

Vv255 Honours Calculus III

1 Introduction

1.1 Course Profile

1.1.1 Contact Information

- **Instructor:**

Jing Liu

- **Lectures:**

Monday (04:00pm – 05:40pm) in **E2-103**
Wednesday (10:00am – 11:40am) in **E2-103**
Thursday (04:00pm – 05:40pm) in **E2-103** Even Weeks Only

- **Office Hours:**

Monday (10:10am – 3.30pm) in **JI-Building 204**
Thursday (08:00am – 9.30am) in **JI-Building 204**

- **Email:**

`stephen.liu@sjtu.edu.cn`

- **Teaching Assistant/s:**

See Canvas for his/her contact information

1.1.2 Grading Policy

- **Assignment:**

25% Assignments will be given in the form of problem sets, and may require extra reading and the use of Matlab. Assignments will have bonus questions. Hints/solutions to the bonus questions will not be provided. Bonus can be and only be credited to and between assignments, and it cannot be used to exceed the full grade. Assignments need to be submitted to the **correct** pigeonhole in the JI-building before the **beginning** of class on the day indicated on the assignment. Please plan your time accordingly, late assignment will be severely penalised.

- **Exam:**

75%	There will be three exams:	Midterm I 20%	Midterm II 25%	Final 30 %
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- For this course, the grade will be curved to achieve a median grade of “**B+**”.

1.1.3 Textbook and Syllabus

- James STEWART, Calculus (7th edition).

Week	Topics	Textbook
1	Vectors, Matrices and Linear equations Dot Product, Projection and Basis	Ch-12.1 ~ 12.2 Ch-12.3
2	Cross Product and Determinant Lines, Planes, and Vector-valued functions Derivatives and integrals	Ch-12.4 Ch-12.5 Ch-13.1 ~ 13.2
3	Arc Length and Curvature Functions of Several Variables	Ch-13.3 ~ 13.4 Ch-14.1
First Midterm Exam		
4	Continuity Partial Derivatives	Ch-14.2 Ch-14.3
5	Differentiability The Chain Rule	Ch-14.4 Ch-14.5
6	Directional Derivatives and Gradient Maximum and Minimum values Lagrange Multipliers	Ch-14.6 Ch-14.7 Ch-14.8
7	Change of coordinates Double integrals	Slides Only Ch-15.1 ~ 15.3
Second Midterm Exam		
8	Applications of Double integrals Triple integrals	Ch-15.4 ~ 15.6 Ch-15.7 ~ 15.9
9	Jacobian Vector fields	Ch-15.10 Ch-16.1
10	Line Integrals The Fundamental Theorem for Line Integrals Green's Theorem	Ch-16.2 Ch-16.3 Ch-16.4
11	Divergence Curl	Ch-16.5 Ch-16.5
12	Surface Integrals Stokes' Theorem The Divergence Theorem	Ch-16.6 ~ 16.7 Ch-16.8 Ch-16.9
13	Final Exam	

1.1.4 Matlab

- Students are strongly encouraged to get acquainted with a computer algebra system and use it to experiment with the topics discussed in the class. Free software for both symbolic and numerical calculations (e.g. Maxima, Octave) are available, along with commercial tools such as [Matlab](#) .

- What is Matlab?

It is a software used by millions of engineers and scientists.

- What does it do?

It is designed to help you solve equations and manipulate expressions with minimal programming. It is particularly good at doing matrix operations.

- How to get Matlab

Matlab is installed on all computers in the JI Computer Lab.

You can also install Matlab on your own computer.

1. Register your name at [MathWorks](#) using your sjtu email
2. Download
3. Activate

Detailed instructions can be found at [JI's IT-page](#) .

1.1.5 Honour Code

- Honesty and trust are important. Students are responsible for familiarising themselves with what is considered as a violation of honour code.
- Assignments/projects are to be solved by each student individually. You are encouraged to **discuss** problems with other students, but you are advised **not to show your written work** to others. Copying someone else's work is a very serious violation of the honour code.
- Students may read resources on the Internet, such as articles on Wikipedia, Wolfram MathWorld or any other forums, but you are **not allowed** to post the original assignment question online and ask for answers. It is regarded as a violation of the honour code.
- Since it is impossible to list all conceivable instance of honour code violations, the students has the responsibility to always act in a professional manner and to seek clarification from appropriate sources if their or another students conduct is suspected to be in conflict with the intended spirit of the honour code.