
Data Structures and Algorithms

XMUT-COMP 103 - 2024 T1

Mohammad Nekooei

Pawel Dmochowski

School of Engineering and Computer Science

Victoria University of Wellington

Welcome!

- COMP 103 = 2nd core course for COMP, CGRA, SWEN, CYBR, ECEN, NWEN
- Core principles of Computer Science and essential programming skills
- Builds on COMP 102
- Basis for all the 200-level COMP, SWEN, NWEN, CGRA, and CYBR courses.

What's the course about?

- Programming with collections of data:
 - Using and understanding standard Collections
 - lists, sets, maps, stacks, queues, ...
 - Writing code with Trees and linked structures.
 - How to write code using collections efficiently
 - Designing and implementing algorithms
 - Using recursion

Recurring theme: Efficiency

- How fast is it?
- How much memory does it take?

Concepts

- Fundamental principles:
 - collections, linked structures, algorithms, recursion, efficiency,
- Focusing on:
 - **Using** collections, rather than **implementing** collections.
 - Becoming good, effective, efficient programmers.
 - Building your tool box of data structures and algorithms

Observations about COMP 102

- Not engaging in lectures is dangerous for your learning!
- Many were uncomfortable about asking questions in 102:
 - in lectures, in labs and on WeChatbecause other students put them down

Putting people down for asking questions or for trying to learn is

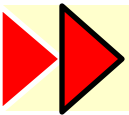
- unprofessional
- obnoxious
- unacceptable
- not what the university is about

Admin: People

- Coordinator and Lecturer: Mohammad Nekooei
mohammad.nekooei@vuw.ac.nz
- Lecturer: Pawel Dmochowski
pawel.dmochowski@ecs.vuw.ac.nz
- Co-teacher: Dr Yu Peng (XMUT)
- Programmer: Dr Monique Damitio (VUW)
- Tutors: XMUT and VUW
- Course URL: https://ecs.wgtn.ac.nz/Courses/XMUT103_2024T1/

Prereqs

- What is assumed from COMP102?
 - Programming in Java
 - Methods, parameters and variables
 - Conditionals, loops (if, if...else, for, while)
 - UI for getting input, output, drawing shapes
 - Using GUI's (Graphical User Interface) with buttons, mouse, etc
 - **Files**
 - **Classes, Objects, Fields, Methods**
 - **ArrayLists and arrays**



Revise these concepts if necessary!

Lectures

- Mondays, Thursdays
- Slides
 - on course webpage (pdf for each week)
- Video recordings
- Questions:
 - WeChat, or
 - Emails
- Goals
 - Provide a framework for your learning
 - Provide key content/explanations/demonstrations

Assessment

- Attendance [10%]
- 6 Assignments [18%]
- Test [20%] lecture time
- Final Exam [52%] 2 hours, in exam period (mark will “boost” the mark for test)

Mandatory Requirements

- 1 day after the deadline will receive a maximum mark of 90%,
- 2 days after the deadline will receive a maximum mark of 80%,
- 3 days after the deadline will receive a maximum mark of 70%,
- 4 days after the deadline will receive a maximum mark of 60%.
- 5 days after the deadline will receive a maximum mark of 50%.
- **No work will be accepted after releasing the solutions unless previously arranged with the course organizer.**

Assignments

- Critical for your learning!
 - 6 Assignments → **total of 18%**
 - 2 weeks each
 - **out:** Monday (09:00) **due:** Saturday (19:00) (2 weeks later)
 - Late assignments cannot be marked.
- Must be **your** work.
- Won't be as constraining as COMP 102 assignments
 - You may need to do more of the design of the structure of the program
- Programming Style will be a component of the marks (up to 5% off for bad style)
- First Assignment: starts next week **DeShredder** and **Sokoban Undo**

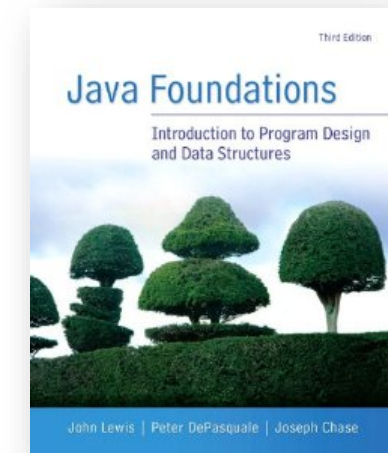
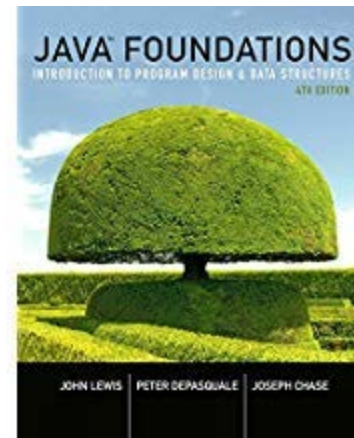
Getting Help.

Co-teacher and Lecturer

- Ask questions and answers (During lectures or labs, emails and WeChat)
- **NO** posting chunks of **ANSWERS** to assignments!

Text Book (optional)

- **JAVA FOUNDATIONS:**
Introduction to Program Design & Data Structures
by Lewis, DePasquale and Chase
 - 4th edition is best
 - Same textbook as comp 102/112 😊
 - We don't follow the text, but helpful complement to lectures and assignments



PLAGIARISM UNACCEPTABLE

- We want you to LEARN, TALK to each other, learn TOGETHER, and HELP each other, but



PLAGIARISM is UNACCEPTABLE!



- Got help from anybody other than lecturer or tutor?

STATE IT ON THE ASSIGNMENT!

- Copied bits of code from anywhere other than lecture slides or textbook?

STATE IT ON THE ASSIGNMENT!