Programming, Problem Solving, and Algorithms

CPSC203, 2023 W2

About Me

Firas Moosvi

Lecturer

University of British Columbia

Biography

I am a Lecturer in the Computer Science department at the University of British Columbia. Though I mainly teach computer science now, I am a multidisciplinary educator with a PhD in Physics and is also interested in data science and education in general. I strongly believe in computational literacy for all and aims to make STEM courses accessible through Active Learning techniques and open education resources. My two main research umbrellas are the scholarship of teaching and learning (SoTL), and Learning Analytics. I am looking at how learning analytics data can provide insight to surface and ultimately reduce inequities in STEM programs. I am also heavily invested in promoting and implementing alternative grading systems in large classes, at scale. I am always happy to collaborate on teaching and learning projects, drop me a note here!

Interests

- Scholarship of teaching and learning
- Authentic assessments
- Alternative grading paradigms
- Learning analytics
- Data visualization and science communication

Education

- PhD in Medical Physics, 2019
  University of British Columbia
- MSc in Medical Biophysics, 2012
  University of Toronto
- BSc in Biophysics, 2009
  University of British Columbia

About Me

Research Interests

Learning Technologies

Use of learning technologies to enhance teaching and learning.

Active Learning

A learning method that de-emphasizes didactic teaching and actively engages students with material via problem solving, case studies, role plays and other methods.

Learning Analytics

Extracting trends from learner data using analytical tools to improve learning.

Equity in STEM

Developing and implementing methods of inclusive teaching to reduce systemic inequities in STEM education.

Visualizations

Representing data using effective graphs, plots, and other special visualizations.

Alternative Grading

Challenging the systems and structures associated with traditional grading in higher education.

About Me

2023 UBCO Teaching Fellow
UBCO Centre for Teaching and Learning · Jun 2023

The Teaching Fellow award is a recognition of individual contributions to the teaching and learning mission at UBC Okanagan. The award criteria emphasizes ongoing and future activities performed by the Teaching Fellow.

2022 UBCO Teaching Excellence & Innovation Award
UBCO Provost's Office · May 2022

This award "recognizes exemplary role models who make a significant impact on the culture of teaching and learning on our campus" and requires nominations as well as letters of reference from faculty members and students.

2021 UBCO SUO Open Education Resource Champion
Students' Union of UBC Okanagan · Mar 2021

This award is by nomination from students and is administered by the UBC SUO. An open education champion is an individual who has made a significant contribution to the use of open educational resources (OER) at UBC Okanagan.

TORONTO STAR

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Readers' Choice Awards

GTA

Should grades matter? Why this teacher is shaking up everything we know about report cards

Fostering a love of learning is the goal behind the 'ungrading' movement, one that has garnered growing interest among educators.

By **Janet Hurley** Staff Reporter
Wed., June 29, 2022 | 7 min. read

Marking 20 years of bold journalism, reader supported.

THE TYEE

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NEWS Education

Did BC Need to End Letter Grades on Report Cards?

The Tyee dives into the debate about whether the new model is a necessity or a nuisance.

Katie Hyslop / 1 Sep 2023 / The Tyee
Katie Hyslop is a reporter for The Tyee. Reach them by email.

UBC Okanagan News

Research | People | Campus Life | Community Engagement | About the Collection

Home / 2022 / May / 18 / Dr. Firas Moosvi builds community in large classrooms

Faculty Profile, People

Dr. Firas Moosvi builds community in large classrooms

UBCO Lecturer aims to teach his students the value of building relationships and de-emphasizing the focus on grades

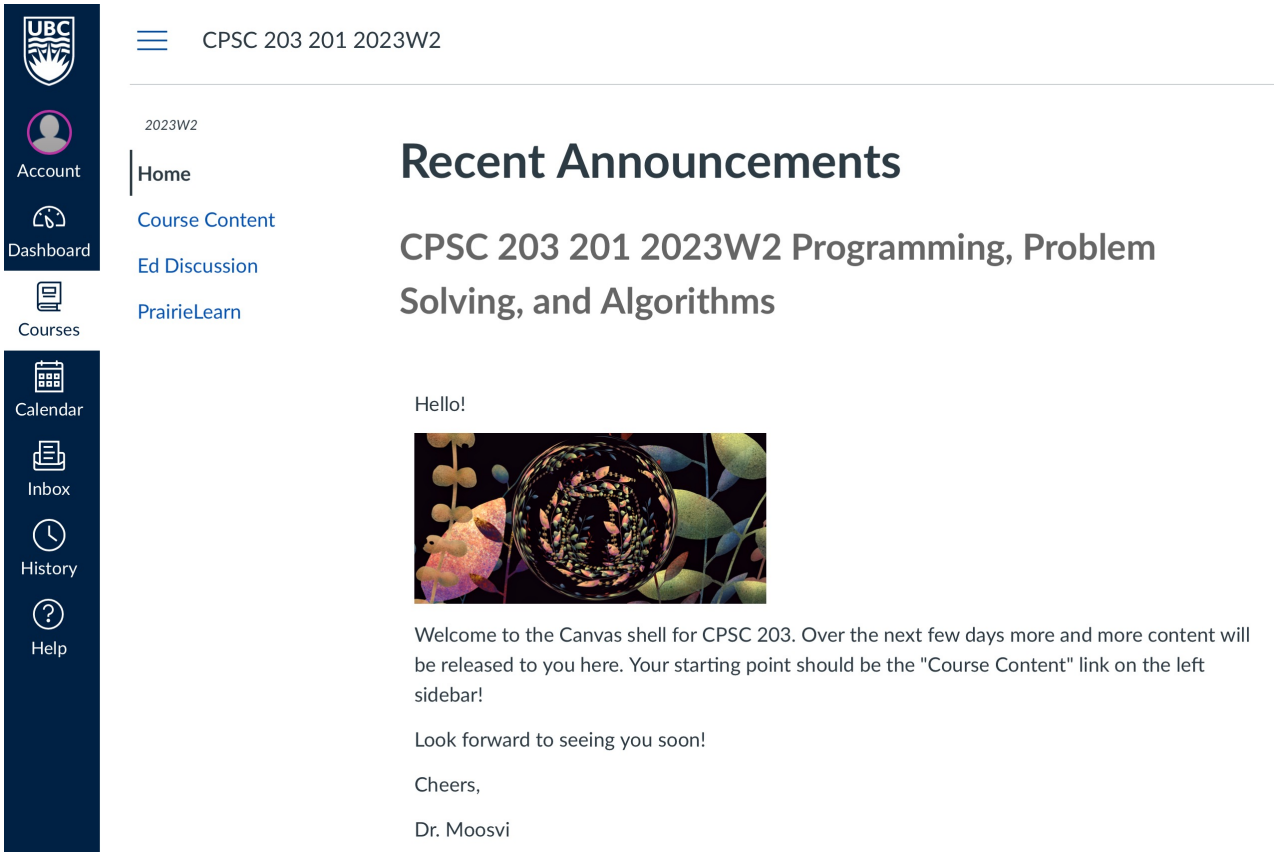
May 18, 2022

Our Amazing TAs!

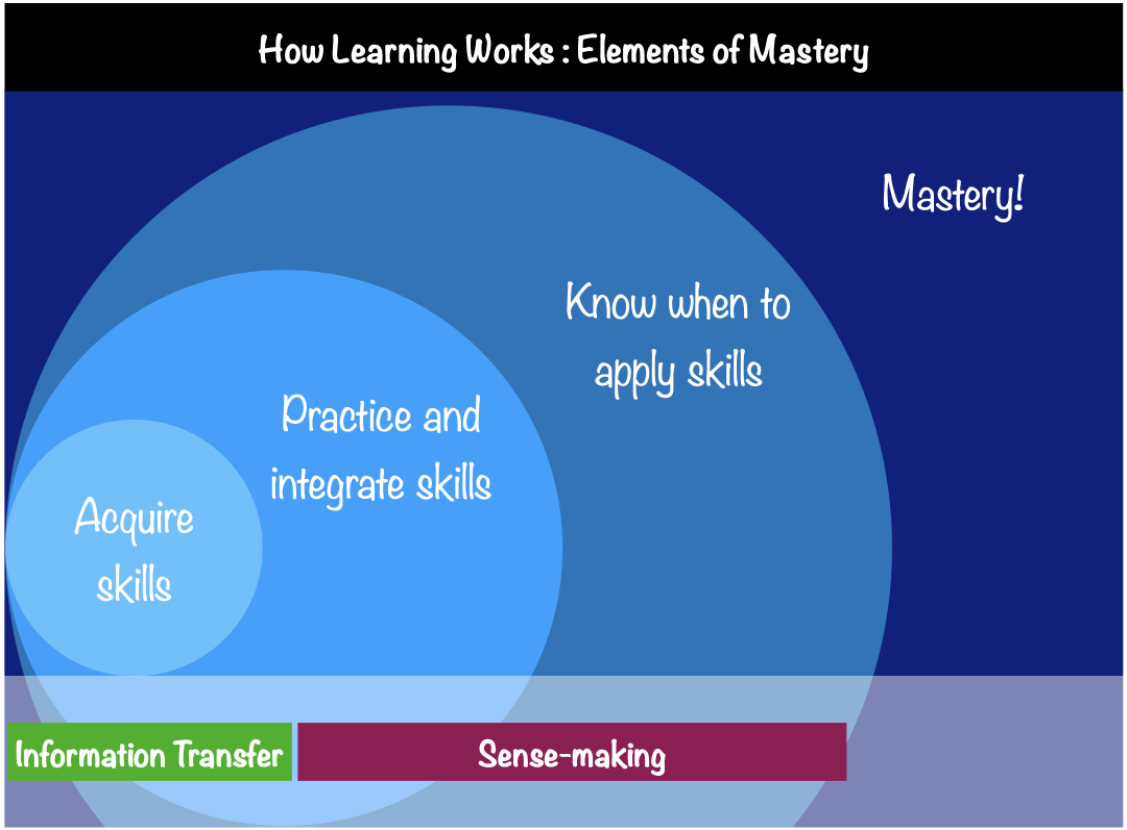
Shree Singhania

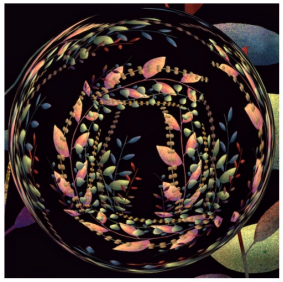
Braeden Fong

Where to start?



How Learning Works





Unsyllabus

About this course

- Course Syllabus (Official)
- Course Schedule
- Accommodations
- How to do well in this course
- Frequently Asked Questions

Getting Started

- Before term starts
- Before the first class
- After the First Class
- In the first week

THE UNIVERSITY OF BRITISH COLUMBIA

Computer Science
Faculty of Science

Unsyllabus

Teaching Team ✏️	Course Schedule 🗓️	Doing Well 😊
Information about the teaching team and how to contact us.	A table of course topics and a week-by-week plan of what we intend to cover.	Strategies and tips on how to do well in this course.
Getting Help 🆘	**Evaluation ✅**	**Teaching Philosophy 🧙**
Learn how to get help and get support if you're struggling, academically or otherwise.	Information about the grading system and evaluation scheme for this course.	How this course will be taught and how humans learn (you may be surprised!).
Changes ✍️	**Honesty & Integrity 😇**	**Special Days 🤧💝🕍🥳**
List of changes made to the Unsyllabus since the start of term, and a rationale.	Completing this course with honesty and integrity. Examples of things you can and should not not do.	What to do if you have to miss things because of special days (including getting sick).

Contents

- Important Details
- Contact Us
- Evaluation
- Passing requirements
- Learning Intentions
- Schedule
- Getting Help
- Syllabus vs. Unsyllabus
- Unsyllabus changes
- How do I do well in this course?
- Missed things
- Course Tools
- Teaching Philosophy
- Academic Integrity
- What should I think about if I'm considering withdrawing from the course?
- Acknowledgements
- Land Acknowledgement
- References

Evaluation

The grading scheme for this course is:

Item	Weight	Due date(s)
Learning Logs	5% (10 x 0.5%)	Saturdays at 6 PM
Problems of the Week	25% (10 x 2.5%)	Fridays at 6 PM
Labs	5% (10 x 0.5%)	Fridays at 6 PM
Programming Projects	15% (3 x 5%)	Three in the term
Tests (Examlets)	30% (6 x 5%)	~ Bi-weekly
Final Exam	20%	TBD

There will be 6 tests in this course in an (approximately) bi-weekly schedule.

Attention

All due dates in this course have an automatic 48 hour grace period after the due dates listed above. Any submissions submitted past the grace period will not be graded (with some exceptions).

Passing requirements

- All students must satisfy ALL conditions to pass the course:
    1. Pass the Lab component with a grade of at least 50%,
    2. Pass the Test and Exam components (together) with a grade of at least 50%,
    3. Pass the Final Exam with a grade of at least 40%.

If students do not satisfy the appropriate requirements, the student will be assigned the **lower** of their earned course grade or, a maximum overall grade of 45 in the course.

Course Designer – Dr. Cinda Heeren!

- Teaching Professor, at UBC since 2017 (previously at UIUC).

- Teaches mid-level required courses for CS Specializations (mostly cpsc221) + a similar course for non-majors!

- Currently on Sabbatical!

About This Course

- This course will teach you a bajillion different things!
  - Tools: Terminal, Markdown, Git, Visual Studio Code, PrairieLearn,
  - Computer Science: Python (!!!), efficiency, web scraping, graphs
  - Data Science: Pandas, DataFrames, Visualizations,
  - Algorithms: Many algorithms!
  - Art and Creativity: Lots of examples!

Course Components

- **Lectures:** In-class activities based on problem solving and design.
- **Labs:** Practice on lecture material
- **Problems of the week (POTW):** One per (week)day, 5/week, ~ 50 / term
- **Projects:** 3 total
- **Assessments:** 6 Tests (Examlets) + Final

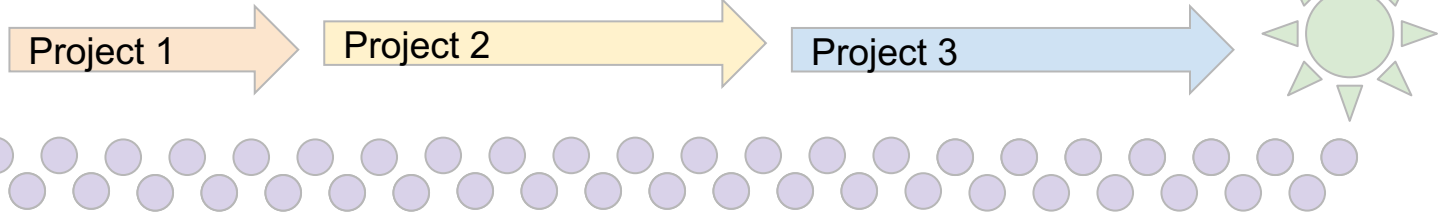
Canvas: https://canvas.ubc.ca/courses/130127

Labs!

- This course has Labs…
- Unfortunately they weren’t published for students to register in…
- They should be available now to register…
- Let’s take a few minutes to do this now…

Semester Overview:

Handcraft	Billboard Hot 100	The Overstory and Pointillism	Artificial Music Composition	Road Trip Planning	Spiderman's Social Network
Design Objects Iteration	Web Scraping Data Frames MatPlotLib	Voronoi Diagrams Efficiency	Markov Chains Random Numbers Graphs	Traveling Salesperson Intractable Problems	Natural Language



Revisit the overview:

Handcraft	Billboard Hot 100	The Overstory and Pointillism	Artificial Music Composition	Road Trip Planning	Katniss' Social Network
Design Objects Iteration	Web Scraping Data Frames MatPlotLib	Voronoi Diagrams Efficiency	Markov Chains Random Numbers Graphs	Traveling Salesperson Intractable Problems	Natural Language

This course consists of a sequence of six explorations, assembled to provide a tour through data structure applications and algorithmic design. Built around topics from arts, sciences, and technology, the explorations are thought provoking and engaging. You will emerge from the course with increased proficiency in Python programming, and with a broad spectrum of tools for algorithmic problem solving.

Course Tools

- **Ed Discussion:** Class Discussion Forum
- **PrairieLearn:** Platform to help us give you feedback on work you do!
- **GitHub:** Code repository and version control
- **Visual Studio Code:** Developer Environment
- **Canvas:** Basically just a place for you to find all the relevant links to things...

Assessments

	Available credit	Score
Tests (Examlet)		
T0 Test 0 - Course Policies (completion only, not for marks)	100% until 18:00, Thu, Apr 11	New instance
Class Activities		
CA1 Class 1 Activity	100% starting from 11:00, Tue, Jan 9	Not started

Any questions before we continue?

Break
(5 mins)!

Let’s Learn Markdown!
(20 mins)

Time to Practice!
(20 mins)

The Magic Number for today is:

_____

See you Thursday!