Douglas College

EFFECTIVE: SEPTEMBER 2004
CURRICULUM GUIDELINES

A.	Division:	**Instructional**	Effective Date:	**September 2004**	
B.	Department / Program Area:	**Mathematics/ Faculty of Science & Technology**	Revision	**X**	New Course
			If Revision, Section(s):	**A, B, C, H, J**	
			Date of Previous Revision:	**November 14, 1990**	
			Date of Current Revision :	**September 2004**	

C: **MATH 1125** **D**: **Calculus for the Social Sciences** **E:** **3**

Subject & Course No.	Descriptive Title	Semester Credits

F: Calendar Description:

This course is an introduction to differential calculus for students in business, social sciences and biological sciences. Topics include limits, differentiation techniques for algebraic functions, applications to graphing and optimization, implicit differentiation, differentials, differentiation of log and exponential functions, and an introduction to partial derivatives and multivariable calculus.

G: Allocation of Contact Hours to Type of Instruction / Learning Settings

Primary Methods of Instructional Delivery and/or Learning Settings:

Lecture

Number of Contact Hours: (per week / semester for each descriptor)

4 hours / week

Number of Weeks per Semester:

15

H: Course Prerequisites:

MATH 1115 or a grade of B in Algebra 12

I: Course Corequisites:

None

J: Course for which this Course is a Prerequisite

MATH 225 or MATH 450

K: Maximum Class Size:

35

L: PLEASE INDICATE:

- [ ] Non-Credit
- [ ] College Credit Non-Transfer
- [X] College Credit Transfer:

SEE BC TRANSFER GUIDE FOR TRANSFER DETAILS (www.bccat.bc.ca)

M: Course Objectives / Learning Outcomes

Upon completion of this course, the student should be able to:

1. Compute elementary limits; understand the basis of derivatives; be able to calculate derivatives of algebraic and transcendental functions (exp(x) and ln (x)); and find derivatives implicitly.
2. Sketch graphs of functions by applying first and second derivative techniques; and be able to locate the extrema of functions.
3. Solve problems with simple economic modeling theory, involving such concepts as marginals, revenue and profit maximization, points of diminishing returns, and elasticity.
4. Understand the elements of partial derivatives and solve simple two-variable problems to optimize demand and revenue functions.

N: Course Content:

1. Limits; introduction to continuity; rates of change; derivative definition; tangent lines; rules and techniques for differentiating; marginal analysis.
2. First derivative and graphs; second derivative; application to graphs optimization problems; curve sketching; differentials
3. Derivative of exponential and logarithmic functions; implicit derivatives; related rates; elasticity of demand; other applications to the mathematics of finance.
4. Functions of several variables; partial derivatives; graphical meaning of partial derivates; maximum/minimum problems in several variables; Lagrange multipliers; applications to simple two-variable optimization; least square method.

O: Methods of Instruction

- Lectures, problem sessions and assignments

P: Textbooks and Materials to be Purchased by Students

Barnett & Ziegler, Applied Mathematics for Business, Economics, Life Sciences, and Social Sciences, 3rd Edition, Dellen Publishing Company.

Q: Means of Assessment

Evaluation will be carried out in accordance with Douglas College policy. The instructor will present a written course outline with specific evaluation criteria at the beginning of the semester. Evaluation will be based on some of the following:

1. Weekly tests	0 – 40 %
2. Mid-term tests	20 – 70%
3. Assignments	0 – 15%
4. Attendance	0 – 5%
5. Class Participation	0 – 5%
6. Final Examination	30%

Prior Learning Assessment and Recognition: specify whether course is open for PLAR

None

Course Designer(s) Aubie Anisef

Education Council / Curriculum Committee Representative

Dean / Director Des Wilson

Registrar Trish Angus