limits & Continuity; Partial Derivatives	11.2, 11.3
Week 7	Tangent Planes & Linear Approximations; **Midterm Exam**	11.4
Week 8	Chain Rule; Directional Derivatives & Gradient	11.5, 11.6
Week 9	Maximum & Minimum; Lagrange Multipliers	11.7, 11.8
Week 10	Double Integrals over Rectangles; Iterated Integrals	12.1, 12.2
Week 11	Double Integrals over General Regions	12.3, 12.4
Week 12	Applications of Double Integrals; Triple Integrals	12.5, 12.7
Week 13	Triple Integrals in Cylindrical & Spherical Coordinates	9.7, 12.8
Week 14	**Final Exam**	

NOTES

1. Students are required to follow all College policies. Policies are available on the website at: Coquitlam College Policies
2. To find out how this course transfers, vi sit the BC Transfer Guide at: bctransferguide.ca
3. Weekly course topics and textbooks may vary.

Last Reviewed: March 2025
Last Revised: January 2023