

Course Syllabus for Discrete Mathematics (ve203)

Fall 2018

1 Course Description

Discrete Mathematics covers a diverse range of topics that are loosely connected by the fact that they are underpinned by discrete rather than continuous mathematical structures. The aim of this course is to introduce students to the mathematical study of logic, sets, functions, relations, orders, groups, graphs, algorithms and the natural numbers. Students will be equipped with both the skills and understanding to prove key results about discrete mathematical structures, and apply concepts and results about discrete mathematical structure to solve real-world problems. Students will also develop their mathematical communication and interrogation skills.

2 Course Information

Lecturer: Zach McKenzie

E-mail: zachiri.mckenzie@sjtu.edu.cn

Room: 441B

Lectures: Monday 4pm- 5:40pm of every even week in room F202, Tuesday and Thursday 4pm- 5:40pm in room F305

Office Hours: Tuesday 1pm- 3pm

Teaching Assistant: See CANVAS for the contact details of the TAs

Recitation Classes: The teaching assistants will lead weekly recitation classes beginning in the second week.

3 Grading Policy

Assignments worth 25%: Assignments will be given in the form of problem sets, and may require extra reading and the use of mathematical software.

Each assignment is due at the beginning of class on the day indicated. A penalty of 10% per day late will apply to assignments that are not handed in at the beginning of class on the due date.

Exams worth 75%: There will be two midterm exams worth 25% each and a final exam worth 25%.

4 Textbook

The textbook for this course is:

“Discrete Mathematics and Its Applications”, by Kenneth H. Rosen, 6th Edition.

5 Syllabus

Note that the following represents a rough schedule for this course. The exact timing of the topics covered is likely to change as the term progresses.

Week 1: Logic and set theory

Week 2: Functions, relations and orders

Week 3: Order theory and cardinality

Week 4: National Holiday

Week 5: Induction and counting

Weeks 6 and 7: Groups

First Midterm Exam in Week 6

Weeks 8 and 9: Number Theory

Weeks 10 and 11: Algorithms

Second Midterm Exam in Week 10

Week 12: Recurrence relations

Week 13: Graph theory

Week 14: Final Exam

6 L^AT_EX

As engineers, you are strongly encouraged to familiarise yourselves with a mathematical typesetting program called L^AT_EX. This is open-source software, and there are various implementations available. I suggest that you use Baidu or Google to find a suitable implementation for your computer and OS.

While the use of L^AT_EX is *optional*, there will be a 10% bonus to the awarded marks for those assignments handed in as typed L^AT_EX manuscripts.

7 Honour Code

- Academic honesty and trust are important. Students are responsible for familiarising themselves with what is considered as a violation of honour code.
- Assignments are to be solved by each student individually. You are encouraged to discuss assignment 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.
- You may read resources on the Internet, such as relevant articles on Wikipedia, Wolfram MathWorld or any other forums, but you are not allowed to post your 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.