

CPSC 103 - Systematic Program Design

Module 00. Introduction

Prof. Karina Mochetti

2020.W2

UBC's Vancouver campus is located on the traditional, ancestral, unceded territory of the Musqueam People.



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- I watch **a lot** of movies and TV shows.
- I have two dogs that I rescue from the streets and they come with me to Canada from Brazil.



Triune Brain

We all have three brains that depend on each other to properly work. They communicate all the time and influence each other.

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Learning is creating **connections** between the problem and the solution on the Rational Brain!

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- **Effort** does not generate immediate reward and generates expectation, but without effort we can hardly get the reward.

- Don't post or share the link or the password for this meeting.
- Please keep muted during lecture, unless asked otherwise or during breakout rooms.
- I cannot pay attention to chat or reactions while sharing screen and teaching at Zoom! Please, raise you raise if you need something, you will be asked to unmute yourself.
- We will have a form so you can leave questions if you don't feel comfortable unmuting yourself:
<http://www.cs.ubc.ca/~mochetti/askCPSC103.html>.
- We will have breaks for questions.

CPSC 103 - Course Goals

After you complete the course, you will be able to:

- Write small programs that solve a problem in an academic discipline of your choice and are readable, well-organized, well-documented, and well-tested.
- Write small programs for a reasonably complex task, where the ability to use the *one task - one function* rule can be demonstrated.
- Design the data representation for a reasonably complex problem.
- Describe the information encoded in given data.

Staff

Instructors: Karina Mochetti and Jessica Wong

Course Coordinator: Deirdré Fang

Your final grade will be computed as follows:

- Pre-class quizzes (10): 5%
- Tutorial problems (9): 15%
- Worksheets (8): 5%
- Code Reviews (8): 5%
- Midterm: 15%
- Final Exam: 30%
- Project: 25%
 - Proposal: 1%
 - Milestone: 10%
 - Project check-in: 1%
 - Final Submission: 11%
 - Demo Video: 2%

To pass the course you must:

- Obtain a total score of at least 50%.
- Obtain at least 50% on the project
- Obtain at least 50% on the Final Exam.

Quizzes

- Done via Canvas, every Monday at 22:00.
- Usually once per week before a new Module starts.

Tutorials

- You will work on sets of problems individually.
- Collected on Canvas from Jupyter/Syzygy, every Wednesday at 22:00.
- We will drop the lowest tutorial grade.

Code Reviews

- Done via Canvas, every Wednesday at 22:00.
- Usually once per week after a Module ends.
- Code reviews will involve many judgment calls, so we will add 10% on top of any non-zero final average and we will drop the lowest tutorial grade

Worksheets

- Due every Monday at 22:00.
- You will convert your responses to a PDF and submit it on Canvas.
- Worksheets are graded for participation, based on a complete (not correct) answer.

Project

- You will write a program to analyse data read from a file.
- A TA will mentor you during the project and grade it.
 - Proposal: Wednesday, March 3 at 22:00.
 - Milestone: Friday, March 26 at 22:00.
 - Check-in: Friday, April 1 at 22:00.
 - Final Submission: Friday, April 9 at 22:00.
 - Demo Video: Wednesday, April 14 at 22:00.

Midterms

- Midterm: Monday, March 22 at 18:00.

Final

- To be determined by Enrollment Services

Academic Conduct

- Please read the rules in the syllabus and follow them.
- Not following these rules will be unpleasant for all of us.
- Several academic misconduct cases were referred to the Science Dean's office in 2019W2.
- We really, really don't want to have to go through this this term (but we will if necessary).

CPSC 103 - Schedule

	SUN	MON	TUE	WED	THU	FRI	SAT
Week 01 10-Jan 16-Jan			Today!				
Week 02 17-Jan 23-Jan		Quiz 01					Quiz 00
Week 03 24-Jan 30-Jan		Quiz 02 WS 01		CR 01 Tut 01			
Week 04 31-Jan 06-Feb		Quiz 03 WS 02		CR 02 Tut 02			
Week 05 07-Feb 13-Feb		Quiz 04 WS 03		CR 03 Tut 03			

CPSC 103 - Schedule

	SUN	MON	TUE	WED	THU	FRI	SAT
Week 06 14-Feb 20-Feb		<i>Reading Week</i>					
Week 07 21-Feb 27-Feb		Quiz 05a WS 04		CR 04 Tut 04			
Week 08 28-Feb 06-Mar		Quiz 05b		Project Proposal			
Week 09 07-Mar 13-Mar		Quiz 06 WS 05		CR 05 Tut 05			
Week 10 14-Mar 20-Mar		Quiz 07 WS 06		CR 06 Tut 06			

CPSC 103 - Schedule

	SUN	MON	TUE	WED	THU	FRI	SAT
Week 11 21-Mar 27-Mar		Midterm				Project Milestone	
Week 12 28-Mar 03-Apr		Quiz 08 WS 07		CR 07 Tut 07	Project Check in	<i>Holiday</i>	
Week 13 04-Apr 10-Apr		<i>Holiday</i>		CR 08 Tut 08		Project Submiss	
Week 14 11-Apr 17-Apr		WS 08	Last Lecture	Project Video			

Piazza

Piazza is a forum where you can ask questions and interact with the instructors, TAs and other students.

The screenshot shows the Piazza interface. On the left, there's a sidebar with various help topics. In the center, a question titled "How do I use LaTeX?" is displayed. Below it, a student's answer is shown, followed by an instructor's answer. At the bottom, there are sections for followup discussions and statistics like average response time and online users.

For CPSC 103, we will use it for discussions and questions about the course content.

Canvas

Canvas

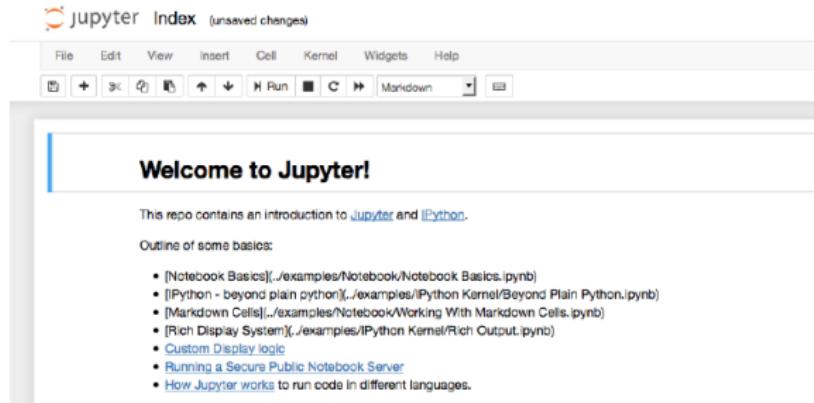
Canvas is UBC's online learning platform, where you can find course material, discussion board, quizzes and more.

The screenshot shows the Canvas course interface for 'ASTR 103 005 Celestial Beings and Galaxies'. The left sidebar includes links for Account, Dashboard, Courses, Groups, Calendar, Inbox, Help, Home, Modules, Syllabus, Assignments, Discussions, Quizzes, People, Grades, Outcomes, Files, Pages, CourseEval, and Settings. The main content area displays three sections: 'Lecture Notes' containing 'Lecture 1: Star Composition', 'Lecture 2: Measuring Distance to Stars', and 'Lecture 3: Movement of Stars'; 'Worksheets' containing 'Worksheet 1: Phases of the Moon', 'Worksheet 2: Layers of the Sun', and 'Worksheet 3: Red Shift vs Blue Shift'; and 'Other'.

For CPSC 103, we will used it for submitting Pre-reading Quiz, Worksheets, Code Reviews, grades and a lot of course material.

Jupyter

Jupyter is a web application that allows you to create and share documents that contain live code. Syzygy is a project that holds Jupyter notebooks to UBC.



For CPSC 103, we will use it to write code during lecture, tutorials and the project.

Grascope

Gradescope is grading software where exams and assignments can be uploaded and graded.

The screenshot shows the Gradescope interface for a submission named "calculator.py". The code is as follows:

```
1  from __future__ import print_function
2
3
4  class CalculatorException(Exception):
5      """A class to throw if you come across incorrect syntax or
other issues"""
6
7      def __init__(self, value):
8          self.value = value
9
10     def __str__(self):
11         return repr(self.value)
12
13 class Calculator(object):
```

The submission has been graded with the following points:

- 1: Style - +4.0 (Followed coding style guidelines)
- 2: +2.0 (Sufficient documentation)
- 3: +4.0 (Efficient algorithm)

Total points: 6.0 / 10.0 pts

For CPSC 103, we will used it for the Midterm and Final Exam submissions.

Padlet

Padlet is an online notice board.

Using Padlet as a Collaboration Tool

Have you used Padlet for collaboration in your classroom? How could you use it to connect students to other grade levels, schools and communities? Please share your ideas!

1st Grade Fun
In my 1st grade classroom we use Padlet to post information while doing scavenger hunts around our school building, which are generally QR code hunts. We take offie scavenger hunts also and post video and pictures - this was a fun way to review classroom rules after returning from winter break. I have sent home the link for parents to add photos or comments over weekends also.

Feedback and Sharing Projects
I have seen it as a place to collect links for a project (such as an animoto, powtoons, google doc). Students can access each others projects from the Padlet and give

FREE Graphic Organizers TO USE WITH PADLET
WWW.THETECHIETEACHER.NET

Inquiry Questions

Reading fluency
Some of our K-2 students read into the microphone and post to their own padlet. The Padlet URL is shared with the teacher and students' parents so they can track growth over time. Parents can pull up their child's padlet and listen to them read, hopefully showing improvement as the year goes on.

Advisory lessons
During advisory lessons classes would discuss behavior, digital citizenship issues, etc and collaboratively answer key questions. Those key questions would be shared to a padlet so other advisory classes can see what was discussed.

Research Notes
Students/student groups can use a Padlet to organize their research notes and ideas (Adina -SMUSD)

For CPSC 103, I will used it for our announcements, so it is easy for you to follow what is going on.

Contact and Links

- Course coordinator: Deirdré Fang
cpsc103-admin@cs.ubc.ca
- Canvas:
<https://canvas.ubc.ca/courses/58946>
- Piazza:
<https://piazza.com/class/kizn8r2v4i25ap>
- My announcements:
<http://www.cs.ubc.ca/~mochetti/CPSC103.html>
- My email:
mochetti@cs.ubc.ca

Questions?

Ask CPSC 103

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Due to January 18th. It has 3 main goals:

- ① To teach the basics of Jupyter.
- ② To help you create a UBC CPSC account.
- ③ To help you create a Canvas Token so you can submit your Tutorials.

We need you to register your UBC CPSC account. To do that:

- ① Log in and work through the registration process at UBC CPSC's account registration page (<https://www.cs.ubc.ca/getacct/>).
- ② Find your *alias*. It looks like an e-mail address where the first part is four or five characters long with alternating letters and numbers and ends with @ugrad.cs.ubc.ca. Write it down!
- ③ Your alias will be written where the yellow highlighting is below (although we've blacked out all the details, since they won't match yours!):

CWL Id	account roles	forwarding email address
[REDACTED]	[REDACTED]	[REDACTED] Address: [REDACTED] Alias: [REDACTED]

- Markdown cells: cells where you can write text, they can be bold, italic or a bullet list.
- Code cells: cells where you write Python code and Jupyter can run it for you, printing the last line result.

Important!

Sometimes a cell cannot run because of an error in our code, but sometimes it can be a problem with Jupyter/Sygyzy. Go to *Kernel - Restart & Clear Output* to start running everything again.

Install CPSC 103 package on Jupyter

- Go to **setup - Misc - setup.ipynb**.
- Run the code you find in the code cell.
- This will install course-specific functionality on your Jupyter. You will not find information about this on other Python courses and this will not work in Python environments that do not have this package installed.

Canvas Token

We also need you to create a Canvas Token so you can submit your Tutorials (you only need to do this once, but if you have a problem submitting, just redo this steps):

- ① Log into your canvas
- ② Click on *Account* in the left toolbar
- ③ Click on *settings*
- ④ Under the *Approved Integrations* heading, click on the blue button *+ New Access Token*.
- ⑤ Provide a useful description such as '103 submissions' and a date that is after the last day of classes.
- ⑥ Click *Generate Token*.
- ⑦ Copy the entire token and past it into a new a .doc or .txt file (you won't be able to see it again).
- ⑧ Use this Token every time it is requested during a Tutorial submission (use it to submit your set up tutorial!)

Questions?

Ask CPSC 103

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