

CS1231S Discrete Structures

AY2020/21 Semester 1



Welcome to CS1231S

1. Lecturer (1/2)



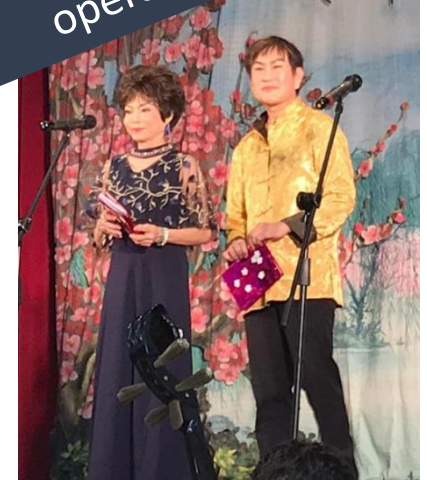
Running



Weekly group run with students.
You're welcome to join us!
Check out facebook.



Cantonese opera



A/P Tan Tuck Choy, **Aaron**

Office: COM1-03-12

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Admin appointment:

Assistant Dean

(Undergraduate Studies)

Singing



SoC Gala Dinner 2018

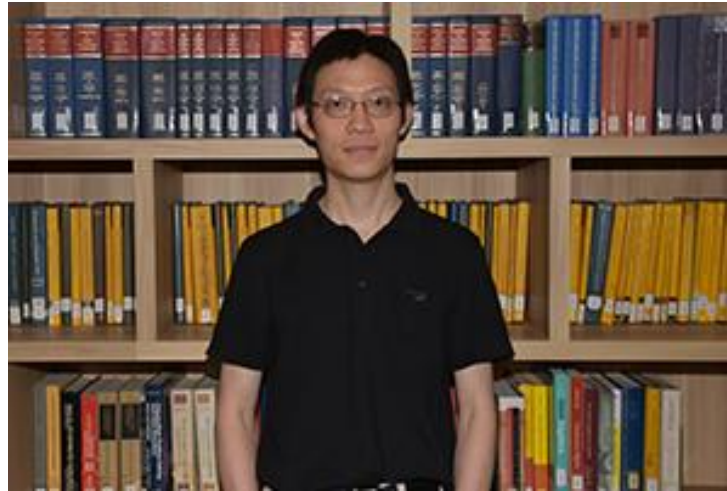
Wing Chun



Pottery



1. Lecturers (2/2)



Dr Wong Tin Lok, Lawrence

Mathematics Department, Faculty of Science

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Email: matwong@nus.edu.sg

2. Objectives

1. To develop **mathematical maturity** – the ability to formalize concepts, work from definitions, think rigorously, reason concisely, and construct a theory.
2. To provide basic mathematical prerequisites relevant to **Computer Science**.

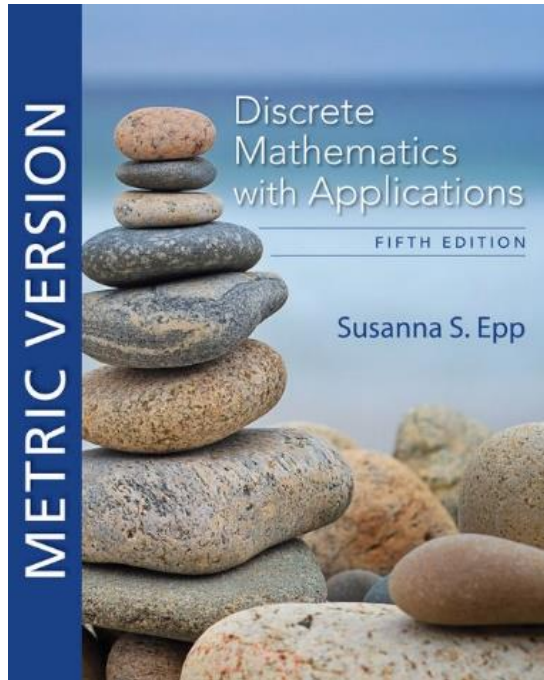
3. Topics

CS1231S and CS1231 have the same contents, midterm test and final exams.

Topics include:

1. Propositional logic and predicate logic
2. Proof techniques
3. Number theory
4. Sequences and Mathematical Induction
5. Set theory, Functions and Relations
6. Counting and Probability
7. Graphs and Trees

4. Reference Books



Discrete Mathematics with Applications

5th Edition

Author: Susanna S. Epp

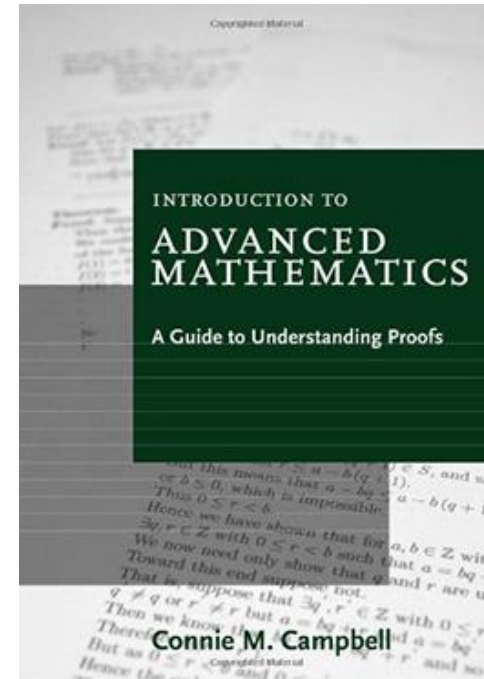
Publisher: Cengage Asia

ISBN-13: 9780357114087

ISBN-10: 0357114086

[Online resource](#)

It's ok if you get
the 4th edition.



Introduction to Advanced Mathematics:

A Guide to Understanding Proofs

Author: Connie M. Campbell

Publisher: Cengage Asia

ISBN-13: 9780547165387

ISBN-10: 0547165382

5. Online Resources (1/2)

LumiNUS: <https://luminus.nus.edu.sg>

- Lecture recordings
- Announcements
- Forum
- Files
- etc.

The screenshot shows the LumiNUS interface for the CS1231S Discrete Structures module. The top navigation bar includes links for MY MODULES, MODULE SEARCH, CONTENT BANKS, RESEARCH RECRUITMENT, and STUDENT FEEDBACK. The left sidebar lists various module management options under GENERAL (Module Overview, Module Settings, Module Details, Class & Groups, Attendance, Task Report) and TOOLS (Announcements, Chat, Conferencing, Consultation, Files, Forum, Gradebook). The main content area displays the module overview for CS1231S Discrete Structures, including the semester (1910 2019/2020 Semester 1), school (School of Computing), and dates (11 Jul 2019 12:38 pm - 21 Dec 2019 11:59 pm). A large dashed box with a plus icon and the text 'Add Module Overview' is present. On the right, there are two boxes: one stating 'There are 338 slots in total' with a link to 'See all slots', and another titled 'Examinations' showing the date and time 'Sat, 30 Nov 2019, 13:00 - 15:00 (120 Minutes)'.

5. Online Resources (2/2)

CS1231S module website:

<https://www.comp.nus.edu.sg/~cs1231s>



Module Info...

[Description](#)
[Staff](#)
[Schedules](#)
[CA](#)
[Policies](#)

Resources...

[Books](#)
[Online](#)
[Lectures](#)

CA...

[Tutorials](#)
[Assignments](#)
[Term Tests](#)
[Exams](#)

Misc...

- **Welcome to CS1231S!**
Please take some time to go over this website.
- Course materials are uploaded onto [LumiNUS](#) progressively. This CS1231S website serves as a backup in case LumiNUS is down.
- Please check out the LumiNUS announcements and discussion forums when the semester commences.

Hits since 20-May-14: [51924](#). Accesses today: [5](#). [Statistics](#).

As backup in case
LumiNUS is down.

6. Assessments

CA component	Date	Weightage
Tutorial attendance	-	5%
Two assignments	Due: weeks 6 & 11	20%
Midterm test	3 Oct (Sat)	25%
Final exam	25 Nov (Wed) 9-11am	50%

- Midterm test and final exam are open book, online and proctored. More details will be given later.
- Timing of midterm test will be announced later.

7. Lecture Plan (See CS1231S website for latest updates)

Week	Lecture topics	Tutorial
1	Speaking Mathematically; The Logic of Compound Statements	
2	The Logic of Quantified Statements	
3	Methods of Proofs	1
4	Sets	2
5	Functions, Bijections and Cardinality	3
6	Mathematical Induction and Recursion	4
Recess		
7	Divisibility, Primes and Base Expansion	5
8	Euclidean Algorithm, Fundamental Theorem of Arithmetic and Modular Arithmetic	6
9	Relations, Equivalence Relations and Partitions, and Partial Orders	7
10	Counting and Probability	8
11	Counting and Probability (cont'd); Graphs	9
12	Graphs (cont'd); Trees	10
13	Filler (Countability – non-examinable)	11

Lectures are
online and
recorded
over Zoom.

8. Tutorial Schedule (Refer to ModReg site)

- Information on the next slide is subject to changes as tutorial registration is dynamic and last-minute changes may be made (groups removed/deleted, etc.) Please refer to ModReg for the most up-to-date information.
- Please do **NOT email us** (acad staff) on requests such as adding you to a group or moving you to a different group. We are not permitted to do this. All requests/appeals should be sent to the official system where dedicated admin staff will handle and process your requests. Sending your requests to us will just cause further delay as we could at most forward your request to the admin.
- I will be monitoring the situation on my side and will post updates via **LumiNUS announcements**.

8. Tutorial Schedule (Refer to ModReg site)

- See tutorial schedule as at 5 Aug (as mentioned, this is dynamic and subject to changes) on the following CS1231S web page:
https://www.comp.nus.edu.sg/~cs1231s/1_module_info/sched.html
- Tutorials start in week 3 (24 August).

9. Why is Discrete Mathematics Important?

Discrete Math (DM) is important, especially for Computer Science.

It is the backbone of CS.

Concepts and notations from DM are useful in studying the describing objects and problems in all branches of CS, such as algorithms, programming languages, theorem proving and software development

Every field in CS is related to discrete objects – databases, neural networks, automata, etc.

Modeling with DM is an extremely important problem solving skill.

Useful for algorithms modules:

CS2040 (Data Structures and Algorithms), CS3230 (Design and Analysis of Algorithms), etc.

Logic part is useful in CS2100 (Computer Organisation).

10. CS1231S Tagline



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