UNIVERSITY COLLEGE of the FRASER VALLEY

PAC FORM #2

COURSE IMPLEMENTATION DATE: { **}**
COURSE REVISED IMPLEMENTATION DATE: { Sep-03 **}**
COURSE TO BE REVIEWED: { Sep-07 **}**
(FOUR (4) YEARS AFTER IMPLEMENTATION DATE) **MONTH / YEAR**

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department and material will vary - see course syllabus available from instructor

FACULTY/DEPARTMENT: **MATHEMATICS AND STATISTICS**

MATH 211		**3**
COURSE NAME/NUMBER	**FORMER COURSE NUMBER**	**UCFV CREDITS**

CALCULUS III
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:
This course extends the concepts of first-year calculus from the one-variable setting to a multi-variable setting. Topics include 3-dimensional analytic geometry, euclidean spaces, partial derivatives and gradient, optimization, multiple integrals and applications.

PREREQUISITES:
Math 112 with C or better, or Math 116 with C or better

COREQUISITES:

SYNONYMOUS COURSE(S)

(a) Replaces: _____ (Course #)

(b) Cannot take: _____ (Course #) for further credit

SERVICE COURSE TO:

_____ (Department / Program)

_____ (Department / Program)

TOTAL HOURS PER TERM: **60**

STRUCTURE OF HOURS:

Lectures:	60 hrs.
Seminar:	hrs.
Laboratory:	hrs.
Field Experience:	hrs.
Student Directed Learning:	hrs.
Other (Specify):	hrs.

Combination of Lecture and Lab Hours: _____ **YES/NO**

TRAINING DAY-BASED INSTRUCTION

LENGTH OF COURSE: N/A

HOURS PER DAY: N/A

MAXIMUM ENROLMENT: **36**

EXPECTED FREQUENCY OF COURSE OFFERING: Every Year

WILL TRANSFER CREDIT BE REQUESTED?: (Lower-level courses only) **YES** X **NO** _____

WILL TRANSFER CREDIT BE REQUESTED?: (Upper-level requested by department) **YES** _____ **NO** _____

TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: **YES** X **NO** _____

AUTHORIZATION SIGNATURES:

Course designer(s): Joseph Yu

Course reviewed by: (type name in this field)

Department Head: Greg Schlitt

Chairperson: Greg Schlitt **(Curriculum Committee)**

Dean: Jackie Snodgrass

PAC Approval in Principle Date: (type date in this field)

PAC Final Approval Date: 2002 12 04

MATH 211

COURSE NAME / NUMBER

LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:

This course serves to introduce the stduents to some of the basic concepts in multivariable calculus which generalize the ideas and techniques of single-variable calculus, in particular: partial derivatives, multiple integration and applications

On completing the course, the successful student will understand the concepts, including definitions and statements of major theorems.

He or she will be able to use the appropriate techniques for finding partial derivatives and evaluating multiple integrals, in several different coordinate systems, and interpret the results of the calculations. Furthermore, they will also be able to use the theory and techniques to model and solve application problems.

METHODS:

The course will be primarily lecture-based. Evaluation will include quizzes, midterm exams, assignments and a final exam.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR **YES** X **NO** ____

METHODS OF OBTAINING PLAR:

Course Challenge

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

The text is chosen by a departmental curriculum committee. An example of texts for this course might be:

Multivariable Calculus (7 ed) by Larson, Hostetler and Edwards, Houghton and Mifflin (2002)

SUPPLIES / MATERIALS:

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

The weighting of the course may vary from instructor to instructor, although there must be at least two midterm exams and a comprehensive final exam which must be worth at least 40% of the final grade. A student must obtain at least 40% on the final exam to pass the course. An example of student evaluation for this course:

Quizzes and Assignments	20%
Midterm exas (2)	40%
Final Exam	40%

MATH 211

COURSE NAME / NUMBER

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

I Vectors and the Geometry of Space

1. vectors in the plane
2. cylindrical and spherical coordinates
3. the dot product of two vectors
4. the cross product of two vectors in space
5. lines and planes in space
6. surfaces in space
7. cylindrical and spherical coordinates

II Functions of several variables

1. limits and continuity of several variables
2. partial derivatives and chain rules
3. directional derivatives and gradients
4. tangent planes and normal lines
5. extrema of function of two variables and applications

III Multiple Integration

1. iterated integrals and area in the plane
2. double integrals and volume
3. change of variables: polar coordinates
4. surface area
5. triple integrals and applications
6. triple integrals in cylindrical and spherical coordinates
7. change of variables: Jacobians