

## MATH 250B Intermediate Calculus 2

### Course Description

This course continues the study of intermediate calculus. Directional derivative, gradient, Lagrange Multipliers, multiple integrals, applications, vector calculus, Green's Theorem, divergence, Stokes' Theorem. [3 credits] (*Source: Camosun College Calendar 2004 – 2005*)

**Prerequisites**                      MATH 250A

### Organization

In-class workload:                      4 hours lecture per week

Out-of-class workload:                      5 hours per week (or more for students with a weak background)

### Textbook

R.E. Larson, R.P. Hostetler and B.H. Edwards, *Calculus*, Seventh Edition, Houghton Mifflin Co., Boston, 2002.

**Calculator Policy**                      Texas Instruments TI-89 allowed

### Assignment

- Problems will be assigned for each class (they will be posted at the class's website); they are due at the beginning of the class on Tuesdays (starting 5 October 2004).
- Solutions should be presented in a neat and clear fashion and the paper should be well organized (and stapled if there is more than one page – penalty applies to “sloppy papers”).
- Late assignments will be given a penalty of 25%.
- Complete solutions will be posted online at <http://www.camosun.bc.ca/~lai>.

### Quizzes

- There will be three 50-minute quizzes (tentatively scheduled on **Thursday 28 October**, **Thursday 18 November**, and **Thursday 2 December**).
- Complete understanding of the examples done in class and the exercises in the assignments will be essential for success on the quizzes.
- Complete solutions will be posted online at <http://www.camosun.bc.ca/~lai>.

### Final Examination

- The final exam will cover the entire course and will be 3 hours long.
- As stated in the current college calendar on page 39, “students are expected to write tests and final examinations at the scheduled time and place.” Exceptions will only be considered due to **emergency** circumstances as outlined in the calendar. Holidays or scheduled flights are not considered to be emergencies.
- Final examination period December 13 – 17 (specific date, time, and location TBA)

**Assessment**

The final grade will be calculated according to the following breakdown:

Assignments	Quizzes (40%)			Final Exam.
	Quiz 1	Quiz 2	Quiz 3	
10%	15%	15%	10%	50%

**Percentage to Letter Grade Conversion** (subject to the conditions above)

95 to 100 (A+)	90 to 94 (A)	85 to 89 (A-)
80 to 84 (B+)	75 to 79 (B)	70 to 74 (B-)
65 to 69 (C+)	60 to 64 (C)	
50 to 59 (D)	0 to 49 (F)	

**Academic Conduct Policy**

There is an Academic Conduct Policy. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, Registration, and on the College web site in the Policy Section at <http://www.camosun.bc.ca/divisions/pres/policy/2-education/2-5.html>

**Course Content**

The course will follow the textbook fairly closely, covering the following topics:

Chapter 12 – Functions of Several Variables

- 12.1 Introduction to Functions of Several Variables
- 12.2 Limits and Continuity
- 12.3 Partial Derivatives
- 12.4 Differentials
- 12.5 Chain Rules for Functions of Several Variables
- 12.6 Directional Derivatives and Gradients
- 12.7 Tangent Planes and Normal Lines
- 12.8 Extrema of Functions of Two Variables
- 12.9 Applications of Extrema of Functions of Two Variables
- 12.10 Lagrange Multipliers

Chapter 13 – Multiple Integration

- 13.1 Iterated Integrals and Area in the Plane
- 13.2 Double Integrals and Volume
- 13.3 Change of Variables: Polar Coordinates
- 13.4 Center of Mass and Moments of Inertia
- 13.5 Surface Area
- 13.6 Triple Integrals and Applications
- 13.7 Triple Integrals in Cylindrical and Spherical Coordinates
- 13.8 Change of Variables: Jacobians

Chapter 14 – Vector Analysis

- 14.1 Vector Fields
- 14.2 Line Integrals
- 14.3 Conservative Vector Fields and Independence of Path
- 14.4 Green's Theorem
- 14.5 Parametric Surfaces
- 14.6 Surface Integrals
- 14.7 Divergence Theorem
- 14.8 Stoke's Theorem

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**Office:** Centre for Business and Access (CBA) Room 152  
**Office hours:** As announced in the first class (also posted on office door), or by appointment

	Monday	Tuesday	Wednesday	Thursday	Friday
07:30-08:20					
08:30-09:20					
09:30-10:20					
10:30-11:20					
11:30-12:20					
12:30-13:20					
13:30-14:20					
14:30-15:20					
15:30-16:30					

First Lecture: Monday 27 September 2004

Last Lecture: Friday 10 December 2004

No class on: Monday 11 October 2004 (Thanksgiving Day), and  
Thursday 11 November 2004 (Remembrance Day)

### How to do well in the course and where to get help

1. Do not skip classes.
2. Start working on the exercises as soon as they are assigned.
3. Studying in groups is an efficient way to learn mathematics; however, make sure you can solve problems yourself.
4. Extra help available from assistant at the Interurban Math Room: Technologies Centre (TEC) Room 142 (phone: 370-4492). This drop-in centre is freely available for your use to work on math homework and to seek help from the tutor on staff (see hours posted on door).
5. Learning Support and Services for Students  
There are a variety of services available for students to assist them throughout their learning. This information is available in the College Calendar, Registrar's Office or the College web site at <http://www.camosun.bc.ca>
6. Need a tutor/Want to become a tutor? Visit  
[http://www.camosun.bc.ca/resources/ses/tutors\\_list.php](http://www.camosun.bc.ca/resources/ses/tutors_list.php)