Discrete Mathematics

Introduction

School of Computer Science

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Instructor

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2019_Discrete Mathematics

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  14:00~16:00 Wednesday @room 324 , or after class
- Assistant instructor:
- QQ:
- Tel:

Goals

- Learn a particular set of mathematical facts
- Apply these mathematic to solve problem
- Think logically and mathematically
- Five parts:
  - Mathematical reasoning
  - Combinatorial analysis
  - Discrete structures
  - Algorithmic thinking
  - Application and Modeling

What is it?

- Discrete mathematics is the part of mathematics devoted to the study of discrete objects.
- *Can solve problems such as*:
  - How many ways are there to choose a valid password on a computer system?
  - How can I identify spam e-mail messages?
  - What is the shortest path between cities?
  - How many steps are needed to do s sorting.

Why we need it?

- You can develop mathematical maturity(ability to understand and create mathematical arguments). This is important for further studies.
- It is a gateway to more advanced courses including data structures, algorithms, database, automata theory compiler and operating systems.
- It is the fundament of other mathematics, such as logic, set theory, number theory linear algebra, abstract algebra, combinatorics and graph theory.

How to learn it?

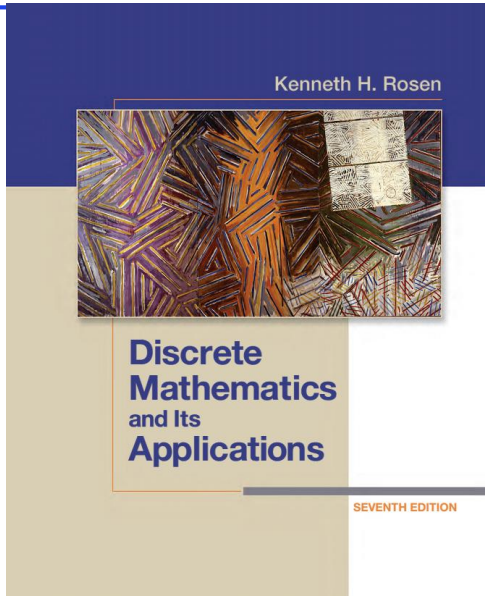
- The best way to learn a mathematics is understand it and do **a lot of exercises.**
  - Knowledge—learn the concepts, rules and how to proof them.
  - Skill—learn how to abstract the real world problem into mathematic model, how to apply the knowledge solve problems.

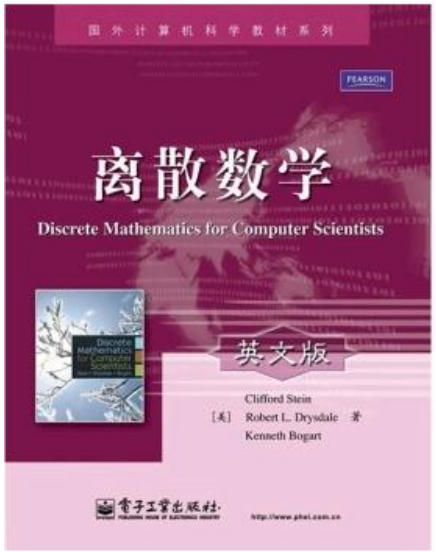
Key to the Exercises

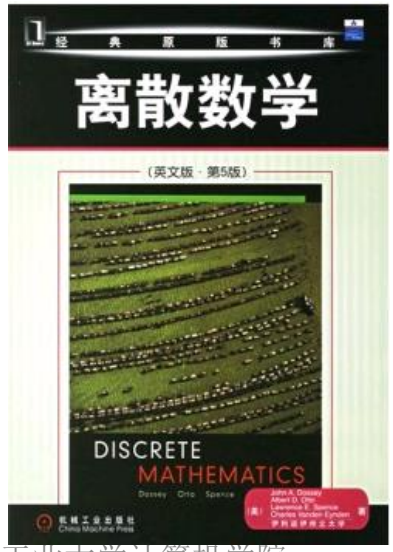
no marking	A routine exercise
*	A difficult exercise
**	An extremely challenging exercise
☞	An exercise containing a result used in the book (Table 1 on the following page shows where these exercises are used.)
(*Requires calculus*)	An exercise whose solution requires the use of limits or concepts from differential or integral calculus

Reference

- Text：
  - Discrete Mathematics and its Application, Kenneth H.Rosen（7th version)， 2012
  - *www.mhhe.com/rosen*
- Other reference Text
  - Discrete Mathematics for Computer Sciences, Clifford stein,2010
  - Discrete mathematics, John, A.Dassey , 2007







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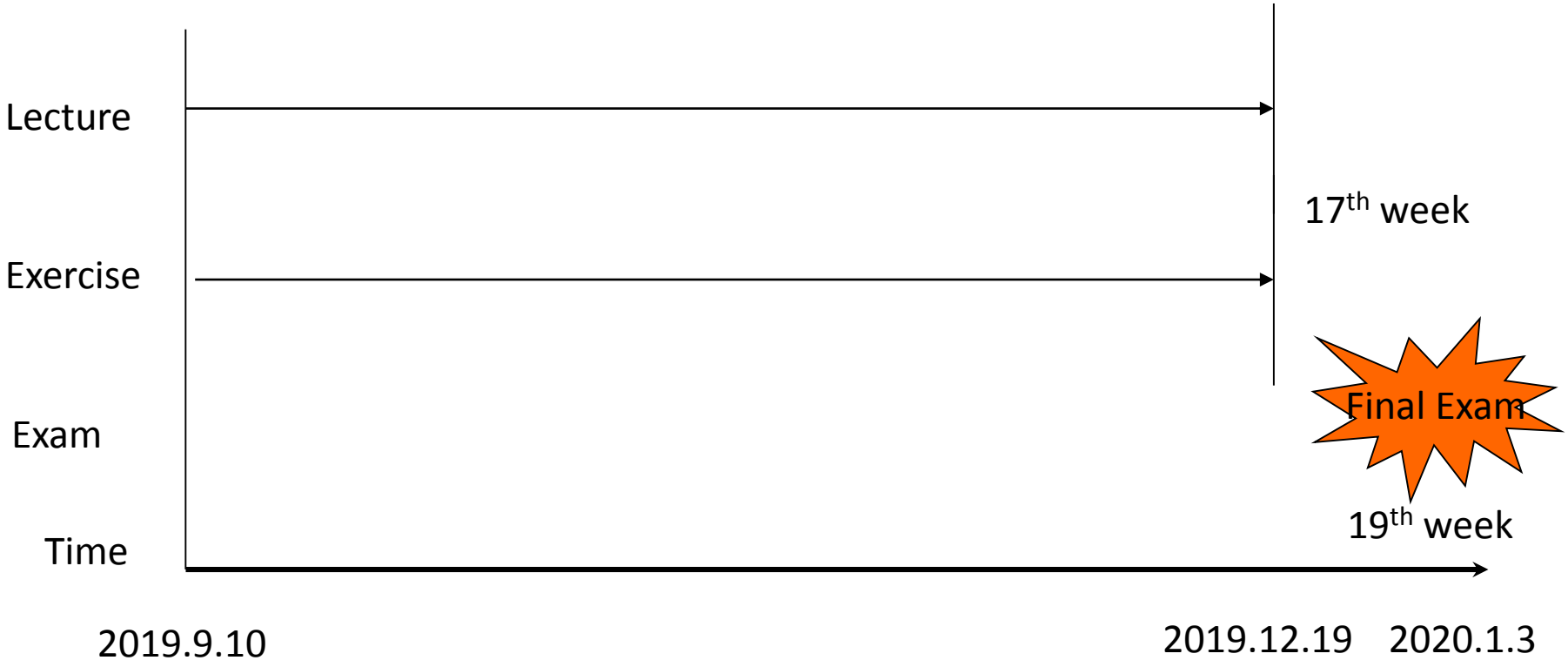
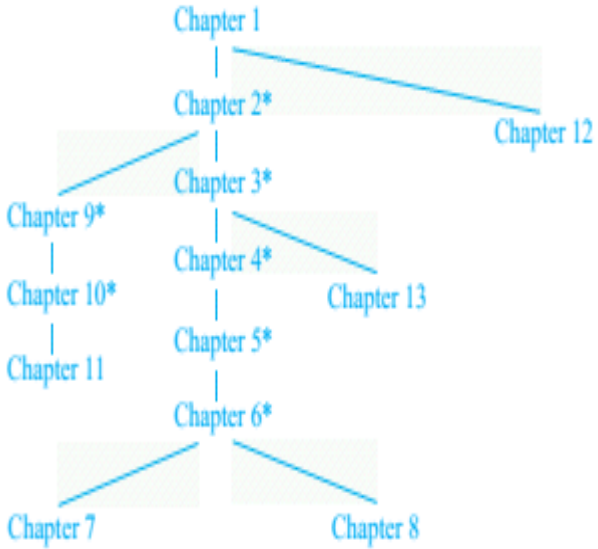
Schedule


Lecture
Exercise
Exam
Time
17th week
Final Exam
19th week
2019.9.10
2019.12.19
2020.1.3

Schedule

1.Introduction and chapter 1	8 hours
2.Chapter 2	6 hours
3.Chapter 3	6 hours
4.Chapter 4	6 hours
5.Chapter 5	6 hours
6.Chapter 6	6 hours
7.Chapter 8	6 hours
8.Chapter 9	6 hours
8.Chapter 12	2 hours
Total	52 hours



Credit

- Lecture: 3.5
  - Daily practice 40%
  - Final examination 60%
    - Completion
    - Choice question
    - Proof

Level	Percent
No Marking	70%
*	20%
**	10%

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Other

- If you have any question, you can email me （zhangxiao@nwpu.edu.cn）
- Anyone who absent three times will be disqualified
- Please set your phone to silent mode in the class.

At last

- The best way to learn a mathematics is to do more and more exercises. Our textbook provides many exercises, and you can do extra exercises besides the homework.
- The homework and examine will arrange 70% routine exercise, 20% different exercises and 10% challenging exercises. The good news is that examine will pick from textbook(not limit to homework).
- Discrete Mathematics is difficult, you must reserve 4 hours every week at least to finish the homework.