Vector Analysis

Spring 2018

MATH-UA.0224-001

Instructor:	Liming PANG	**Time:**	Mon. Wed. 14:00–15:15
Email:	liming@cims.nyu.edu	**Classroom:**	CIWW 201

Course Web Page: https://cims.nyu.edu/~liming/Vector/2018.html

Office Hours: Thursday 10:00–12:00 CIWW Room 720

Textbook: P.C.Matthews, *Vector Calculus*, Springer-Verlag London 1998

Teaching Assistant: Han WANG (hw1358@nyu.edu)

Grading Policy: Homework (20%), Quiz 1 (5%), Quiz 2 (5%), Midterm (30%), Final (40%).

Exam Schedule:

Quiz 1 .... Feb.23 2018
Midterm Mar.07 2018
Quiz 2 .... Apr.20 2018
Final Exam May.14 2018

Class Policy:

- Homework will be released each Thursday or Friday, and due on the following Friday during recitation. Late homework or emailed version shall NOT be accepted.

- You may discuss with your classmates about homework, but you should organize and write your solutions by yourself.

- We will NOT be able to accommodate out-of-sequence exams for purposes of more convenient travel, including already purchased tickets. Please note again the date of the exams and plan your travel accordingly.

- Exams will be close book. Books, paper or electronic material, calculator or electronic devices are NOT allowed during exams.

- The recitation is on Friday 14:00–15:15 at CIWW 312. The TA will discuss about some example exercises, remark on previous homework and review course material.

Tentative Course Outline:

> 01/22: Real Vectors
> 01/24: Basic Operations of Vectors
> 01/29: Line Integrals
> 01/31: Conservative Vector Fields
> 02/05: Surface Integral
> 02/07: Surface Integral
> 02/12: Curl
> 02/14: Stokes Theorem
> 02/21: Volume Integral
> 02/26: Divergence
> 02/28: Divergence Theorem
> 03/05: Review
> 03/07: Midterm
> 03/19: Suffix Notation
> 03/21: Suffix Notation
> 03/28: Dual Vector Space and Dual Basis
> 04/02: Tensors
> 04/04: Tensors
> 04/09: Alternating Tensors and Wedge Product
> 04/11: Alternating Tensors and Wedge Product
> 04/16: Tensors in Suffix Notation
> 04/18: Tensors in Suffix Notation
> 04/23: Inverse Function Theorem
> 04/25: Inverse Function Theorem
> 04/30: Implicit Function Theorem
> 05/02: Implicit Function Theorem
> 05/07: Review