



# SUSTAINABLE DEVELOPMENT

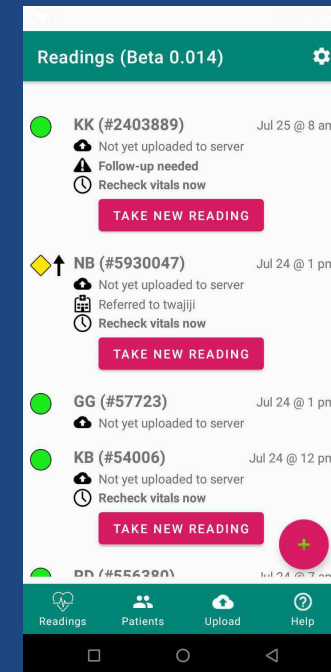
# GOALS

Computers can be part of the solution to each of these

<b>1</b> NO POVERTY 	<b>2</b> ZERO HUNGER 	<b>3</b> GOOD HEALTH AND WELL-BEING 	<b>4</b> QUALITY EDUCATION 	<b>5</b> GENDER EQUALITY 	<b>6</b> CLEAN WATER AND SANITATION 
<b>7</b> AFFORDABLE AND CLEAN ENERGY 	<b>8</b> DECENT WORK AND ECONOMIC GROWTH 	<b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE 	<b>10</b> REDUCED INEQUALITIES 	<b>11</b> SUSTAINABLE CITIES AND COMMUNITIES 	<b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION 
<b>13</b> CLIMATE ACTION 	<b>14</b> LIFE BELOW WATER 	<b>15</b> LIFE ON LAND 	<b>16</b> PEACE, JUSTICE AND STRONG INSTITUTIONS 	<b>17</b> PARTNERSHIPS FOR THE GOALS 	 <b>SUSTAINABLE DEVELOPMENT GOALS</b>

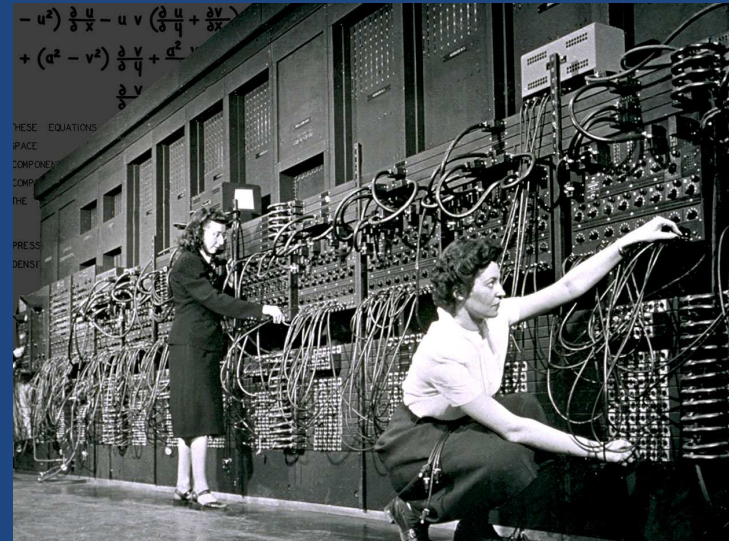
# Solving problems of social value

- Computers are a tool to change the world
  - Programming is how you get full control.
  - We can help people.



# Topics

- 1) Who's **Dr. Brian**?
- 2) Whats in **CMPT 130**?
- 3) Who are the **students**?
- 4) How do I  
**succeed & connect?**



ENIAC computer - 1945



# Who's Dr. Brian?



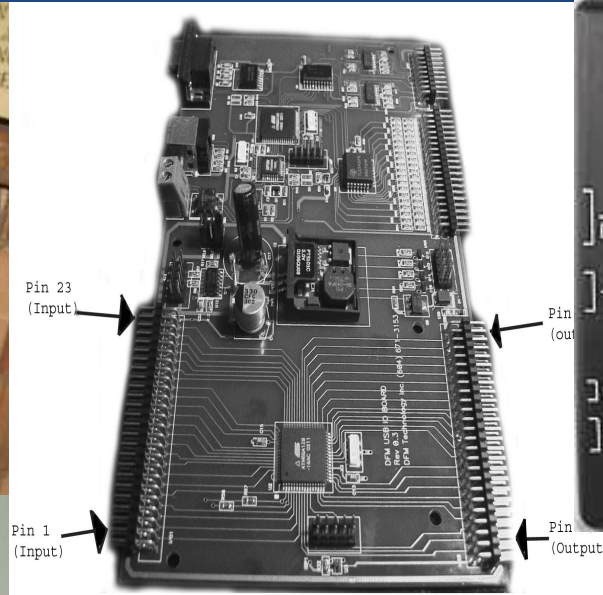
24-09-02





# Dr. Brian (Fraser) (he/him)

- I love questions and feedback!



# About Me

- **Love Teaching:** I can help share my excitement for programming, and for making the world a better place.
- **Degrees:** BSc & PhD from SFU (AI)
- **Favourite Video Game:** StarCraft 2, WoW, Valheim, Mario Kart
- **Family:** Married with 2 girls (8y & 10y)
- I recognize that I am **privileged** to be in my position with **many advantages afforded** to me throughout my life.
  - I work to build a **positive inclusive experience for everyone.**



# Course Expectation

- Only one thing
  - Use a positive tone for all communication (asking questions, on Piazza forums, with TAs)
  - Anon trolling hurts and won't be tolerated
  - Students have wide range of backgrounds; respect it
- If sending a message
  - Give a little context (class, your name, topic, ...)
  - Email: If you are sending more than 2 per week on average, over multiple weeks, it may be too many.

What's in CMPT 130?

<http://tinyurl.com/briansfu/cmpt130/>





# Course Topics

- **Basic Course Goal**
  - Solving problems of social value
  - Thinking through problems:  
Programming in C++
  - Simple data structures
  - Algorithms

# Flipped Classroom

- “Notes” Videos
  - Pre-recorded videos; posted by Monday
  - You should watch these **before** class (1-2h)
- Lecture (M/W/F) - Live Coding / Activities
  - Interactive coding and activities to engage content
  - Recorded and posted online
- Labs
  - Guided activities; one per week to get started
- Assignments
  - One every 2 weeks
  - Practice applying skills more independently

# 2 Week for Assignments

	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Week n	Lecture: Coding + Activities	Lab	Lecture: Coding + Activities		Lecture: Coding + Activities		Lab due
Week n+1	Lecture: Coding + Activities	Lab	Lecture: Coding + Activities		Lecture: Coding + Activities		Assignment due  Lab due
...	...	...	...	...	...	...	...

Next Wed:  
Quiz on previous  
assignment

Last day to hand  
in assignment  
(3 days late;  
0% penalty)



# Weekly Expectations

- **3 Units** = ~9-10 hours / week
- **Your week might look like:**
  - **Sunday:** watch videos 1h
  - **Monday:** lecture 1h
  - **Tuesday:** lab, watch video 2h
  - **Wednesday:** lecture 1h
  - **Thursday:** try assignment, complete lab 2h
  - **Friday:** lecture 1h
  - **Weekend:** try assignment 1h

# Assignments

- Programming is like driving a car:
- ~6 Assignments / Project
  - They tell you what to do, not how; you write code to solve the problem
  - You can't really say you know the course material unless you can do (re-do?) the assignments well!
- Generative AI
  - You **may** use AI tools to help (ChatGPT/Copilot/...)
- It's cheating to submit someone else's work
  - We check carefully & apply stiff penalties
  - It's also cheating to submit you previous work again

# Evaluation

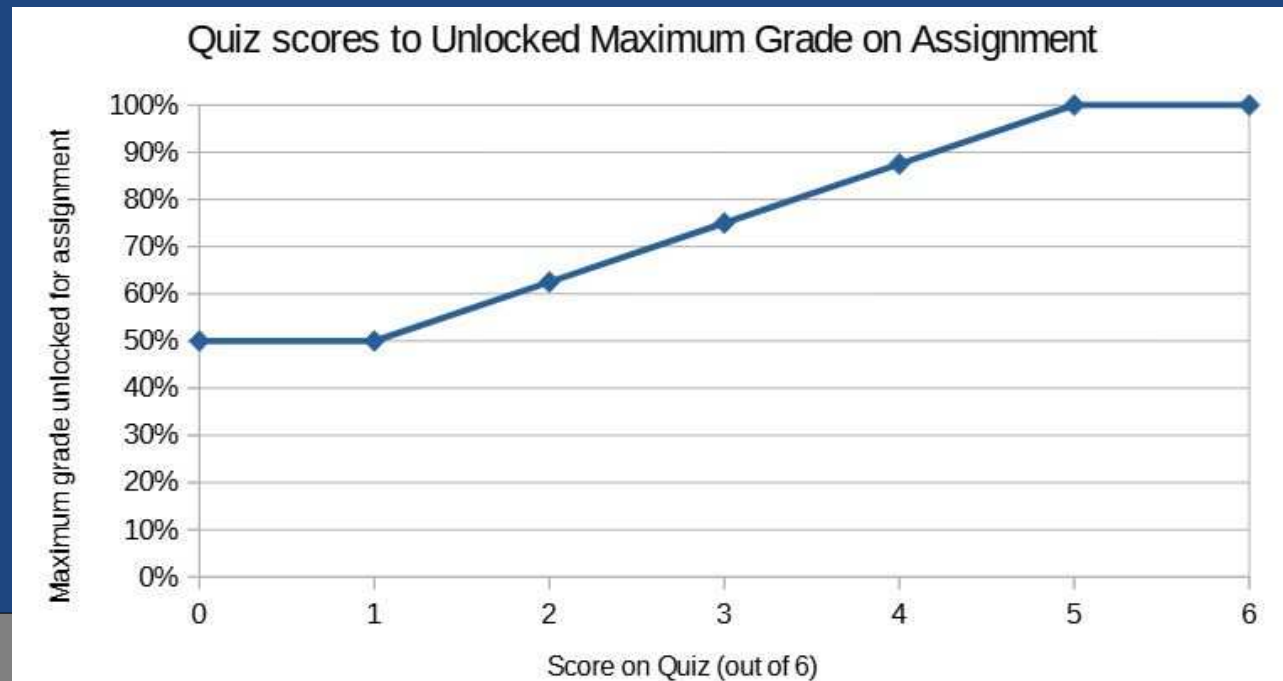
- **10% Labs**
  - Most weeks (starting next week)
  - Attend any section(s)! (or none?)
  - **Submit lab online** by Sunday; completion marks
- **35% Assignments + Quiz (~6)**
  - Assignment due about every 2 weeks; on Sunday
  - Following Wednesday has a short in-class quiz
  - Default maximum score on an assignment is 50%. Your quiz unlocks a maximum assignment score > 50%!
- **20% Midterm**  
**35% Final**



# Unlocking Assignment Scores

- Coding is critical to learning the material
  - AI systems (like ChatGPT and Copilot) can do all the coding for this course very well!
  - **You are allowed to use them to help you;** however, you must learn how to do the work!

- Default maximum score on an assignment **is 50%.**
- Your quiz **unlocks** a maximum assignment score **> 50%!**



Who are the students?

# How are you feeling?





# You already know:

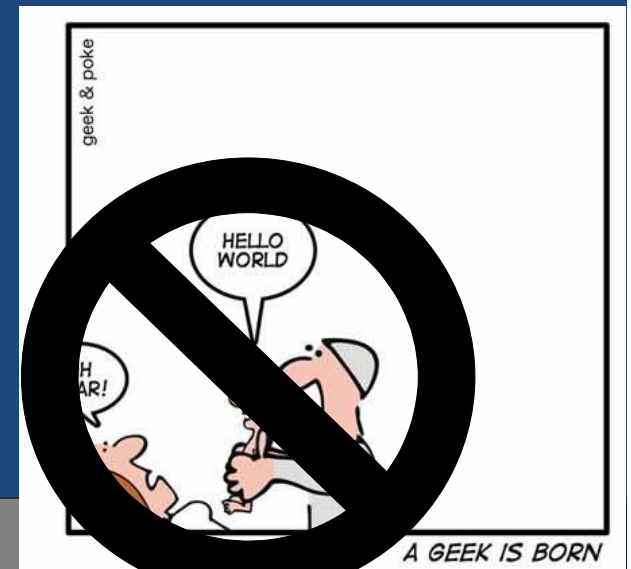
- **How to use a computer and the web.**
  - You are comfortable using **directories/folders** to find, create, copy and edit files.
  - You can check **email** and **browse the web**.
- **You are eager to learn programming**
  - Course is a **rigorous introduction to programming**.
  - It **assumes no previous programming experience**, nor experience with Linux.
  - Expect to put in a strong effort to learn programming.

# Real-time Stand-up Survey

- Everyone stand up!
- How much programming have you done? (in any language)
  - None?
    - This is the right class for you to start your journey!  
Have a seat.
  - Some experience, but not a lot?
    - This is the right class for you to build your skills!  
Have a seat.
  - A lot!
    - This is the right class for you to help others!  
Have a seat.
- Lecture is for participation for everyone.

# Growth Mindset

- Programming is skill a person develops; not one they were born with.
  - Nobody was *born* being good at C++.
  - Nobody was *born* being bad at C++.
  - Everyone good at C++ has worked hard and learned it.
- Computer Scientists learn helpful dispositions such as:
  - Collaborative
  - Inventive
  - Persistent
  - Meticulous
  - ...





# How to Succeed + Make Connections

# Stay home sick

- Stay home when needed
  - Feeling a little sick?  
Covid, cold or the flu!  
You should stay home  
and watch the video too!
- If I'm sick, I'll cancel lecture, present remotely,  
or record a video

# Guide to Slides

- **Slide Colour Guide (often...):**
  - **Green:** headings.
  - **Yellow:** Highlighted text.
    - Course has: **midterm**, **quizzes**, & **final**.
  - **Blue:** Term being defined.
    - **Hour:** 60 minutes.
  - **Sweep-in Text:** Blanked out text.
- **Joke:**
  - There are 10 **types of people** in the world...

# Advice

- Previous Students have said about this course
  - Useful, practical course;  
May help you love programming
  - Easy start, gets really challenging really fast
  - Time consuming assignments
  - Tough but fair exams
  - Live long and prosper  
(Star Trek: technology for social good?)



# Connecting

- **Connect with Me**
  - Come chat after class
  - Come to Lunch with Dr. Brian
- **Connect with Help**
  - Come to lectures & labs
  - Come to “Gathering Hour”  
(in-person office hour in a big room for everyone)
  - Come to my & TA online office hours (Discord)
- **Start connecting early**
- **Start your assignments early**



# Meeting Someone!

## Start chatting in groups of 3-4

- Exchange **names** and **contact info**  
(email/discord/whatsapp/instagram/X/?)
- Discuss the following:
  1. What is the **best** thing computers have been used for?
  2. What is the **worst** thing computers have been used for?