CS1231S Discrete Structures

AY2021/22 Semester 2

1. Lecturer

Running

Cantonese opera

Used to have weekly runs with students every week (pre-Covid days)

A/P Tan Tuck Choy, Aaron
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Admin appointment:
Assistant Dean
(Undergraduate Studies)

Singing

Pottery

Wing Chun

SoC Gala Dinner 2018

1. Tutors

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

Topics include:

1. Propositional logic and predicate logic
2. Proof techniques
3. Sets
4. Relations
5. Mathematical Induction
6. Functions
7. Cardinality
8. Counting and Probability
9. Graphs and Trees

4. Reference Books
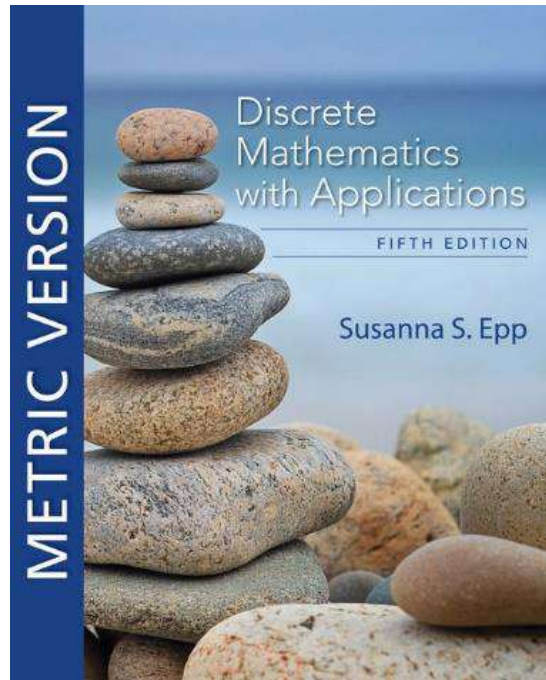
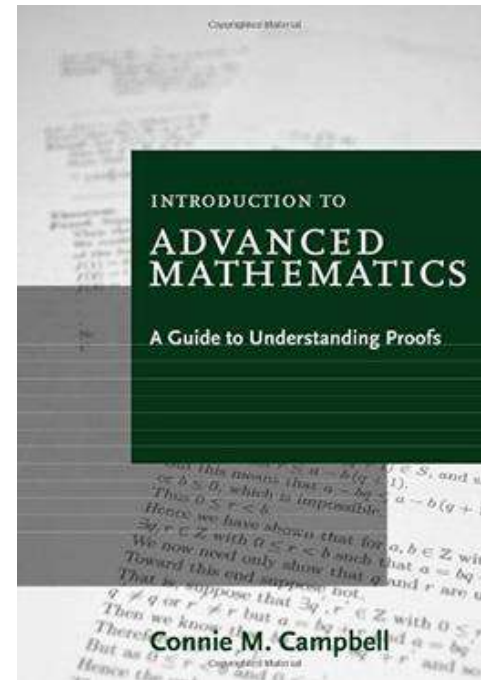**Discrete Mathematics with Applications**
5th Edition
Author: Susanna S. Epp
Publisher: Cengage Asia
ISBN-13: 9780357114087
ISBN-10: 0357114086
Online resource

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 (Multimedia)
Announcements
Files
Forum
Gradebook
etc.

5. Online Resources (2/2)

CS1231S module website:
https://www.comp.nus.edu.sg/~cs1231s

As backup in case LumiNUS is down.

6. Assessments

CA component	Date	Weightage
Tutorial attendance	-	5%
Two assignments	Due: weeks 6 & 12	20%
Midterm test	8 Mar (Tue) 6:30-8:30pm	25%
Final exam	27 Apr (Wed) 5-7pm	50%

- Midterm test and final exam are open book and face-to-face. More details will be given out later.

- Please post on "LumiNUS > Forum > Midterm test" by 28 Jan if the CS1231S midterm test clashes with your other test. Please provide details (such as the other module code and timing).

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

https://www.comp.nus.edu.sg/~cs1231s/1_module_info/sched.html

Week	Lecture topics
1	Speaking Mathematically; The Logic of Compound Statements
2	The Logic of Quantified Statements
3	Methods of Proofs
4	Sets
5	Relations
6	Modular Arithmetic and Partial Orders
	Recess
7	Mathematical Induction and Recursion
8	Functions
9	Cardinality
10	Counting and Probability
11	Counting and Probability (cont'd); Graphs
12	Graphs (cont'd); Trees
13	Filler

Lectures are online, recorded over Zoom, and published on LumiNUS.

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 12 January (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 January) and are face-to-face.

- (For students who are unable to attend tutorials face-to-face with valid reasons)

  - We will provide online tutorial for you.

  - Send me an email (tantc@comp.nus.edu.sg).

  - Please go ahead with the tutorial registration as normal. We will make arrangement after you have secured your tutorial group.

9. Why is Discrete Mathematics Important?

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

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

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

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.

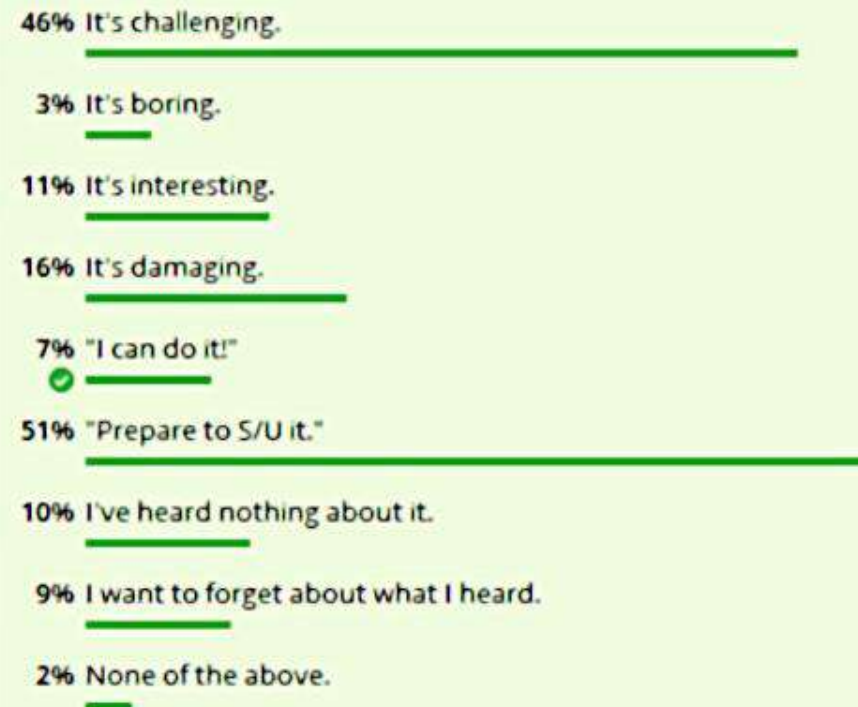Logic part is useful in CS2100 (Computer Organisation).

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10. Plagiarism

- Use or close imitation of the language and thoughts of another author and the representation of them as one's own original work.

- Plagiarism by students, professors, or researchers is considered academic dishonesty or academic fraud, and offenders are subject to academic censure, up to and including expulsion.

- Do not plagiarise or commit any acts of dishonesty.

- Further information:
  - https://www.comp.nus.edu.sg/cug/plagiarism/
  - http://nus.edu.sg/celc/programmes/plagiarism.html

11. CS1231S Tagline

What have you heard about CS1231S from those who have taken it before?

Anonymous Poll

46% It's challenging.

3% It's boring.

11% It's interesting.

16% It's damaging.

7% "I can do it!"
✓

51% "Prepare to S/U it."

10% I've heard nothing about it.

9% I want to forget about what I heard.

2% None of the above.

77 votes

7:42 PM ✓✓

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