MATHEMATICS 10B
CALCULUS OF SEVERAL VARIABLES – II

Text: *Vector Calculus*, by J. E. Marsden and A. J. Tromba
Instructor: Zhuang-dan Daniel Guan
Class: TTh 2.10–3.30pm, Spr. 2340
First Class: April. 3, Tuesday
Office Hours: T 3.30–5.00pm or by appointment, Surge 237.

This course covers the basics of integral calculus for functions of two and three variables, including double and triple integration, changes of variables, line and surface integrals, and the theorems of Green, Stokes and Gauss in vector calculus.

Outline for Mathematics 10B

We plan to cover the following sections and expect your eager and sincere participations:

> Computation of volumes and Cavalieri's principle, double integrals over
> rectangles and more general regions, triple integrals.

> Change of variables, polar coordinates, spherical coordinates, improper
> integrals.

> Line integrals, parametrized surfaces, surface area, surface integrals, flux
> of a vector field.

> Theorems of Green, Stokes and Gauss; path independence of line integrals and the Fundamental Theorem of Calculus.

Tests: Midterm on the seventh week; Final: June 13 (W), 3–6pm.
Homework: Homework assigned during each Thursday class is due to following Thursday.
Homework is important, it counts for 10% of the total credit.
Quizzes: There will be two quizzes in the discussion sections, one on the fourth week and the other on the ninth week.
Discussion sections are also important, they count for another 15% of the total credit. The TA will check the attendance occasionally.
Midterm counts 25%, and Final counts 50%.