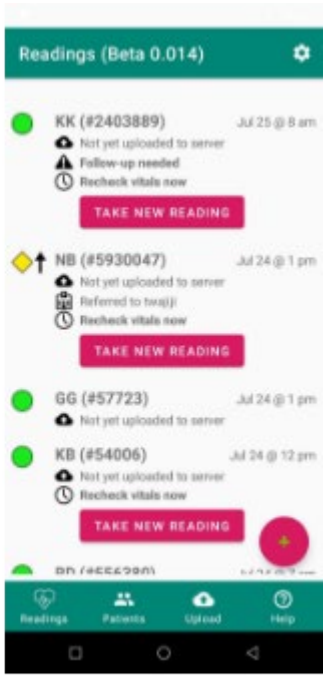
Welcome to Computing Science

What do you think technology is going to look like 20, 30 years from now?


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



Computers are a tool to change the world.
Programming is how you get control of that tool to help people.

Hello!

I'm Dr. Brian Fraser
(he/him)





- BSc & PhD at SFU in AI
- Love teaching to share my excitement for programming and making the world a better place.
- Family: Married with 2 girls (8y and 10y)
- I recognize I'm privileged to be in my position with many advantages afforded to me throughout life. I work to create an inclusive space.

Today's Topics

Computing Science and Applications

Housekeeping

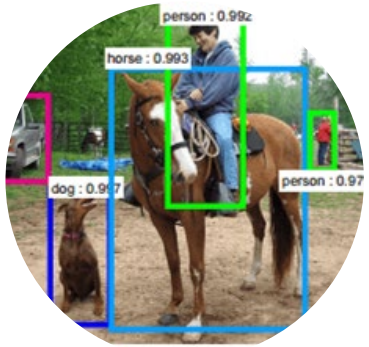
Homework

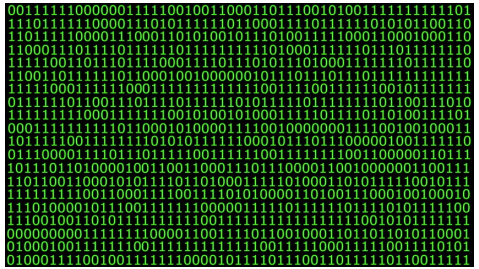
Applications of Computing Science

CMPT 120 Exploration Units

NETFLIX

amazon





CMPT 120 Exploration Units

Chatbots

You will be learning about software behind ChatGPT, Alexa or Siri. The field of natural language processing (NLP). CMPT 310, 413

"You may also like…"

Recommendation systems such as Netflix's and Amazon's "You might also like" features are a great way to help people discover new things they may like. CMPT 353

Graphics and Animation

Pixar movies and your favourite animated films these days are built with code. CMPT 361, CMPT 466

Computer Vision

Computers are so smart, they are starting to recognise faces in images so you can unlock your phone with your face. How do they do that? CMPT 414

Under the Hood

What's happening in our machines to make all this software run? We'll explore deeper into the code and what is happening closer to hardware. CMPT 295, 300, 379

Internet and Big Data

The internet has given us data. A LOT of data. We will learn about searching, sorting and how to do it fast even when there's lots data to crunch. CMPT 470, 353

Today's Topics

Computing Science and Applications

Housekeeping

Homework

CMPT 120

LECTURES

Bring a laptop! You'll code along and do exercises in class. Available at the library for loan if needed.

WEEKLY ACTIVITIES

Interactive readings to learn material
Weekly lab exercises to build practical skills
Bi-Weekly assignments to apply your skills

OPEN LABS

All weekly open lab times are available **for anyone** to **get help** from the TAs. Come to as many or as few as you like. Get help on **setting up your laptop to weekly exercises.**

AFTER-ASSIGNMENT QUIZZES

The Friday after an assignment is due we'll have an **in-class, in-person quiz focusing on previous assignment(s).**

2-Week Cadence

	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Week N	Weekly material posted Assignment posted		Open Lab Time				Lab Due
Week N+1	Weekly material posted		Open Lab Time				Lab Due Assignment Due
Next week			Last day to submit asn; no penalty		**Quiz on previous assignment**		

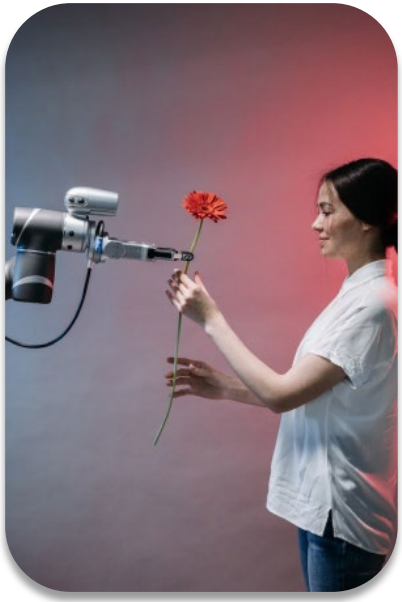
Grading scheme

	Percentage
Weekly Labs due Sundays at 11:59pm	**10%**
Bi-Weekly Assignments due Sundays at 11:59pm	**35%**
Coding Comprehension Quizzes Week after asn due; in-class Friday	Unlocks >50% max score on previous assignment(s)
Midterm Theory and Coding Friday, October 25, in-class	**20%**
Final Exam Theory and Coding Date to be announced	**35%**

0% per day late, max 3 days

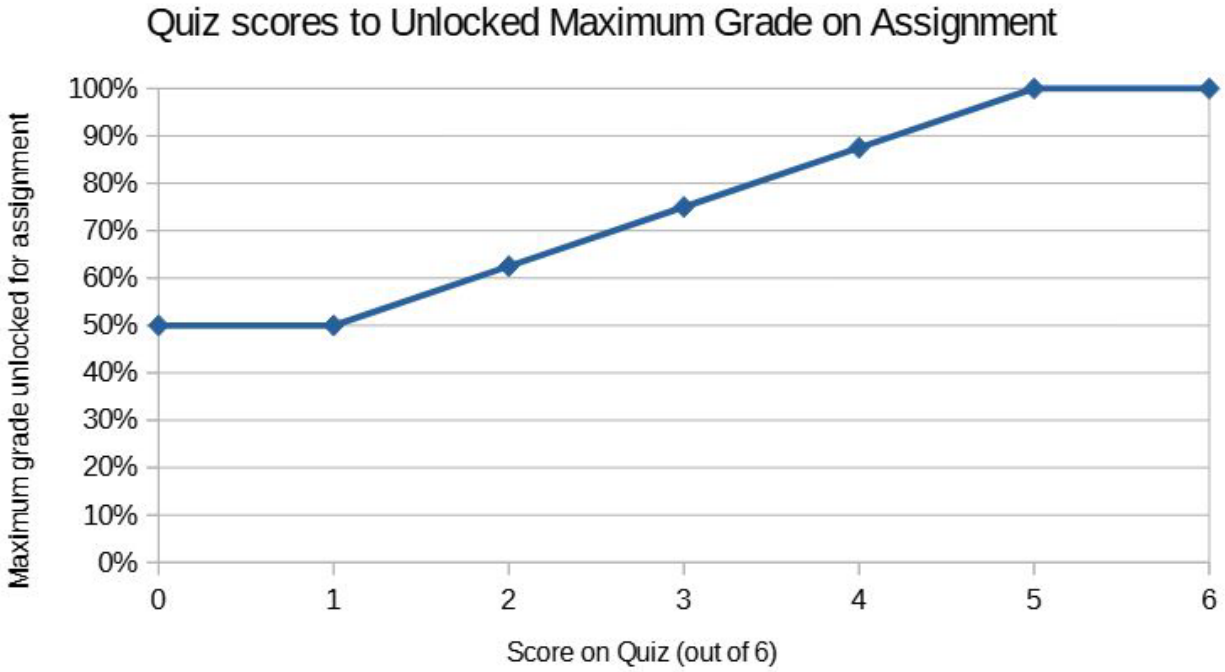
Students must attain an overall passing grade on the weighted average of exams in the course in order to obtain a clear pass (C- or better).

Coding, AI, and Quiz



- Coding is **critical to learning** the material.
- AI systems (like ChatGPT and Copilot) can do all the coding for this course very well!
  - You **<u>are</u>** allowed to use them to help you; however, **<u>you</u>** must learn how to do the work!
- Default maximum score on an assignment is 50%. Your quiz unlocks a maximum assignment score > 50%!

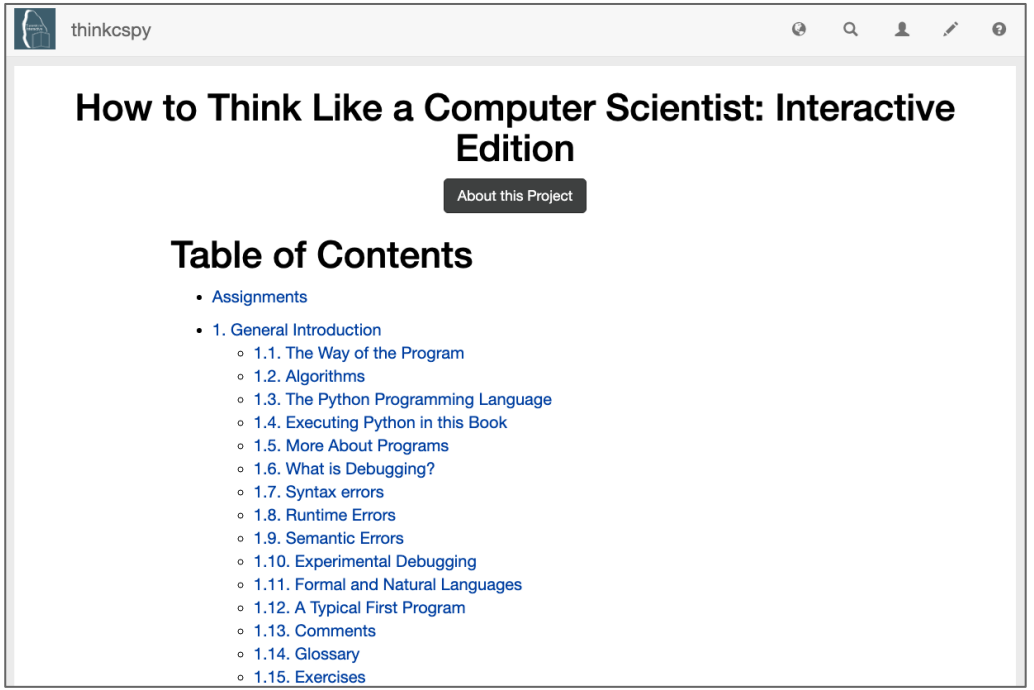
Unlocking Assignment Scores



Required Readings

Interactive readings (NOT for marks) will be posted each week.

We **strongly** recommend doing them BEFORE the lectures.



Is this course for me?

This class is for students with little or no prior programming experience.

If you have programmed before, you may be able to enroll directly in **CMPT 125**, depending on course availability and only until end of 1st week of classes.

https://courses.cs.sfu.ca/forms/cmpt-cmpt-120-placement-test/

Growth Mindset

- Programming in Python is a skill a person develops; not one they are born with.
  - *Nobody* was born *good* at Python!
  - *Nobody* was born *bad* at Python!
- Computer Scientists learn helpful dispositions:
  - Collaborative
  - Inventive
  - Persistent
  - Meticulous
  - …

Course Website

tinyurl.com/briansfu/cmpt120

- Readings
- Labs & Assignments
- Midterm and Final
- Discord Server – online office hours & discussion
- Python

Resources to Get Help

- **Weekly labs** will be posted by Mondays
- **Drop-in labs** will start in **Week 2**
- **Office Hours:**
  - **Instructor's** starting **this week**
  - **TA's** starting **Week 2**
- **Peer tutoring** is available from **Week 3 or 4**
  https://www.sfu.ca/computing/current-students/undergraduate-students/student-resources/cs_peer_tutoring1.html ← check back here
- See your **TAs** in office hours or get help from your peer tutor to:
  - Get ahead on your weekly assignments
  - Ask questions and get support

TA office hours will be announced later.

Housekeeping and Policies

- For **general questions** and **discussions**, post on **Discord**
  - Your posts will reach your peers, TAs and Instructors
- For **marking questions** reach out to TA on Discord directly
  - You will see which TA has marked your assignments
  - Your marker will also have office hours (announced later) for you to contact them
- For **personal consultation** about course matters, attend instructor office hours or email your instructor at bfraser@sfu.ca

Academic Integrity

It is in your best interest to make sure you can write the code for your exercises independently.

If you do copy/paste a ***few*** lines of code from an outside source (i.e. not from class notes), you must **cite it** by including a URL in the comments. Otherwise, this is considered plagiarism, just like in English essays.

See the **Course Policies** for more details, and SFU's **Academic Integrity Tutorial** to understand what is considered cheating and what is not.

Academic Integrity Tutorial: https://canvas.sfu.ca/courses/56136

Today's Topics

Computing Science and Applications

Housekeeping

Homework

Homework

- Read the **Resources** & **Course Policies** on course website
- Install **Python** - instructions on Resources page
- Your first **Readings**
- Your first **Assignment, Part 1**: Read up on 2 CS profs, or 2 algorithms

Homework

- Your first **Readings** (begin now)

For best results, set aside 15-30min to read them and do the exercises **before each class**. The instructor may ask questions from the textbook, so please try to read them well. Enjoy!

Friday's class:

- 1.1. The way of the program
- 1.2 Algorithms
- 1.3 The Python Programming Language
- 1.4 Executing Python in Runestone Textbook
- 1.5 More about programs
- 1.11 Formal and Natural Languages
- 1.12 A Typical First Program
- 1.13 Comments

Homework

- Your first **Assignment (Part 1):** Read up on 2 CS profs, or 2 algorithms

1. Look at the list of SFU Computing Science faculty. Choose 2 professors and look at their homepage or search up articles written by/about them. Write 1 paragraph for each professor, in your own words, describing what they work on within computing science and examples of applications resulting from their research. Please include your sources.

   OR

2. Choose 2 of your favourite computer program or website (video game, photo-editor, web browser, music player, social media site, search engine, ...). For each, look up one algorithms that would be used in that style of program. Read up a little on the algorithms and write 1 paragraph about each algorithm. Please include your sources.

Today's Review

1. When is the midterm date?
2. How do we contact the teaching staff?
3. When are Office Hours?
4. Who is the Placement Test for?
5. Where should we post our questions?
6. How do we avoid academic dishonesty penalties?
7. When should we do readings from the online textbook?
8. When are weekly activities due?

Thanks!

Any questions?

Message me on Discord, or ask during office hours