CS1231S Discrete Structures

AY2026/27 Semester 1

CS1231S (AY2026/27 Sem1)
QnA

NUS National University of Singapore | School of Computing

1. Coordinator/Lecturer

Langkawi, February 2026

A/P Tan Tuck Choy, Aaron
Office: COM1-03-12
Email: tantc@comp.nus.edu.sg

Admin appointment:
Assistant Dean
(Undergraduate Studies
& Student Life)

Running

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

Full marathon

Cantonese opera

Choir

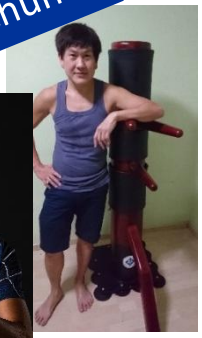
Joy Chorale

SoC 25th Anniversary
July 2023

Singing

SoC Gala Dinner 2018

Wing Chun



Computing 50th Anniversary
1st August 2025

1. Lecturers

Weekly Jogging

Board Games

Cycling

Dr Ashish Deepak Dandekar

Office: COM2-03-58
Email: dcsashi@nus.edu.sg

Classical Music

Hiking

Traveling

1. Lecturer (CS1231R)

Dr Maciej Lukasz Obremski

Office: COM2-02-16

Email: cqtmlo@nus.edu.sg

CS1231R

- For students who find CS1231S too easy and are looking for more challenges!
- CS1231R – 1 unit, credited in the NEXT semester if you complete it.
- Additional lectures will be conducted by Dr Maciej Lukasz Obremski. (Time slot to be decided later – we will do a poll.)
- Additional assignments will be given out.

Dr Maciej Obremski
Research Assistant Professor
Works on theoretical CS, mostly cryptography.

- Some possible topics (may subject to changes): Analysis of algorithms (recurrences); Cryptography (fields/groups (mod arithmetics), polynomials, Chinese reminder theorem, encryption, secret sharing); Randomness (union bounds, probabilistics proofs).

- Limited spots, thus there might be an entrance test!
- Plan:
  - Sign-up (+ test): week 2, (Test: Friday 16-18.00)
  - Lectures start in week 3, Friday 16-18.00

1. Tutors


Dr Eldon Chung


Prof Frank Stephan


Theodore (lead TA)


Brian Cheong


Ben Robinson


Sherwin Chang


Chwa Channe


Duan Yuhan


Dylan Tay


Hoang Cong Duc


Ivan Adrian


Michael Cenreng


Mikhalchuk Valentin


Ng Ting Hui


Nguyen Phuc Truong


Praneeth Suresh


Raisa Nishat


Rajavel Aishwarya


Rishav Gupta


Saswata Mukherjee


Ser Yi Zhe


Sue Zheng Yong


Tze Tzun (Joseph)


Thu Rein


Toh Jun Yee


Too Justin


Tse Henry


Vu Dang Khoa


Yeoh Khang Sian


Zhou Haoran


Zhu Jiahang

2. Objectives

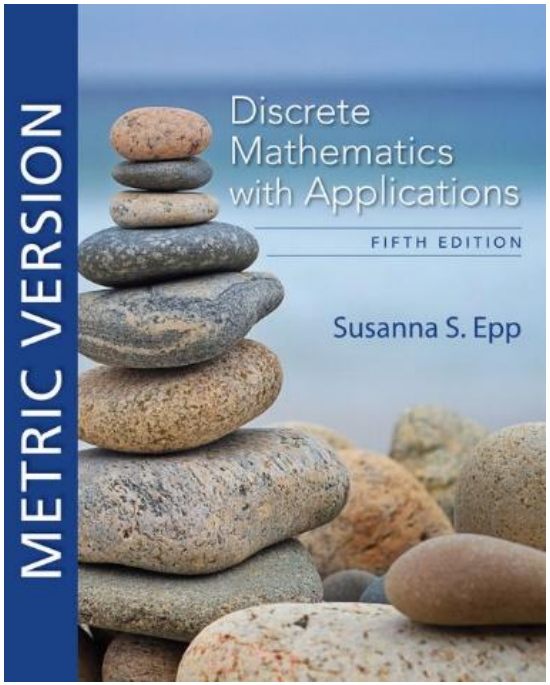
1. To develop mathematical maturity – the ability to formalize concepts, work from definitions, think rigorously, reason concisely, and construct a theory.
2. To provide basic mathematical prerequisites relevant to Computer Science.

3. Topics

Topics include:

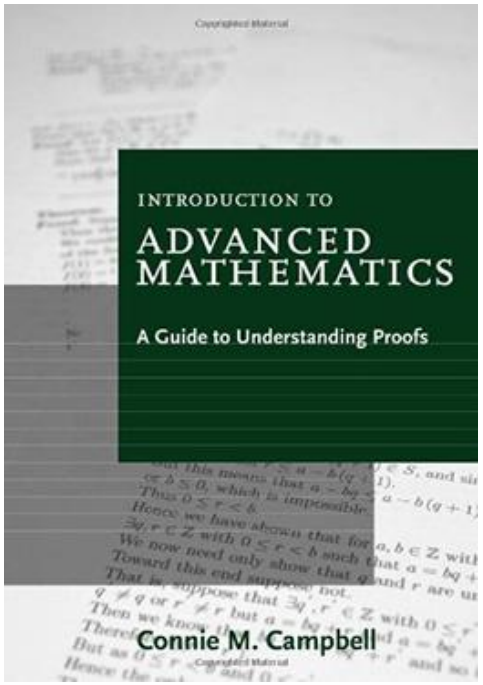
1. Propositional logic and predicate logic
2. Proof techniques
3. Sets
4. Relations
5. Mathematical Induction
6. Functions
7. Cardinality
8. Counting and Probability
9. Graphs and Trees

4. Reference Books



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

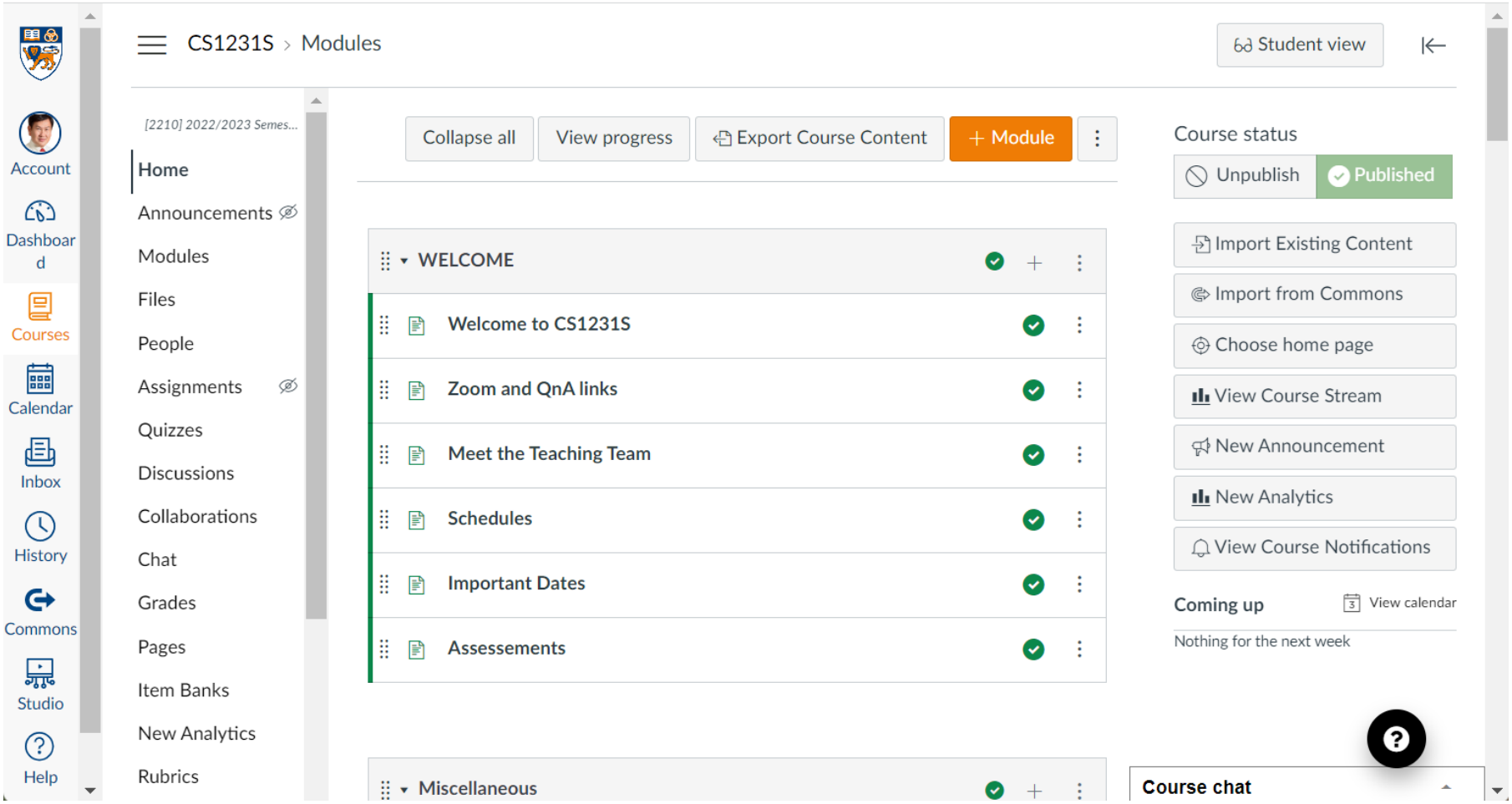
It's ok if you get the 4th edition.



Introduction to Advanced Mathematics:
A Guide to Understanding Proofs
Author: Connie M. Campbell
Publisher: Cengage Asia
ISBN-13: 9780547165387
ISBN-10: 0547165382

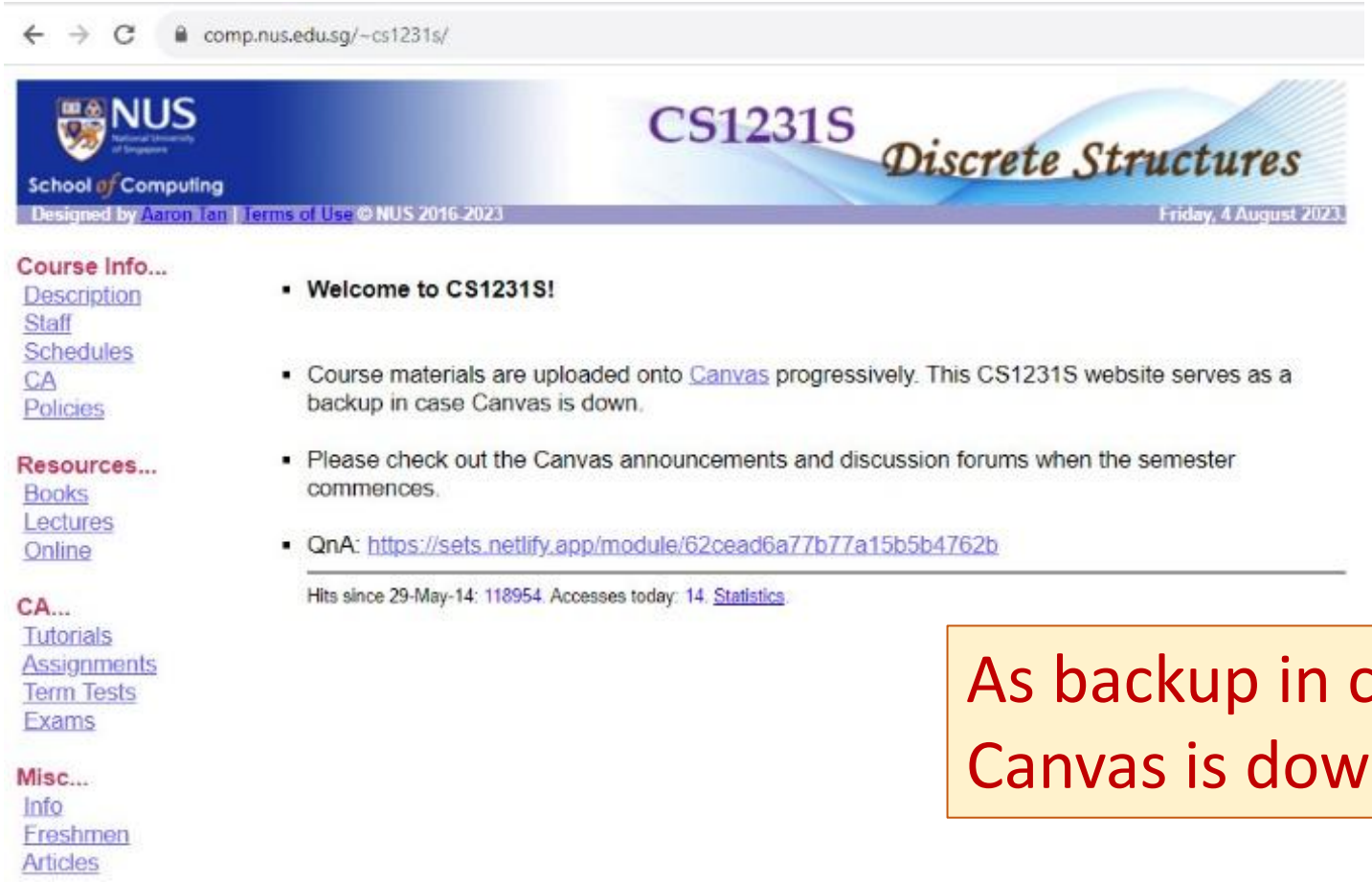
5. Online Resources (1/3)

Canvas: https://canvas.nus.edu.sg



5. Online Resources (2/3)

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



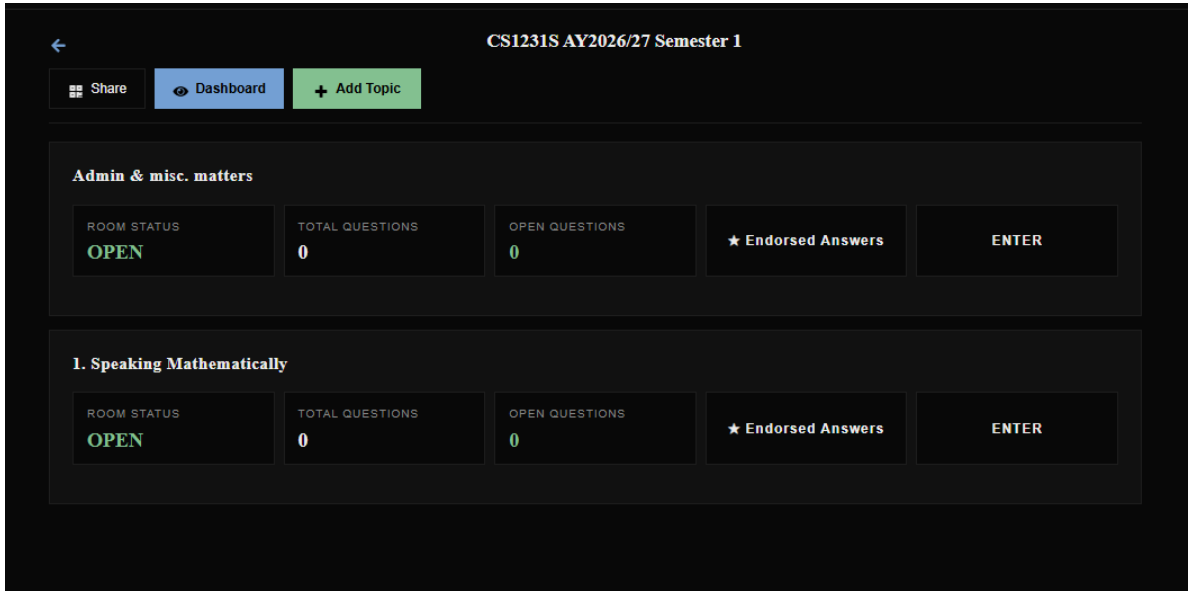
As backup in case Canvas is down.

5. Online Resources (3/3)

We will call it QnA for simplicity

https://setsify.com/space/6a0532f67be1d8eac8fddaf9

Post your questions here. More rooms will be created as we progress.



CS1231S (AY2026/27 Sem1)
QnA

6. Assessments

CA component	Date	Weightage
Tutorial attendance	-	5%
2 assignments & 3 in-tutorial quizzes	See https://www.comp.nus.edu.sg/~cs1231s/1_course_info/sched.html for assignment deadlines	20%
Midterm test	7 Oct (Wed) 6:30 – 8pm	25%
Final exam	26 Nov (Thu) 9 – 11am	50%

- Non-graded: Canvas > Quizzes – for your own practice/check.
- Midterm test and final exam are open book. More details will be given out later.
- Please post on "Canvas > Discussions > Midterm Test" by end of August 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 webcast; recording will be published on Canvas > Videos/Panopto > Web Lectures

8. Tutorial Schedule (Refer to CourseReg site)

- Tutorials start in week 3 (24 August).
- See tutorial schedule as at 13 August (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 or refer to NUSMODS (https://nusmods.com/) for the most up-to-date schedule.
- 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 CourseReg 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 Canvas announcements.

9. Blended Learning

- CS1231S has been selected to go semi-Blended Learning mode.
  - Students are to view the lecture slides and previous semester's lecture recordings before the lecture.
  - Students are to post questions on the topics to be discussed in the coming week.
  - The process will evolve over time as we experiment.

10. 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).

11. 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/
  - NUS-Plagiarism-Policy.pdf

12. CS1231S Policy on Assignments

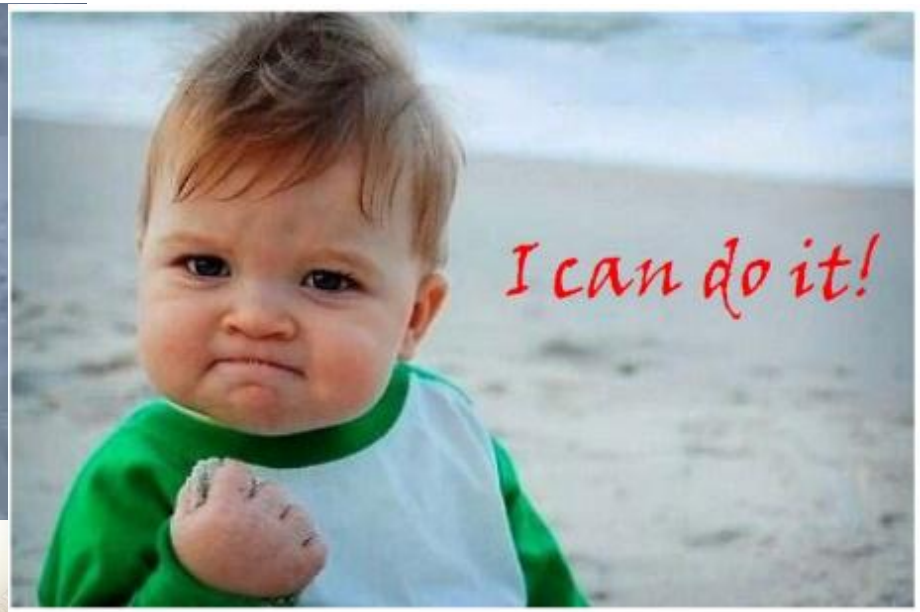
- You are to do the assignments on your own.
- No AI tools are allowed.
- No discussion with anybody else is allowed.
- If you have queries about the assignment questions, post them on QnA. Do not post your answers or partial answers there.

Every semester, many students were caught committing academic offence and were reported to the school. Depending on the severity, penalty includes awarding zero mark for the assignment, failing the whole course, and harsher penalty.

Note that academic offence is not limited to direct copying or sharing of answers.

In programming courses, there were many instances when students claimed that they merely discussed their ideas/algorithms (which was allowed) but ended up with highly similar code due to the detail level of discussion. There were instances when two students were detected with similar answers, even though they do not know each other, but separately used AI tool (which gave the same answer). All these reasons would not vindicate you of the offence.

13. CS1231S Tagline



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

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