



COMP2012 Object-Oriented Programming and Data Structures

Topic 0: Course Logistics

Dr. Desmond Tsoi

Department of Computer Science & Engineering
The Hong Kong University of Science and Technology
Hong Kong SAR, China



Rm 3553, desmond@ust.hk

COMP2012 (Fall 2020)

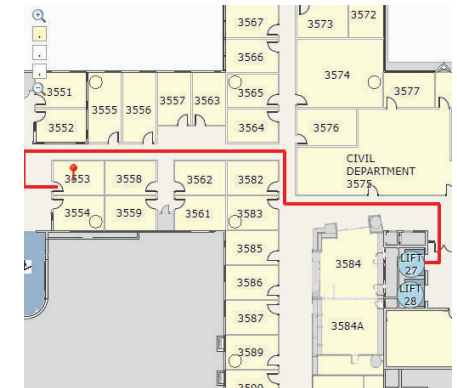
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Instructor

Dr. Desmond Yau-chat TSOI (Simply call me “Desmond” ;))



- Personal website:
<http://www.cse.ust.hk/~desmond>
- E-mail: desmond@ust.hk
- Office: Rm 3553 (Lift 27)
- Work phone: 2358-6984
- Office hours: To be confirmed



Rm 3553, desmond@ust.hk

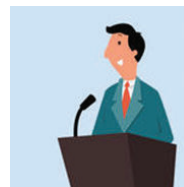
COMP2012 (Fall 2020)

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More about Me

List of institutes that I was teaching at: (in chronological order)

- Hong Kong University of Science and Technology (HKUST)
 - ▶ Department of Computer Science and Engineering
 - ▶ Department of Accounting
- Nanyang Technological University, Singapore (NTU)
 - ▶ Department of Computer Science, School of Computer Engineering
- Hong Kong College of Technology
 - ▶ Department of Computer and Information Technology (HKCT)
- Community College of City University (CCCU)
 - ▶ Division of Applied Science and Technology
- Hong Kong Polytechnic University
 - ▶ School of Professional Education and Executive Development (SPEED)



Now, I am once again serving CSE, HKUST

Note

You are welcome to talk to me if you have any questions about further study and / or career development!

Rm 3553, desmond@ust.hk

COMP2012 (Fall 2020)

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Teaching Assistants

Full-time TA

- MAK, Wai Ho, Wallace
 - ▶ Office: Rm 2532
 - ▶ E-mail: wallacem@cse.ust.hk
 - ▶ Office hours: To be confirmed



Postgraduate TAs

- QUAN, Yuqing
 - ▶ Office: Rm 3661
 - ▶ E-mail: yquanaa@connect.ust.hk
 - ▶ Office hours: To be confirmed
- WONG, Man Hing
 - ▶ Office: Rm 4201
 - ▶ E-mail: mhwongah@connect.ust.hk
 - ▶ Office hours: To be confirmed
- YAU, Yui Pan
 - ▶ Office: Rm 4205
 - ▶ E-mail: ypyau@connect.ust.hk
 - ▶ Office hours: To be confirmed

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COMP2012 (Fall 2020)

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Online Classes using Zoom

- We will conduct all the classes via Zoom unless we switch to mixed-mode teaching later in the semester, if possible.
- Zoom is a platform for video and audio conferencing, online meetings and group messaging.
- To attend an online class (Lecture/Lab) via Zoom
 1. Login to **COMP 2012 Canvas site** using your ITSC login credentials
 - ★ <https://canvas.ust.hk/courses/33224>
 2. On the landing page, **click the link of the meeting** that you want to join

COMP2012 (L1, L2) - Object-Oriented Programming and Data Structures

The following are links pulled from the "Zoom Meeting" section for your easy access.

L1: Weekly lecture (Every Tue / Thu 12:00PM - 01:20PM):

<https://hkust.zoom.us/j/93046834598?pwd=S3pEWFRvNk0reFc4RENgUEtvQWJ3UT09>

L2: Weekly lecture (Every Wed / Fri 04:30PM - 05:50PM):

<https://hkust.zoom.us/j/91531353274?pwd=N3h5VWFDDd3E1MWpWcVksbkV4QzJmQT09>

The meeting links for all our office hours will also be posted on this landing page.

- 3. Alternatively, click "**Zoom meeting**" in COMP 2012 Canvas site and you should be able to find all the links of lecture and lab meetings

COMP2012 (L1, L2) > COMP2012 (L1, L2) - Object-Oriented Programming and Data Structures

2020-21 FALL		zoom		Your current Time Zone is (GMT+08:00) Hong Kong.	
Home					
Grades					
Zoom Meeting		Upcoming Meetings	Previous Meetings	Cloud Recordings	Get Training
Start Time	Topic	Meeting ID			
Tue, Sep 8 (Recurring) 12:00 PM	COMP2012 (L1) - Object-Oriented Programming and Data Structures	930 4683 4598			
		Join Invitation			
Tue, Sep 8 (Recurring) 7:00 PM	COMP 2012 (TA) - Yuqing Quan Office Hour	967 2951 2549			
		Join Invitation			
Wed, Sep 9 (Recurring) 4:30 PM	COMP2012 (L2) - Object-Oriented Programming and Data Structures	915 3135 3274			
		Join Invitation			
Thu, Sep 10 (Recurring) 12:00 PM	COMP2012 (L1) - Object-Oriented Programming and Data Structures	930 4683 4598			
		Join Invitation			
Fri, Sep 11 (Recurring) 4:30 PM	COMP2012 (L2) - Object-Oriented Programming and Data Structures	915 3135 3274			
		Join Invitation			


Course Website and Supplementary Website

- Course website:
<https://course.cse.ust.hk/comp2012>
- Supplementary course website:
https://www.cse.ust.hk/~desmond/comp2012/Password_Only/
 - ▶ Login: comp2012
 - ▶ Password: < please mark it down :) >

COMP 2012 Object-Oriented Programming and Data Structures (Fall 2020)

Supplementary Site

Official Site: <https://course.cse.ust.hk/comp2012/>



Announce.

This is where you can find the announcements that I made

Instructor

- Dr. Desmond TSOI
- E-mail: desmond (followed by cse.ust.hk)
- Office: Rm 3553 Path Advisor

Course

Lectures

- **Section L1 (Dr. TSOI, Desmond)**
Tuesday / Thursday,
12:00pm - 01:20pm, Zoom
- **Section L2 (Dr. TSOI, Desmond)**
Wednesday and Friday,
04:30pm - 05:50pm, Zoom

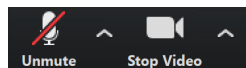


- L1: <https://hkust.zoom.us/j/93046834598?pwd=S3pEWFRvNk0reFc4RENgUEtvQWJ3UT09>
- L2: <https://hkust.zoom.us/j/91531353274?pwd=N3h5VWFDDd3E1MWpWcVksbkV4QzJmQT09>

When attending a lecture meeting, make sure to set up your screen username to:

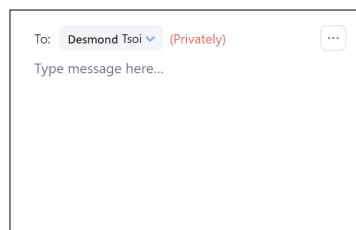
LASTNAME Firstname studentusername E.g., CHAN Tai Man (ctaiman)

- During a Zoom lecture meeting, please remain muted in order to avoid background noise
- You can also use the Chat function to post questions and comments



- If you have questions, click "Raise hand" and you will be unmuted to speak

Raise Hand



- Try to join the meeting with your camera turned on as this helps create a more interactive online class experience

I will start the Zoom meeting 5 to 10 minutes earlier. :)

Labs

- Section LA1 (WONG, Man Hing; QUAN, Yuqing)
Wednesday, 1:30pm - 3:20pm, Zoom
- Section LA2 (YAU, Yui Pan; QUAN, Yuqing)
Tuesday, 3:00pm - 4:50pm, Zoom
- Section LA3 (MAK, Wai Ho Wallace; QUAN, Yuqing)
Monday, 1:30pm - 3:20pm, Zoom
- Check the lab page in course website
<http://course.cse.ust.hk/comp2012/>

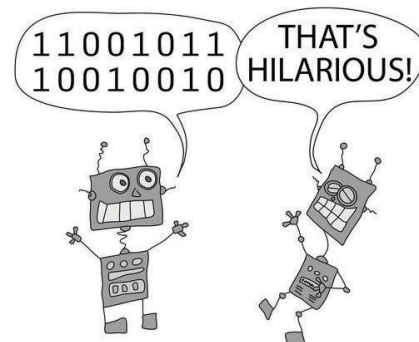
Links

- LA1: <https://hkust.zoom.us/j/93046834598?pwd=S3pEWFRvNkOreFc4RENqUEtvQWJ3UT09>
- LA2: <https://hkust.zoom.us/j/91823379405?pwd=eHpuYlJxTENTWDIvYUgvdmh3UmpoQT09>
- LA3: <https://hkust.zoom.us/j/92455910370?pwd=b0lZRmVOMmNOekIyNHkwbTQ2Y2dUQT09>

When attending a lab meeting, make sure to set up your screen username to:

LASTNAME Firstname studentusername E.g., CHAN Tai Man (ctaiman)

- During a meeting
 - ▶ If you want to talk to your TA, "raise your hand", the TA will answer your questions. If you need to share your screen, the TA will place you in the "Private Discussion Room" and go in temporarily to handle it.
TA will follow chronological order when handling the raise hand request.



Important Notes about the Labs

- You must attend the lab meeting for your assigned session. If you need to go to a different lab meeting, seek prior approval from your course instructor.
- Lab exercises will be given to consolidate your understanding of course materials. Although we do not expect you to finish the lab exercises before you attend the lab, we expect you to have read the lab's materials and understand what you are required to do.
- 3 points for each lab.
 - ▶ 1 point for attendance
 - ▶ 1 point for finishing the requirement/program and submitting it to ZINC (automatic grading system) on or before the end of the lab, and no late lab assignment will be accepted.
 - ▶ 1 point for answering a question related to the lab to show that you really work on the solution yourself. (If you are not selected, you get the 2nd answering point automatically if you finish the lab, successfully submit and being graded by the automatic grading system.)
- Materials will be released around a week before the lab.
- Holiday policy.

Course Description

- The course consists of, per week
 - ▶ 3 hours of lectures
 - ▶ 2 hours of lab exercisesand it gives 4 credits for successful completion of the course.
- Prerequisites
 - ▶ COMP1003 Computer and Programming Fundamentals II (prior to 2011-12) OR
 - ▶ COMP1004 Programming Fundamentals and Methodology (prior to 2013-14) OR
 - ▶ COMP2011 Introduction to Object-Oriented Programming / Programming with C++
- Exclusion
 - ▶ COMP2012H Honors Object-Oriented Programming and Data Structures

Course Objectives / Aims

- To learn the **fundamental concepts and techniques behind object-oriented programming**. They include:
 - ▶ abstract data types;
 - ▶ creation, initialization, and destruction of objects;
 - ▶ class hierarchies;
 - ▶ polymorphism, inheritance and dynamic binding;
 - ▶ generic programming using templates.
- To learn the **object-oriented view of data structures**: linked lists, queues, stacks, trees, and algorithms such as searching and hashing algorithms.



Intended Learning Outcomes

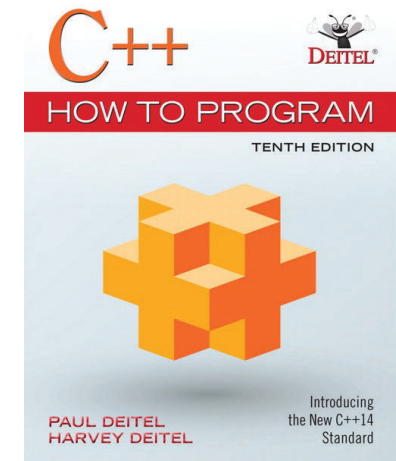
On successful completion of this course, you are expected to be able to:

1. Write object-oriented programs in C++ with object creation, destruction, member variables and functions, inheritance, polymorphisms, and templates
2. Analyze a program and provide simple solutions with OOP
3. Write basic algorithms associated with data structures such as stacks, queues, lists, trees, and hashes
4. Define binary tree and search tree and describe how they are used to solve problems
5. Develop a large program using separate compilation, good OOP design, and code reuse.



Recommended Textbooks

- C++ How to Program, Paul J. Deitel and Harvey M. Deitel & Associates, Pearson, c2017, Tenth Edition.
- ISBN: 0133378713 (1028 pages)
- Available at campus bookstore
- UST library for 2014 version
 - ▶ QA76.73.C153 D45 2014
 - ▶ QA76.73.C153 D45 2014 c.2



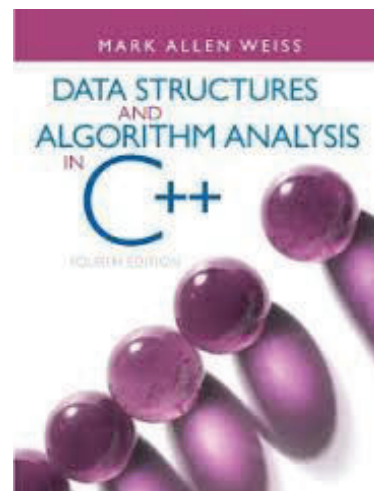
Note

- ▶ This textbook uses C++11 codes
- ▶ Discusses about new features in C++14

There are only few copies available in the campus bookstore. On the other hand, you may purchase an e-version of book from the campus bookstore for HK\$325. We were told that it may take around 3 days to get the code for an ebook.

Recommended Textbooks

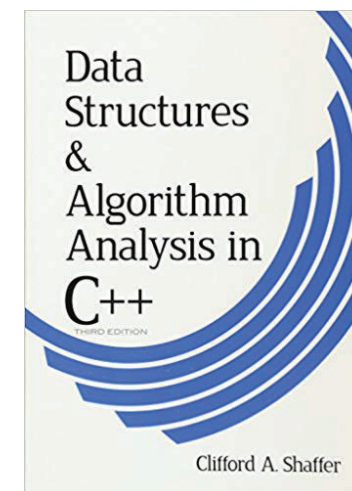
- Data Structures and Algorithm Analysis in C++, Mark Allen Weiss, Pearson, c2014, Fourth Edition.
- ISBN: 013284737X (635 pages)
- Available at HKUST Library.
 - ▶ QA76.73.C153 W46 2014
 - ▶ QA76.73.C153 W46 2014 c.2



The book is out of print. You may be able to find some free PDF copy on the Web.

Recommended Textbooks

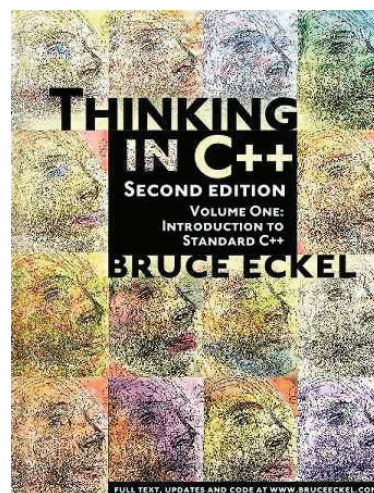
- Data Structures and Algorithm in C++, Clifford A. Shaffer, Dover Publications, c2011, Third Edition.
- ISBN: 9780486485829 (615 pages)
- Available at HKUST Library.
 - ▶ QA76.9.D35 S45 2011b



A free copy from the author, Clifford A. Shaffer is available at:
<http://people.cs.vt.edu/~shaffer/Book/C++3elatest.pdf>

Recommended Textbooks

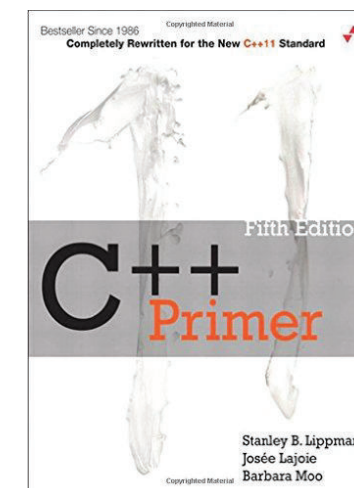
- Thinking in C++, Eckel Bruce, Prentice Hall, c2000 - c2004, Second Edition.
- ISBN: 0139798099
- Available at HKUST Library.
 - ▶ QA76.73.C153 E247 2000 v.2
 - ▶ QA76.73.C153 E247 2000 v.2 c.2



A free copy from the publisher is available online at:
http://www.cs.ust.hk/~dekai/library/ECKEL_Bruce/

Recommended Textbooks

- C++ Primer, Stanley B. Lippman, Josee Lajoie, Barbara E. Moo, Addison-Wesley, c2013, Fifth Edition.
- ISBN: 0321714113 (938 pages)
- Available at HKUST Library.
 - ▶ QA76.73.C153 L57697 2013



Other Materials

- Lecture notes for COMP2011
- Self-tests
- Past exam papers
- Reserved books in HKUST library
 - ▶ The C++ Programming Language
 - ★ Author: Bjarne Stroustrup
 - ★ Call#: QA76.73.C153 S77 2013
 - ▶ Problem Solving with C++
 - ★ Author: Walter Savitch
 - ★ Call #: QA76.73.C153 S273 2012
 - ▶ Programming in C++: Lessons and Applications
 - ★ Author: Timothy B. D' Orazio
 - ★ Call #: QA76.73.C153 D66 2009
 - ▶ C++ for Everyone
 - ★ Author: Cay S. Horstmann
 - ★ Call #: QA76.73.C153 H6685 2012



Bjarne Stroustrup
[Pronunciation]
Designer and original
implementor of C++



Alan Kay
Pioneer of OOP

Tentative Teaching Schedule

Topic	#Lectures	Cumulative #Lectures
Course Logistics	0.5	0.5
Review: Pointer, Reference and Const-ness	1.5	2.0
Constructors, Destructor, and Initialization	3.5	5.5
Inheritance and Polymorphism	5.0	10.5
Generic Programming	4.0	14.5
STL: Containers, Iterators, and Algorithms	3.0	17.5
rvalue Reference and Move Semantics	2.0 (Additional)	19.5
Static Function and Data	2.0	21.5
Binary Search Tree	2.5	24.0
AVL Tree	2.0	26.0
Hashing	2.0	28.0

- Teaching schedule is subject to change according to the teaching and learning progress!
- Make up / additional classes will be arranged.
 - ▶ L1: October 1 (Thursday): National Day
 - ▶ L2: October 2 (Friday): The day following the Chinese Mid-Autumn Festival

C++ Version and Software

- We use C++ version 2011 as the programming standard for this course
- Integrated Development Environment (IDE)
 - ▶ VSCode with MinGW/GCC version 8.1.0
- C++ Compiler
 - ▶ g++



- Starting from 2011, C++ rolls out a new standard every 3 years!
- Compilers need time to catch up
- You are suggested to check your compilers if they support the new codes

Grading Scheme

Assessment breakdown:

- Coursework (45%)
 - ▶ 10 Lab Exercises (10%)
 - ▶ 3 Programming Assignments (35% = 10% + 12% + 13%)
- Examination (55%)
 - ▶ Quiz (10%)
 - ▶ Final Exam (45%)



Coursework (45%) + Examination (55%) = Total (100%)

Note

No make-up exams will be given unless under very unusual circumstances, e.g., sickness, with letters of proof

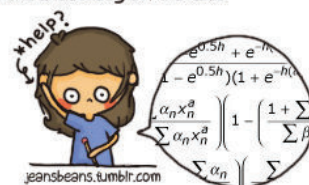
Quiz

- The quiz is scheduled on **October 30, 2020 (Friday)**, **7pm - 9pm**
- Venue: Canvas + Zoom

what we learn in class
and what i study



what's actually on the test



Academic Dishonesty

- Anyone "both the copier and the copiee" caught cheating on their assignments will get zero marks for the assignment.
- In addition, they BOTH will **get an additional 5% deduction from the final grade for the first time of cheating and additional 10% deduction for the second time (i.e. a total of 5% + 10% = 15% deduction)**. Anyone get caught for cheating in an assignment for the **3rd time** will get an immediate **FAIL** grade.
- On the other hand, anyone caught cheating in the midterm or final exam will get a FAIL grade **immediately**.
- There can be additional disciplinary actions as well from the department and university.
- Links:
 - ▶ University's Honor code:
<http://ugadmin.ust.hk/integrity/student-1.html>
 - ▶ University's Penalties for Cheating:
<http://ugadmin.ust.hk/integrity/student-5.html>

Academic Dishonesty (Cont'd)

- We will use a software to check your codes with others' program, and even with previous assignments. The tool is hard to beat. The suspected cases will be further studied by the instructors and the TAs.



If you are not sure what is considered plagiarism

- **DO NOT** copy program codes from another student/person.
- **DO NOT** look at the actual program codes of another student.
- **DO NOT** share actual program codes with other students/people (by paper, emails, blogs, FB, Google Doc, etc.).
- **DO NOT** give your program codes to other students who ask for it, and do not ask for a copy of their code either.
- **DO NOT** post your program codes anywhere online.
- **DO NOT** leave your finished/unfinished program codes unattended.
- While we encourage discussion among students, you have to write codes on your own.
- During discussion, you **SHOULD NOT** go to the details such that everyone will end up in the same code.

The list is by no means exhaustive, and you will need to use your own discretion.

That's all!
Any question?



**Welcome
Back!**