

# COMP 250

Introduction to Computer Science

Winter 2022

Instructor: Michael Langer

lecture 0

Welcome back !

# A bit about me ....

## Michael Langer

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### About Me

I am an Associate Professor in the School of Computer Science at McGill University. I am also a Member of McGill's Center for Intelligent Machines.

**Research Area(s):** I am interested in computer vision and human vision, specifically, how vision systems can estimate 3D scene properties such as shape, scene layout, materials, and lighting. My research has explored a variety of visual cues, including shading and shadows, specular reflection and highlights, defocus blur, motion parallax, binocular disparity, visibility and occlusions.

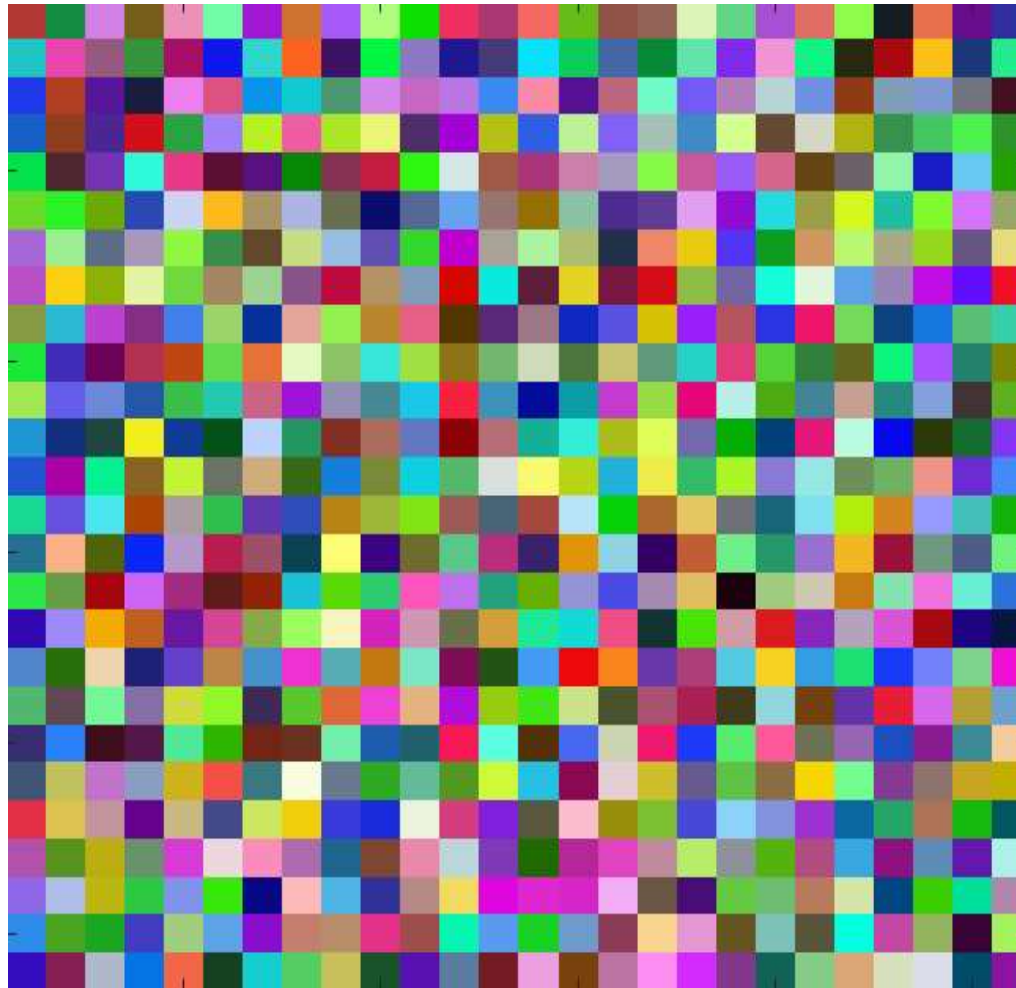
**Background:** I received a B.Sc. (Math) from McGill U. in 1986, an M.Sc. in Computer Science from U. of Toronto in 1988, and a Ph.D. from McGill in 1994. I was a postdoctoral researcher at the NEC Research Institute from 1995-1998, and at the Max Planck Institute for Biological Cybernetics (1999-2000) where I was a Humboldt Research

Fellow. I returned to McGill as a professor in 2000. For more details, please see my [CV](#).



Photo was from 2005.

A bit about you ....



## A bit about you ....

B. Sci	250
B. Arts	100
B. Eng & B. Soft. Eng.	220
B. Arts & Sci	30
B. Com	40
other	<u>~10</u>
	650

# A bit about you ....

U0	70
U1	410
U2	100
U3	<u>70</u>
	650

# Plan for Today

- Review the Course Outline

McGill myCourses Winter 2022 - COMP-250-001 - Intro to Co...

Announcements **Content** Ed Discussion Zoom Lecture Recordings Office Hours Quizzes Grades Calendar C

0% Outcomes + New Unit + Visible Add Existing

Lectures: slides, notes, exercises (PDFs)

0 - Course Outline

CourseOutline

1 - grade school arithmetic

2 - mod, binary, base conversions

CourseOutli... 1 / 9 75%

## Course Outline

COMP 250 Introduction to Computer Science

Winter 2022

MWF 3:35PM-4:25 PM on zoom

**Instructor**

Michael Langer  
Office Hours: after class on zoom (MWF starting at 4:25pm ) or by appointment

# Programming Prerequisites

COMP 202/204/208 or ECSE 202

or any “equivalent” one semester programming course

- you are comfortable with elements of programming:  
variables, types, assignments, loops, strings, lists,  
I/O, functions/methods, ...
- you have 50+ hours of programming experience  
in a *high level* language  
e.g. Python, Java, C, C++, Javascript, ...



# Math Prerequisites

## CEGEP level math (Calculus 1)

- sequences  $f_n, n \geq 0$
- summation notation

$$\sum_{i=1}^n i = 1 + 2 + 3 + 4 + \dots + n = \frac{n(n+1)}{2}$$

- familiarity with logarithms

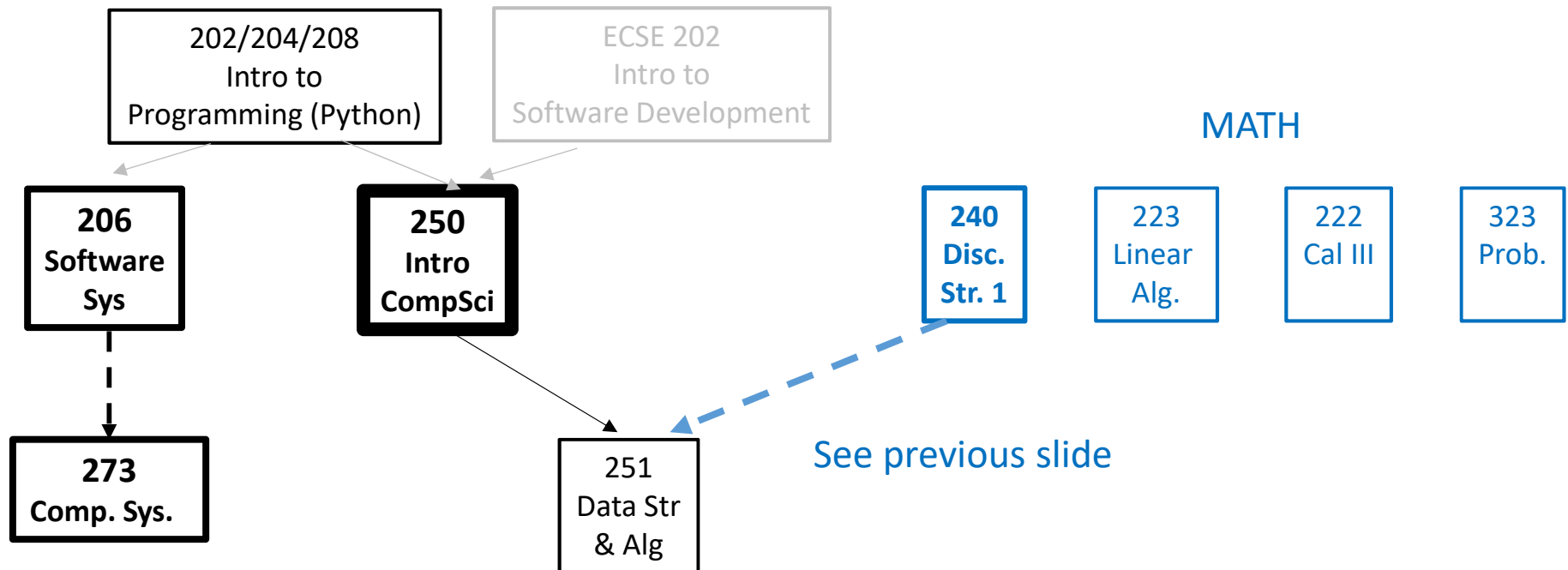
*e.g.*  $\log(ab) = \log a + \log b$

# Suggested MATH co-requisite

- CS Major/Minor
  - B. Eng & B. SoftEng
- } MATH 240 Discrete Structures 1
- Joint Math + CS programs: MATH 235 Algebra 1  
(only offered in Fall)

MATH 240 or MATH 235 or is an official *co-requisite* for COMP 251 (Algorithms and Data Structures). But we strongly suggest you take one of those two courses *before COMP 251*.

## COMP

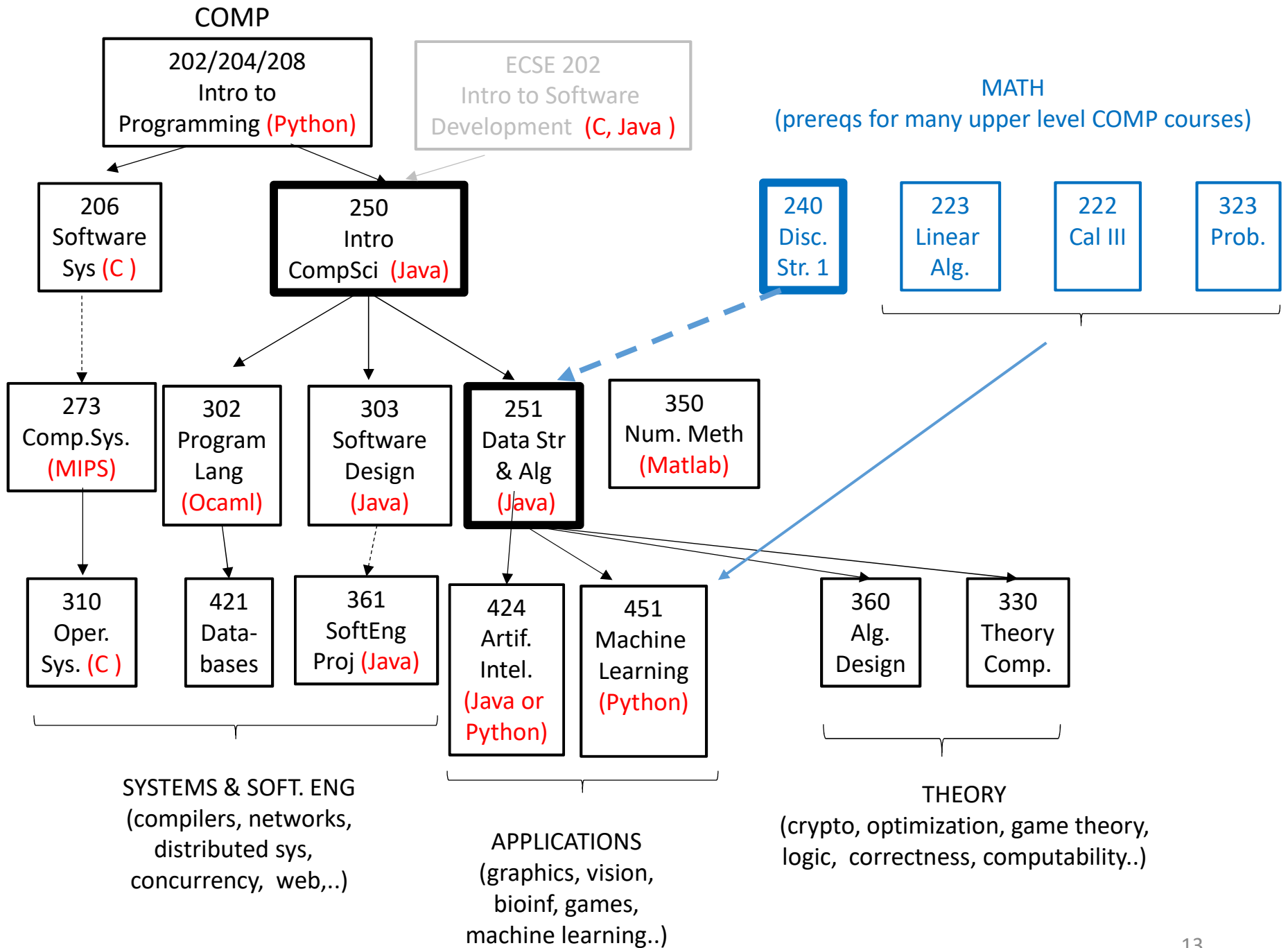


COMP 250 + COMP 206  
(+ COMP 273 ?)

Taking all three together is allowed. But we suggest you only do so if you have a lot of programming experience already.

What's beyond these courses?

Which **programming languages** will you learn ?



# Lecture plan

- Slides and notes will be posted before the lecture.
- I will give the lecture on zoom MWF 3:35- 4:25 PM.
- I may ask some polling feedback/questions during the lecture to try to keep you engaged and get feedback.
- *After I have gone through the lecture slides, I will take a short break, then return to answer selected questions posed in the chat. (We'll see how this goes...)*

# Required Software

- Java Development Kit (JDK)
- Eclipse or IntelliJ (IDE)

*See instructions to install them on your computer:*

*mycourses -> Content -> Tutorials*

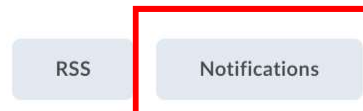
Announcement **Content** Ed Discussion Zoom Lecture Recordings **Office Hours** Quizzes Grades Calendar

- **Office hours** for help using Eclipse, IntelliJ will start next week.

# Your TODO list

- Download the Course Outline from mycourses, and read the rules and policies.
- Install the JDK and a IDE (previous slide)
- Start learning basic Java on your own (next slide)
- Subscribe to mycourses: Announcements  
*Change your settings so that you receive email/text notifications.*

## Announcements





# TODO: learn basic Java syntax

<https://www.w3schools.com/java/default.asp>

Java Tutorial

- Java HOME
- Java Intro
- Java Get Started
- Java Syntax
- Java Comments
- Java Variables
- Java Data Types
- Java Type Casting
- Java Operators
- Java Strings
- Java Math
- Java Booleans
- Java If...Else
- Java Switch
- Java While Loop
- Java For Loop
- Java Break/Continue
- Java Arrays

Java is a programming language.

Java is used to develop mobile apps, web apps, desktop apps, games and much more.

[Start learning Java now »](#)

Since you already know the basics of how to program, it should take you only a few hours to go through all the menu items and exercises on the left.

(If you are in ECSE, you should have already taken and passed ECSE 202, so you know these basics already.)

# MyCourses Resources

- zoom lecture recordings
- slides, lecture notes, exercises (no “textbook”.)
- practice quizzes
- Ed discussion board (coming soon...)
- ...

# My Email Policy

Email me *only for urgent or significant personal matters.*

- ✓ requests for assignment extension because of *serious* illness or *unforeseen and significant* personal challenges
- ✓ requests for accommodation due to disability (*must be through OSD*)
- ✓ broken URL links for course materials, missing lecture recordings
- ✓ real-time problems with quizzes

For other matters, please use Ed discussion board.

- If you want only the T.A.'s and me to see it, make it private.
- If you don't want to identify yourself to other students, make it anonymous.

# Other Communication

For questions about *course materials, quizzes, assignments*:

- use Ed Discussion Board
- see the TA's during virtual office hours
- see me after class (or by appointment, if necessary)
- go the CSUS Help Desk in Trottier Building 3rd floor

# How much work to expect?

Faculty of Science suggests a 3 credit course requires 9 hours work per week:

9 hours/week \* 13 weeks = 117 hours total

*So, 5 courses implies 45 hours per week. (OMG !)*

*4 courses implies 36 hours per week. (Still a lot)*

<https://www.mcgill.ca/science/student/general/advising/skills>

# How much work to expect?

~120 hours total :

- Lectures (~40 hours)
- Programming Assignments (~40 hours = 4 x 10)
- Exercises + Quiz/Exam study (~40 hours)

*This is my target for an average student who has the prerequisite background.*

# Four Assignments (10% each)

- Programming problems in Java, related to lecture content.
- We will use automated grading (Ed Lessons).
- We will give you some basic test cases.
- You get 2 weeks per assignment. So get started early.  
When you hit a wall, stop and do something else. Come back next day.
- Use discussion board & office hours to get help.

# Five Quizzes (3% each)

- Intended for you to gauge how you are doing, and to practice for the Final Exam
- Multiple choice or “multi-select”
- on mycourses
- Designed to take ~40 minutes. You are given one hour to complete (to accommodate OSD students)
- You may start whenever you wish within 8 AM to 8 PM interval.



# Final Exam (45%)

The Final Exam will be multiple choice with 45 questions with four choices per question.

We will *not penalize incorrect answers*. So if you don't know the answer on some question, you should guess.

# Course Grade (scheme 1)

- 40 % = 4 x 10% Assignments
- 15 % = 5 x 3% Quizzes
- 45 % Final Exam\*

## **Conditional Pass Policy :**

If your calculated letter grade is a C or higher but you get lower than 45% (20/45 or less) on the final exam, then your final letter grade will be D and you will need to write the Supplemental Exam to get a higher grade.

# Course Grade (scheme 2)

- 40 % = 4 x 10% Assignments
- ~~• 15 % = 5 x 3% Quizzes~~
- 60 % Final Exam\*

**Bad news:** If you miss a quiz *for any reason*, you get 0 on it.

**Good news:** If you do better on Final Exam than on Quizzes, then your Final Exam grade *automatically* counts for 60%.

\*Conditional Pass Policy still applies.

A bit more about grades ...

# What factors determine your grade ?

- how hard you work
- for quiz or final exam, how well you performed *on that day*
- what your academic background is
- how much talent or interest you have *in this subject*
- how much time you have, given other commitments, health constraints, family & friend constraints ...



# Do your grades matter ?

Yes, if you will apply to grad/law/med school or scholarships.

*But there are other important factors that are considered.*

Probably not, if you apply for a software development job.

*If you have no work experience, then the company might ask to see your academic transcript to make sure your GPA is at least ok. But this is only a filter for the first interview. After that, no one cares.*

No, for any other situation.

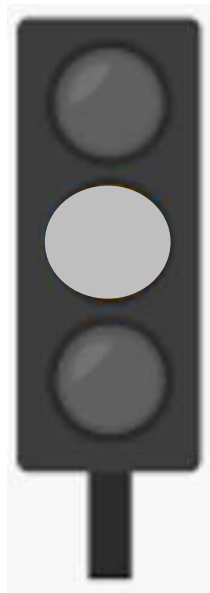
No one else needs to see your transcript, except an academic advisor.

About academic integrity...

# Cheating on Assignments

Acceptable

Unacceptable





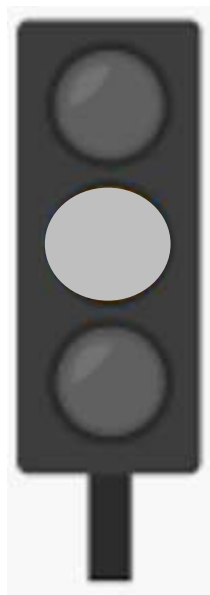
A student does the assignment entirely on their own.



?



A student copies their assignment from another.



# Cheating on Assignments

## Academic Integrity Rules\* for assignments in COMP 250 Winter 2022

Actions in green are what is permitted (Do's). Actions in red are what is NOT permitted (Don'ts). There are other actions that are not listed here, which I would color gray. If you have questions about them, please post on the discussion board.

- Understanding the assignment:
  - DO discuss the meaning of the assignment with your classmates
  - DO consult the notes, slides, textbook, and any links to websites provided by the professor/TAs
  - DO ask the professor and TAs for clarification.
  - DO verbally discuss possible solutions with other students
  - DON'T put anything in writing during verbal discussions with other students.
  - DON'T discuss the assignment with individuals that are outside of the course.
- Writing
  - DO write the solution code on your own
  - DON'T search for, copy or modify an solution code from a web repository (coursehero, chegg, gitlab)
  - DON'T hire someone to do the assignment for you
- Debugging
  - DO debug the code on your own
  - DO debug code with help of the professor, TA, CSUS helpdesk, or classmate – *only if the help is to fix coding errors using the debugger, not to come up with a design solution or algorithm*
  - DON'T get help in coming up with a design solution or algorithm (including from a TA, CSUS help desk, or anyone else)
- Validation
  - DO Share test cases with your classmates
- Collaboration
  - DON'T show your solution code to classmates *to help them understand your solution (even the code is partially complete)*
  - DON'T post code screenshots publically on the course discussion board
- After the assignment:
  - DON'T backup your code to a *public* searchable repository/service like `github`
  - DON'T share (email, `dropbox`, link, etc) your files with anyone other than students in the course even after before solutions have been released. (The reason is that sometimes we delay solutions if some students have been given special permission to submit late.)

We will use plagiarism detection software and I will report suspected cases.

This document will be posted along with each Assignment PDF.

# Cheating on Quizzes

Honour system:

- No communication about the quiz is allowed until the quiz closes.
- Posting solutions to a web site or searching for quiz solutions on a web site is strictly forbidden.

# On a more positive note ...

- I will do *my best* to make this course run smoothly.
- I will provide you with the materials you need to succeed.
- If you have the required background and if you put in the work, then *you will do fine*.

# Next two weeks ...

## Lectures

- Fri. Jan. 5  
Grade school arithmetic
- Mon Jan 10  
math – log, mod, base  
arithmetic & conversion
- Wed. Jan 12 ...  
basic Java (TBD)

## Homework (TODO)

- Learn basic Java syntax on your own. See earlier link to w3schools, or other resources.
- Install either Eclipse or IntelliJ. TA office hours to help with this coming soon.

# 5 minute break

In the meantime, I will read  
through the chat for  
questions that were not  
answered