

**MATH 23B**  
**Multivariable Calculus**  
**Spring 2006**

**Time and Place:** MWF 3:30 – 4:40 College Eight 240

**Class Webpage:** <http://ic.ucsc.edu/~ptantalo/math23b/>

**Instructor:** Patrick Tantalo (<http://www.soe.ucsc.edu/~ptantalo/>)

**Office:** E2 257

**Office Hours:** MWF 10:00 – 12:00

**Email:** [ptantalo@soe.ucsc.edu](mailto:ptantalo@soe.ucsc.edu)

**Phone:** 831-459-3898

**Teaching Assistant:** Vince Bonini <[vbonini@count.ucsc.edu](mailto:vbonini@count.ucsc.edu)>

Office Hours: Friday 12:00 – 2:00 pm 356 JBE

Discussion Sections:

Tuesday 12:00 - 1:45 pm College Eight 250

Thursday 8:00 - 9:45 pm JBE 295

**Required Text:** *Vector Calculus*, fifth edition, by Marsden & Tromba. W. H. Freeman, 2003. The following reading schedule is a rough guide to what we will discuss and when. Several sections listed below (6.4, 7.7, 8.5, and 8.6) are considered optional, and will be covered lightly, or may be skipped. The remaining sections will be covered in full detail.

<i>Week</i>	<i>Sections</i>	<i>Topics</i>
1	5.1-5.2	Double integrals
2	5.3-5.5	Changing the order of integration, triple integrals
3	6.1-6.2	Maps of the plane, the change of variables theorem
4	6.3-6.4	Improper integrals, applications
5	7.1-7.2	Path integrals, line integrals
6	7.3-7.5	Integrals of scalar functions over surfaces
7	7.6-7.7	Integrals of vector fields over surfaces, applications
8	8.1-8.2	Green's theorem, Stokes' theorem
9	8.3-8.4	Conservative vector fields, Gauss' theorem
10	8.5-8.6	Differential equations, differential forms

**Coursework and Evaluation:**

**Homework** will consist of written assignments taken from the exercises at the end of each section. The **first Midterm Exam** will be held **Friday May 5**, and the **second Midterm Exam** will be held **Friday May 26**. The **Final Exam** will be held on **Monday June 12**, from **8:00 to 11:00 am**. Please make arrangements to be available at the appropriate times. Coursework will be weighted as follows:

Homework	15%
Midterm Exam 1	20%
Midterm Exam 2	20%
Final Exam	45%

The grading scale for the class will be approximately: A+::97%-100%, A::93%-96%, A-::90%-92%, B+::87%-89%, B::83%-86%, B-::80%-82%, C+::76%-79%, C::70%-75%, D::60%-69%, F::0%-59%. Letter grade boundaries may be lowered at my discretion in order to eliminate some borderline cases.