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# **Introduction to Computer Program Design**

**COMP 102      2024 T1**

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**Computer Science  
Victoria University of Wellington**

# Ngā mihi ki ngā ākongā!

**Whakarongo mei**

**ki ngā korero ō ngā Vikinge mate.**

Listen to the words of the dead Vikings

**Ka mate ngā kararehe**

The animals will die

**Ka mate ngā whanaungā**

The kinsmen will die

**Ka mate hoki tatau katoa**

You will also die

**Kaore e mate i te mana tangata**

**i muri i te ora pai**

The respect earned from people

will not die after a good life

(Edda verse 75)

**Ko wei tenei vikinge iti**

Who is this “little viking”?

**Ko Jellinge te maunga iti**

Jellinge is the “small mountain”

**Ko Tange te roro**

Tange is the lake

**Ko vikinge kaupuke te waka**

Viking skips are the canoes

**Nō Danmark ahau**

I am from Denmark

**Ko Karsten tōku ingoa**

My name is Karsten



[https://commons.wikimedia.org/wiki/File:Jelling\\_-\\_Thyras\\_H%C3%B8j.JPG](https://commons.wikimedia.org/wiki/File:Jelling_-_Thyras_H%C3%B8j.JPG)



[https://commons.wikimedia.org/wiki/File:Tange\\_S%C3%B8\\_fra\\_S%C3%B8bredden\\_ved\\_Ans.jpg](https://commons.wikimedia.org/wiki/File:Tange_S%C3%B8_fra_S%C3%B8bredden_ved_Ans.jpg)

# Safety.

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- Entrances and exits
- Emergencies: Fire, earthquake.
- Hearing loop, microphones to hearing aids, vision problems, .....

# The COMP102 Team

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Coordinator + Karsten Lundqvist      Office: CO 252    [karsten@ecs.vuw.ac.nz](mailto:karsten@ecs.vuw.ac.nz)

Academic

Academic      Ghassem Narimani      Office: CO 231    [ghassem.narimani@ecs.vuw.ac.nz](mailto:ghassem.narimani@ecs.vuw.ac.nz)

Tutors      Range of Undergraduates and Graduates

Programmer      Monique Damito      email to report technical problems [bugs@ecs.vuw.ac.nz](mailto:bugs@ecs.vuw.ac.nz)

Students      You and the people around you



# What is the course about?

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- COMP 102 is about learning the Java language and the ways of thinking required for building the software that underlies our digital world.
  - Not about *using* computers and applications software
- Building software means writing programs: writing the instructions to make a computer behave in the way we want it to.
  - In COMP102, you will design and write lots of little programs for various tasks.
- Give you a new set of mental tools for addressing problems
  - Different way of thinking from most disciplines

# What kind of course is it?

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- Not an “easy credits” course for most people
  - Involves higher level thinking skills than many students expect
- Key factors for success are
  - problem solving, ~~not memory, not guessing~~
  - logical/abstract thinking
  - attention to detail
  - being able to think about your own thinking processes
  - do all assignments and not getting behind
- Takes time! Plan on around 10 hours / week
- Practical work is critical

# Background needed for COMP102

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- We assume you have ***used*** a computer
- We do ***NOT*** assume you have done any programming
  - don't worry about or be intimidated by those who have!
- But some students have!
  - It is obviously helpful for them.
  - If you get bored => go to the Challenge session!
- We try to meet the needs of the full range of students
  - Variety of different help and support available

# COMP112

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Historically we had COMP112 for those students who had done NCEA level 3.

- First: A different course entirely
  - Much harder than COMP102, large numbers of students changed to get a better mark
- Changed to: Same assessments, unrelated lectures
  - Feedback from students indicated that the way we did this was not working for most students
- Now integrated into COMP102
  - Challenge sessions, to discuss more advanced topics
  - If you see references to COMP112 in our material, it is a mistake.



# Essential Info: Accessing course info.

Engineering and Computer Science use their own course websites

Bookmark [http://ecs.wgtn.ac.nz/Courses/COMP102\\_2024T1](http://ecs.wgtn.ac.nz/Courses/COMP102_2024T1)

- all the information about the course
- all the lecture slides
- all the assignment handouts and code
- all the resources

These are especially useful:

- [https://ecs.wgtn.ac.nz/Courses/COMP102\\_2024T1/Schedule](https://ecs.wgtn.ac.nz/Courses/COMP102_2024T1/Schedule)
- [https://ecs.wgtn.ac.nz/Courses/COMP102\\_2024T1/TimeTable](https://ecs.wgtn.ac.nz/Courses/COMP102_2024T1/TimeTable)
- [https://ecs.wgtn.ac.nz/Courses/COMP102\\_2024T1/Assignments](https://ecs.wgtn.ac.nz/Courses/COMP102_2024T1/Assignments)

# Labs

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- Sign up for the labs:
  - [https://www.wgtn.ac.nz/students/study/timetables/tutorial-sign-up /](https://www.wgtn.ac.nz/students/study/timetables/tutorial-sign-up/)
    - You can also sign up on MyAllocator or Pūaha
- All scheduled labs are f2f
  - choose ONE
    - Note: You need to be registered for the course
      - (a) to sign up for a lab
      - (b) to be able to use the school computers
  - what happens if they are full?
  - If you need online help due to extenuating circumstances contact Karsten by email asap
    - E.g. disability or international waiting for visa

# Lab Facilities

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- You can also use labs outside of the designated hours
  - Both ECS and other university student computing labs
  - Lab Hours: 24/7
    - Except when booked for teaching courses
    - Need Student ID card to access in evenings and weekends
- The labs are for getting work done
  - Don't prevent other people from working
  - If you want to play around, go somewhere else
- We expect professional behaviour in the labs.
  - Read the lab rules!
- Can use home computers
  - Details on Web Site: Java Resources : Using Java and BlueJ at home
  - Make sure you always keep backups
  - Laptop crashed or hardware issues is not an excuse for late submission!

# Essential Info: Assessment

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## Final grade based on:

- Marked assignment: 20%
- In-Term Test (Week 6): 30% (mark boosted to exam mark, if better)
- Final Test (04-22 June): 50%

## Pass/Fail (p/f) assignments:

- 6 p/f assignments in total
- To get the full grade on the course at least 5 of the 6 p/f assignments must be passed
  - If fewer p/f assignments are passed the grade will be capped
    - A+: Passed 5 or 6
    - B+: Passed 4
    - C+: Passed 2 or 3
    - C-: Passed 0 or 1

# Essential Info: Assessment

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## Pass/Fail (p/f) assignments:

- Consists of
  - An online (browser based) part
    - All questions, which are not categorised as “Challenge”, must be answered correctly by the deadline
    - You can attempt them as many time you like
  - An implementation part
    - Pass level: To pass you must successfully implement a solution to all parts of this level
    - Challenge level: This provide challenges for students with prior experience. We will use this level in the challenge session.

[Assignment 1: Draw 4 \[moderate\]](#)

[Assignment 1 \*\*Challenge\*\* Convert 4 \[hard\]](#)

# Essential Info: Assessment

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## Pass/Fail (p/f) assignments:

- The assessment will be marked
  - 3 : Pass (recognition of challenge level)
  - 2 : Pass
  - 1 : Redo
  - 0: No attempt, late attempt, or an attempt that was not substantial (i.e. too little work)

## Pass/Fail effect:

- If you receive 2 or 3, you have passed (you will not receive other feedback.)
- If you receive a 1, you will be allowed to redo it once (with potential support from tutors in the lab) and get it regraded in the following lab.
  - If successful, this will change the grade to a 2 grade. (You will not get 3)
- If you receive a 0, the assignment is a fail, and cannot be reattempted.
  - No attempt, late attempt, or an attempt that was not substantial (i.e. too little work)

# Extenuating Circumstance

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- If you have extenuating circumstances and need an extension (e.g. illness, injury) there is a system to apply for extensions.
  - Assignments
    - Apply as soon as possible
      - <https://apps.ecs.vuw.ac.nz/submit/COMP102/extensions>
    - No need for doctor's notices for short illnesses
    - P/F assignment, you can redo code if you don't outright pass
      - Submit what you have by the deadline => next week get marked in the lab
      - Ask for an extension, if you have not been able to do anything on the assignment
  - Tests
    - Email Karsten ([karsten@ecs.vuw.ac.nz](mailto:karsten@ecs.vuw.ac.nz)) ASAP, once you know there is an issue

# Essential Info: Class Rep

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- Voting for a Class Rep
  - Email me a brief message about yourself if you want to be class representative
    - Deadline: Thursday after lecture
  - I will post the descriptions on the Nuku announcements Thursday afternoon
  - I will setup a vote via Nuku, deadline Friday.



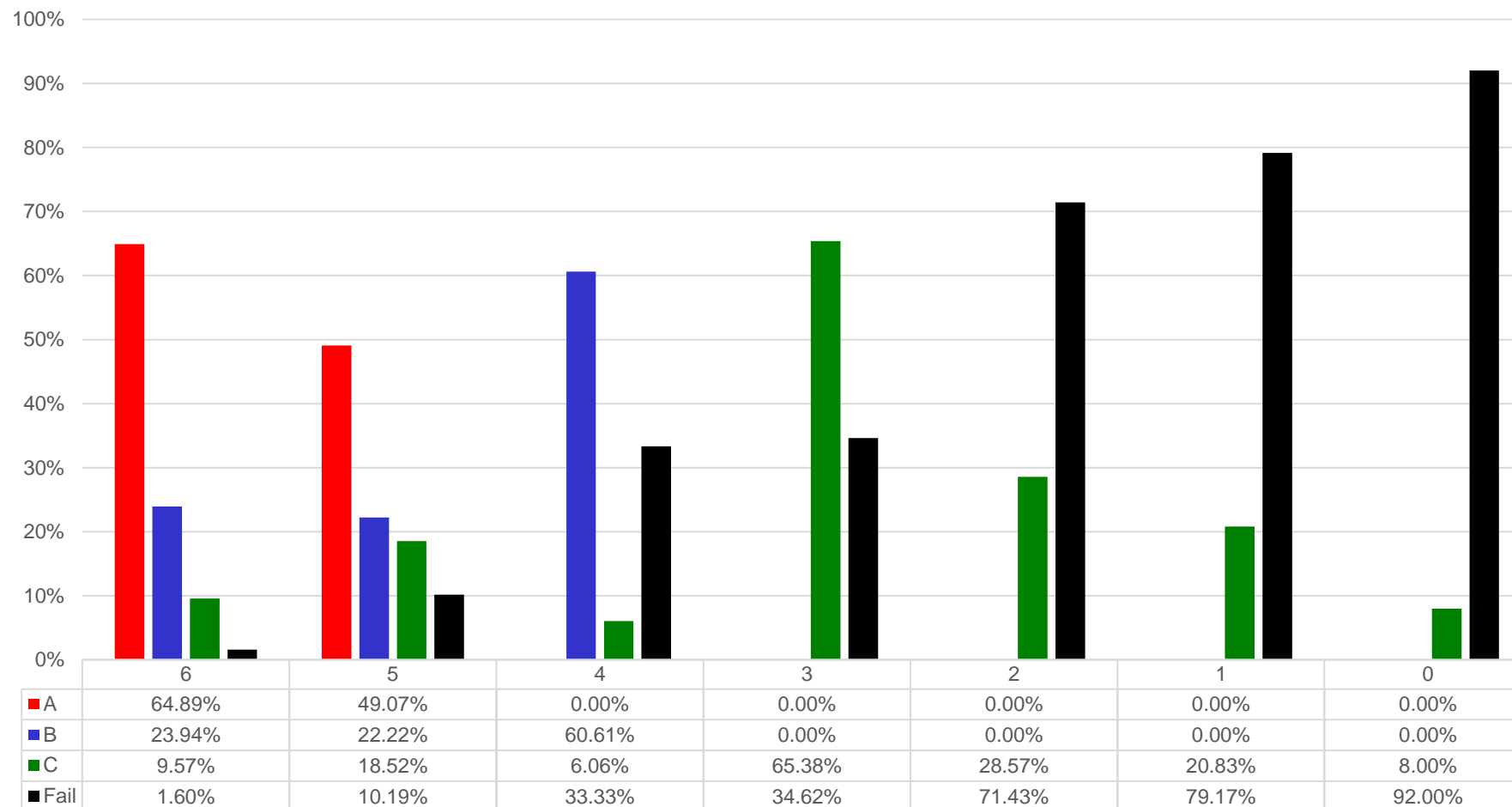
# How do you study effectively?

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- It depends on you
  - We learn in different ways. It often varies depending on the situation.
  - Nobody learns without putting in an effort
  - Be open to learn in new ways
- Ways to fail:
  - forgetting what assignments are due or when the tests are
  - not do the p/f assignments
  - procrastinating to the last minute
  - putting off watching the videos and lectures until later
  - not getting help in the assignments when you need it (wasting time going round in circles)
  - only working on your study, and not doing any living and growing

# Please do the p/f assignments

Passing Pass/Fail assignments and overall grade distribution - 2023



Number of passes in P/F assignments

■ A ■ B ■ C ■ Fail

# Thursday

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- This week's videos are ready.
  - Preparation for next week's labs
- 2<sup>nd</sup> week's videos will be ready Friday (tomorrow) at noon
  - All prerecorded videos will be ready on Fridays (at noon) prior to the week starts

# GoSoapBox

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- In this course, we will use GoSoapBox.com during lectures
  - Ask questions (both from audience and webcast)
  - Small informal quizzes
- Let's try it now

GoSoapBox.com

Access Code: comp102vuw

# Where to go for Help

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- Labs to get help with assignments and remarked p/f assignments
- Online help: [comp102-help@ecs.vuw.ac.nz](mailto:comp102-help@ecs.vuw.ac.nz)
  - For questions about your code (attach your program files so we can help you)
- Karsten's office hour in COMP102 (CO252)
  - Tuesday 10:00 – 10:50
  - Thursday 14:10 – 15:00
- Māori student support
  - <https://www.wgtn.ac.nz/maori-hub/tautoko/awhina>
  - email [awhina@vuw.ac.nz](mailto:awhina@vuw.ac.nz)
- Pasifika student support
  - Pasifika STEM office (CO254)

## General study help

- Student Services: [www.victoria.ac.nz/students/support](http://www.victoria.ac.nz/students/support)

# Getting Help with the Assignments.

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## Study groups

- Working on assignments in pairs.
- First year Engineering/CompSci workshops (tutorials/help sessions)
  - Mondays/Wednesdays 18:30-20:00 (general 1<sup>st</sup> year BE and Comp)

## Student-led discord server

- <https://discord.gg/GPvtK4>

The internet...

# Academic Integrity

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- Central principles of Academic Integrity:
  - If you present something as your work, it should be done by you.
  - If you include something done by someone else, you must make it clear and give them credit.
  
- How does this work with
  - getting information and help from the web (or other sources)
  - getting help from other students (or other people)
  - getting help from staff or tutors.

# Plagiarism

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- You must not present anybody else's work as if it were your own work:
  - Basic principle of academic integrity.
  - applies to work by other students, friends, relatives, the web, books...
  - If you received substantial help, then you must state who helped and how much.
  - If you declare any work from someone else, then it isn't plagiarism!!!
- **p/f assignments:**
  - We encourage you to work in pairs, **BUT**
  - You **must** put a comment at the top of your code saying who you worked with
  - If you use any other code that wasn't yours, then declare it!
  - If you use code from the *lectures* or *labs*, then you do **not** need to declare it
- **AI Tools (such as copilot and chatgpt) are \*not\* encouraged in COMP102**
  - Tests will be on-site and paper-based
  - We teach fundamental concepts necessary to understand harder concept
    - If you use AI at this stage, you will have problems in later courses



# **Cheating in the assignments.**

**The p/f assignments are for learning, not assessing.**

- Cheating in these assignments is plain stupid!
- You won't learn, so you will probably fail the tests and the marked assignment.

**Do not cheat in the marked assessment and the tests!**

- Being caught is serious misconduct – it has serious consequences!

# Please do the assignments without AI

Or at least use AI correctly

- i.e. to learn concepts and not to supply solutions

One student who (allegedly) used AI to solve the assignments:

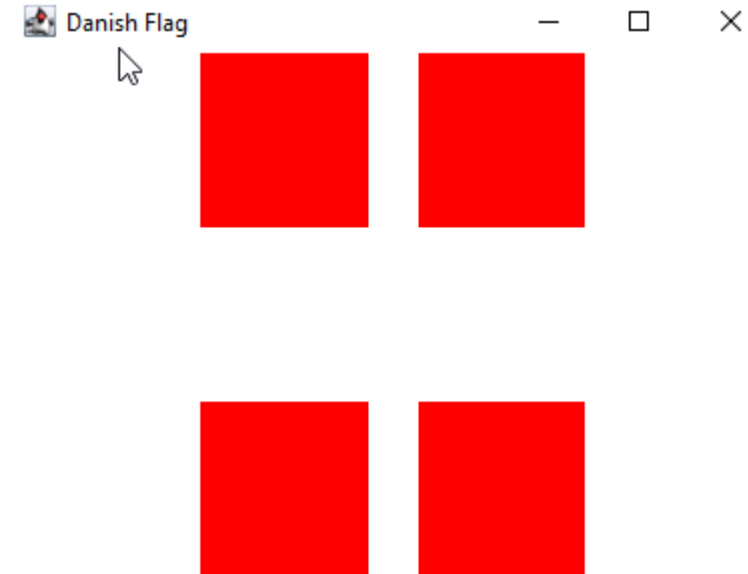
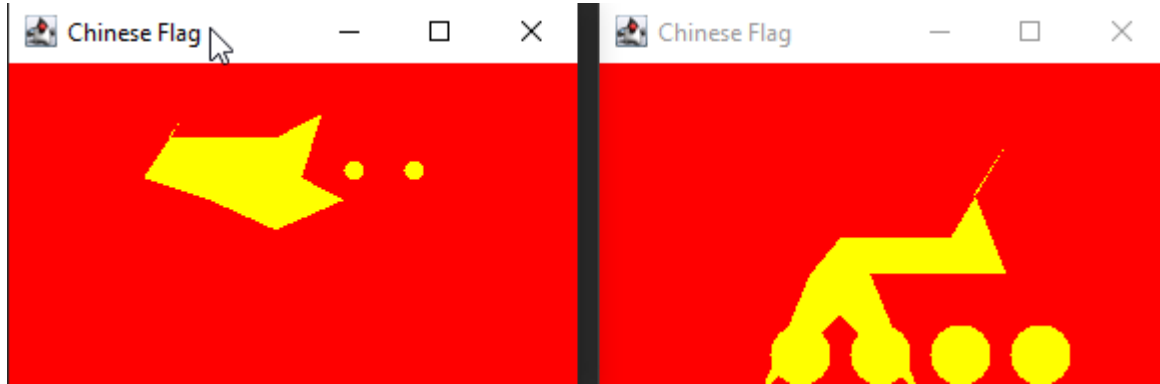
- Marked assignment
  - 65/100 (B-)
- But in tests achieved these results:
  - 11/100 (E)
  - 33/100 (E)
- Failed overall

# Use AI to learn

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- Use it for learning, rather than for solutions!
- Advice from Agatha Rachmat (one of my PhD students)
  - Instead of asking for solutions, use it to ask for questions
    - **Role/system:** Ask Chatgpt to be our friend in learning
    - **Question/request/ topic** in focus: The inquiry we have in learning, can be in a form of questions, block of codes
    - **Answer/Expected output:** The output we want from ChatGPT to help us learn. a list of questions to guide learning, important keywords and reasons why it's important, a list of concepts to learn and why.
  - E.g.
    - **<Role>** As a learning partner who is passionate in encouraging the learning process, **<question>** How can I learn to bake bread?  
**<output>** Generate a set of questions to guide me and explain the priority
    - **<Role>**As a learning partner **<question>** help me to understand this code [Block of Code]? **<output>** Generate a set of questions to guide me and explain the priority, along with the code annotated with explanations for each line.
- When to use “prompt engineering” in learning
  - Whenever you are struggling to understand a topic or during problem-solving. With this type of prompt we utilise ChatGPT’s data to help us gain more knowledge and understanding instead of accepting ChatGPT’s quick answer with the possibility of incorrect or inapplicable information.

# AI hallucinating



# COMP102 changes

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- Excellent student feedback last year 😊
- Changes based on feedback from students
  - COMP112 not aligned with assignments => COMP112 merged into COMP102
  - Feedback/marks are back too slow =>
    - Removed 24-hour grace period => effectively gives tutor 3 extra days to mark
    - Tightening our expectations to tutors (fingers crossed)
  - Can we have subtitles =>
    - Added automatic captions on recorded lectures (Be careful the quality is not good!)
    - I am reluctant to add them in other videos.
    - My face is recorded for lip reading => feedback please
  - Make the online p/f assignment part easier => Hard questions are now in challenge category
  - Karsten answered too many questions from GoSoapBox => give me feedback after a lecture

# COMP102 “changes”

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- Feedback that is hard or impossible to react to
  - Different preferences in among students. Conflicting messages
    - Should go faster/slower during the lectures
    - Should do less/more live coding in lectures
    - The pre-recorded videos are the best/worst
    - I love/dislike the baking analogies
  - Too much workload, too fast, and/or too many things to learn for a beginner
    - => I've already lowered the workload ~40% compared to 2 years ago
      - Before: 10 assignments and 3 tests
    - => I cannot independently remove concepts
  - Please only use Nuku. The various systems in the course are confusing...
    - We use very special tools compared to the rest of the university, e.g.
      - online question system, submission system, extension system
    - We are working on integrating these. However, we need to test technologies in smaller courses first
      - if we make mistake, we don't want to find out in the biggest course!
    - Oh, and I was sick for 9 weeks this summer...

# COMP102 “changes”

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- Request in feedback that I disagree with
  - Computer based tests instead of hand-written tests, please
    - Practically impossible (I wanted to, I did the maths, we cannot do it in COMP102/103...)
    - Also, I do not think you understand what you are asking for...
      - We mark much more lenient when it is handwritten
  - Karsten makes many mistakes when coding in class => Excellent! My pedagogical plan worked!
  - Make it an online course

# Next steps

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- Bookmark: [https://ecs.wgtn.ac.nz/Courses/COMP102\\_2023T1/](https://ecs.wgtn.ac.nz/Courses/COMP102_2023T1/)
- Week 1:
  - Sign up for labs
  - Watch this week's videos
- Week 2: (Normal week)
  - Monday – Tuesday
    - Lab 0: Getting started
  - Monday – Watch 2<sup>nd</sup> week's videos (no need to come to lecture)
  - Tuesday/Thursday
    - Lectures
  - Thursday morning
    - P/F Assignment 1 is published