

CSE 390 B Spring 2021

Course Introduction Welcome!

Course organization, What you will learn, Policies & Expectations, Homework Setup

If you are able to, please have your camera on!



Introductions!

- ❖ Who's all here?

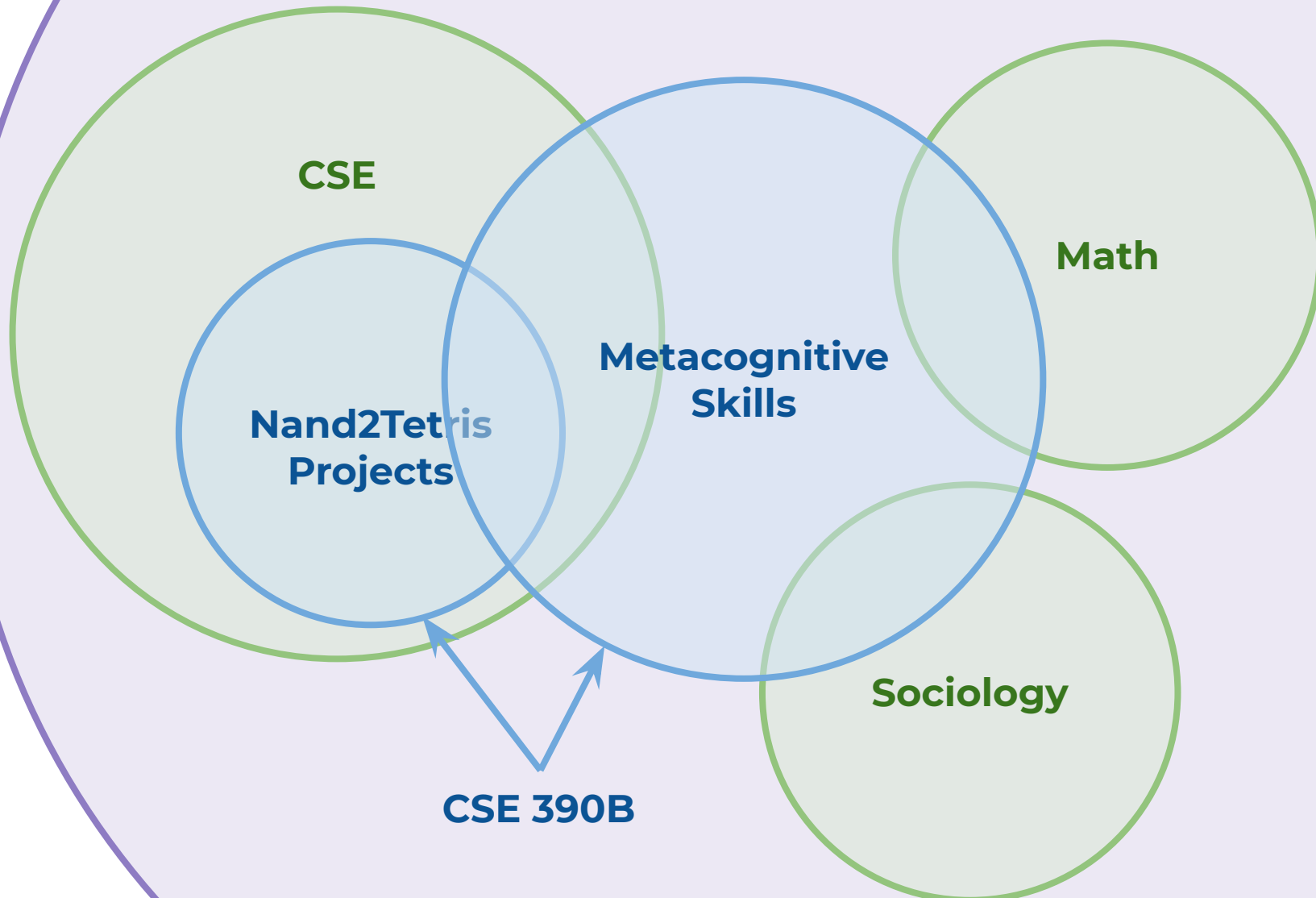
- ❖ Please share...
 - Your Name
 - Preferred Pronouns
 - Class year
 - Where are you currently zooming in from?

Agenda

- ❖ **What is this course?**
 - What you will learn
 - Why it matters
- ❖ **Course Logistics**
 - Lectures & Assignments
 - Policies
 - Expectations
- ❖ **Programming Project Series**
 - Tools demo

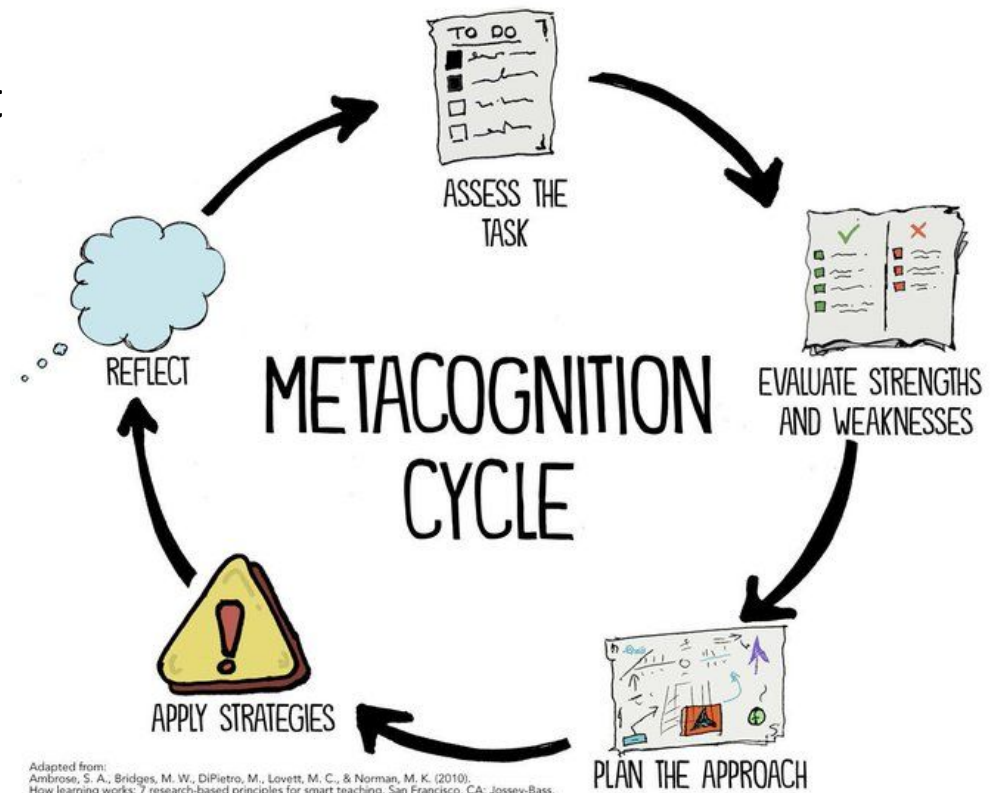
What is this course?

The UW Student Experience



Metacognitive Skills

- ❖ What does Metacognitive mean?
 - Awareness of your thought process
- ❖ Skills we will cover:
 - Time Management
 - Annotation Strategies
 - Test-Taking
 - Note-Taking
 - Written & Oral Communication
 - Testing & Debugging
 - ...

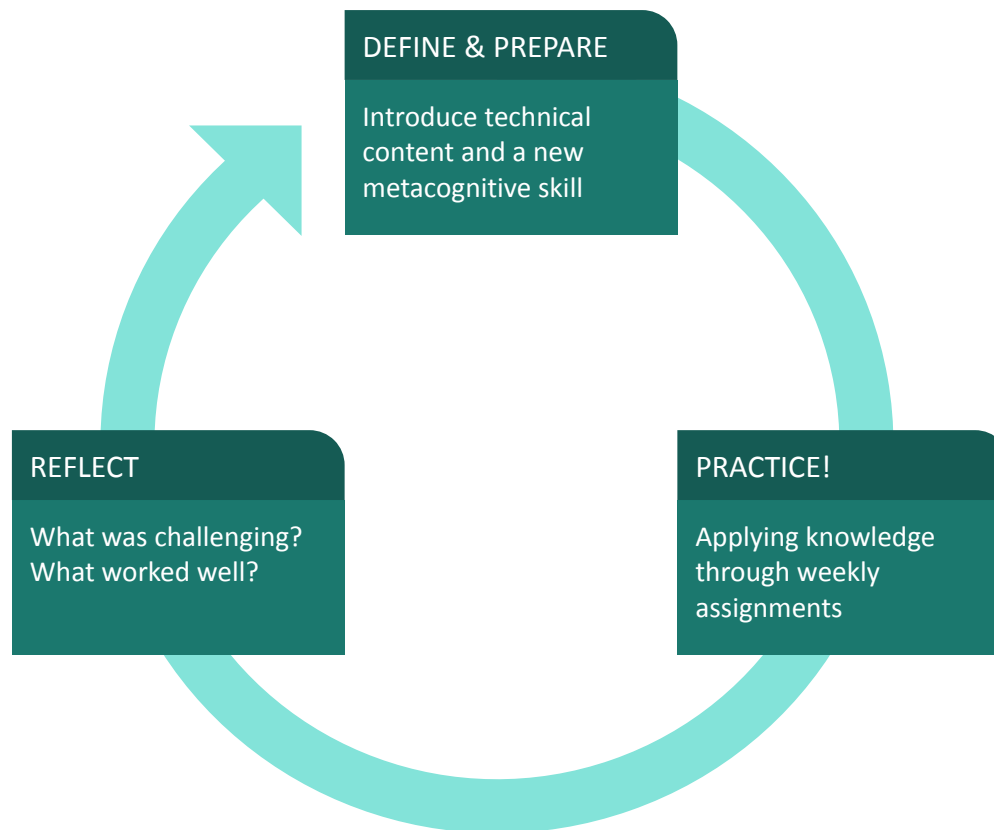


How Does a Computer Work? How Should They Be Used?

- ❖ Fascinating questions: What happens when code runs? What role do computers play in our society?
- ❖ Fascinating answers:
 - Many layers of abstraction, each with its own answer, implemented on top of lower layers
 - Many possible societal roles with different tradeoffs/ethics/etc.
- ❖ nand2tetris: beautiful curated virtual environment for exploring several layers bottom-up
 - Brief spoiler: Can do everything with nand gates and I/O
- ❖ *Empowering*: A coordinated broad look at “how computers really work”
 - Closest to 351, but lower level, with elements of 369, 451, ...

How it Connects?

- ❖ How do the different elements of practicing metacognitive skills and working on technical projects connect?



Why Does it Matter?

- **'BOTTOM-UP' COMPUTING CAN BE COOL.**

Learning how computers work is a foundational element of computer science

- **COMPUTER SCIENCE IS A SOCIAL DISCIPLINE**

As computer scientists, we should constantly be cognisant of how the technology we are building interacts with society

- **BUILDING YOUR TOOLBOX**

A CSE degree isn't just about learning technical concepts; it's also about preparation for a career (collaboration, organization, etc.)

- **TEACHING STUDENTS TO FISH**

Helping students become independent learners and be autonomous in their learning for future UW courses and beyond.

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The world right now

[See also the syllabus]

- ❖ We know the world is a challenging place right now!
 - Health, social isolation, finances, and more
- ❖ Obviously not ideal to teach this course under these circumstances
- ❖ But on we go because we believe in this course and we believe in you
- ❖ Rely on you to tell us how “virtual” is falling short
- ❖ And we hope to meet you in person one day! :-/

What you should know about this class

- ❖ This course will have frequent assignments and move through many topics
 - Stay organized. Falling behind makes it difficult to catch up. You will not be successful in this course if you wait till the day before to do your assignments

- ❖ This course will reward participation
 - Lecture participation is expected
 - In-class activities are meant to help you in with your weekly projects

- ❖ This course is not a way to earn an “easy” 4.0
 - What you get out of the course is what you put in
 - If you’re looking for a course to “boost” your grade, this is not that. We expect students to work hard, take risks and give your best effort

Teaching Staff Roles

Porter

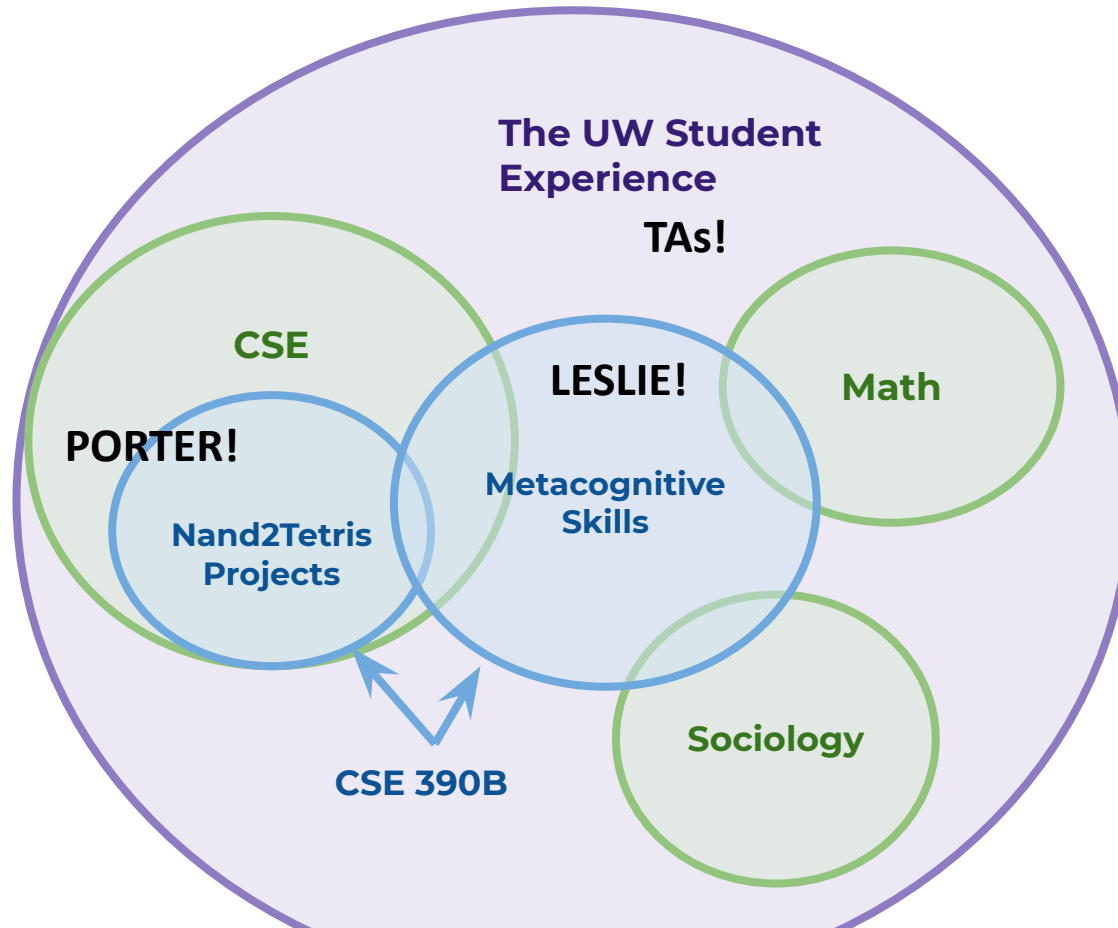
Lecturing on technical components of course with a focus on the Nand2Tetris projects

Leslie

Lecturing on metacognitive components of course and academic skill building

Eric & Margot

Weekly TA meetings as a touch point in practicing the application on course concepts and study skills



Logistics: Grading Breakdown

- ❖ 50% - Projects
 - 7 Projects
 - Each Project will have a programming component and a metacognitive skill component
 - About half will include reflections on computing and society
 - Projects will typically be assigned on Thursdays, due the following Thursday
- ❖ 15% - Midterm
- ❖ 15% - Final Project & Presentation
- ❖ 20% - Participation

Logistics: Academic Integrity

- ❖ This policy is intended to encourage you to get the most out of this class that you can. It is not intended to be a strict policing of your learning, and by no means should discourage you from collaborating with your peers (in the allowed ways) or asking for help.
- ❖ The projects and midterm in this class are to be done **individually**. Reach out to course staff for help when you are stuck. You may, and are encouraged to, discuss your high-level approach with fellow students, but you should complete your work on your own and not show your completed work to other students.
- ❖ You should **not** receive help beyond high-level review of course concepts from others not in the class (tutors, friends, etc.) nor from web searches.
- ❖ You should **not** search for or use any solutions to work in the class that you find online.
- ❖ If you have any questions about what is allowed, **ask us in advance**. Turning in work that is too similar to another student's or to information found online is unacceptable and will lead to a substantially lower grade and a formal report via the university mechanisms.

Logistics: TA-Student Meetings

- ❖ Weekly 1:1 TA Meetings
 - This is a required element of the course
 - 45-minutes each week; first meeting will be 1-hour
 - 1:1 TA Meetings will begin Week 2 and based on the availability of you and the TA

- ❖ Student Expectations
 - Come prepared, on-time and ready to work
 - No shows and/or a pattern of rescheduling will negatively impact your grade in this course

- ❖ TA Expectations
 - Checking in on progress of course assignments and projects
 - Occasionally may have a task/exercise for you to do in getting additional practice with technical concepts or metacognitive skills

- ❖ Coordination of first TA-Student Meeting

Logistics: Lectures

A typical schedule:

◆ TUESDAY

- Small group discussions and reflections
- Technical concepts lecture
- Group work to prepare for the projects

◆ THURSDAY

- Metacognitive skills connection
- Introduction to programming project, project demo
- Group work to get started on the projects

Logistics: Lecture Readings

- There will be short (10 min) readings required before each lecture
 - These will be posted under the course calendar (reading will be linked on the day that it should be read by)
- Allows us to spend more time interacting with each other during lecture, and less time listening to Porter talk
 - This will usually be in the form of individual/group work that will help you complete the projects
 - Moves some of lecture outside of class and some of project work into class
- Some research shows that this style (required readings before class, group work in class) can also lead to better grades
 - Grades aren't everything though (and only measure of certain skills)
 - We think the real value will come in having more time allocated for working with and learning from your peers

Logistics: Typical Lecture

- Before lecture: you spend 10 min completing the technical reading
 - You don't need to come to class having perfected the material!
 - It is meant to introduce you to the material, just like a traditional lecture would
 - Note any questions you have as you do the reading!
- In lecture:
 - New metacognitive skills
 - Discussions and reflections related to the projects
 - Very brief overview of the technical reading
 - Q&A related to the reading material
 - Short lecture that builds off of the reading
 - Time for individual and group work that will help you get started on the projects

Logistics: Lecture Polling

- ❖ A way for you to instantly practice and solidify the concepts covered in lecture
- ❖ This is NOT intended to take attendance or grade you on the correctness of your answers
 - Countless research studies have shown the act of thinking about an application question is a highly effective way to learn
 - e.g. <https://www.pnas.org/content/pnas/111/23/8410.full.pdf>
- ❖ We will occasionally use **PollEverywhere**
 - Sign up now for an account at <http://pollev.com>



pollev.com/cse390b

Why are we using Poll Everywhere in lectures?

A

To grade you on whether or not you get the questions we ask correct

B

To aid your learning by giving you a chance to practice applying the material we are covering

C

To take attendance

D

I'm not sure

Logistics: Late Policy

- ❖ 4 late days for the quarter
 - Importance of not falling behind
 - Even if you have used all your late days, you still must submit all your assignments
- ❖ Guaranteed to pass the course if you submit all assignments (even if all late days have been used)
 - Importance of staying persistent and resilient
- ❖ Extension Requests will be provided so long as the request is made **before** the assignment deadline
 - See syllabus for extension request instructions
- ❖ Communicate with us **early** - Help us, help you!

Logistics: Distribution of Information

- ◆ **Website**
 - Main source for everything
 - <https://courses.cs.washington.edu/courses/cse390b/21wi/>
- ◆ **Canvas**
 - Access to class recordings, zoom links, and rubric info
- ◆ **Mailing List**
 - Occasional course announcements
- ◆ **Ed Discussion Board**
 - Great place to ask and answer questions related to the class (logistics, projects, general questions, etc.)
 - Most course announcements
- ◆ **Gitlab**
 - Project distribution and submission
- ◆ **Gradescope**
 - Where you will receive feedback, no need to submit anything here

Zoom & Virtual Expectations

❖ Zoom Video On & Unmuted

- We aim to cultivate relationships with you and among each other. We ask that by joining this class, you are open to having your video on.
- Occasionally there may be times where we ask that you unmute your zoom to participate in class discussions

❖ Zoom Chat

- We encourage the class to utilize this space to ask questions and engage with each other!

❖ Breakout Rooms

- Breakout rooms will be a key element to the course. They are not recorded and therefore expect that cameras are on for breakout room discussions
- TAs will occasionally “pop-in” to see if you have any questions
- Can always DM the Host and a TA will go to your breakout room

Breakout Rooms!

1. Introduce yourself!
2. Please share an artifact/item that you have near you that tells us something about you
3. Based on what you've learned about the course so far, what are you most excited about in taking CSE 390B?

Groups will be 8 minutes.

Please identify one person in your group to share out what was discussed to Question #3.

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Programming Project Series

- ❖ NAND 2 Tetris
 - You will build an entire (simulated) computer, starting with a single type of hardware logic gate and going all the way up to writing a game
 - Hardware concepts, low-level software, fundamentals of operating systems, virtual machines, compilers

- ❖ Acknowledgements
 - These projects gratefully adapted from the open-source Nand2Tetris program (nand2tetris.org)
 - We will tweak to fit into our quarter and distribute everything you need

Programming Project Series

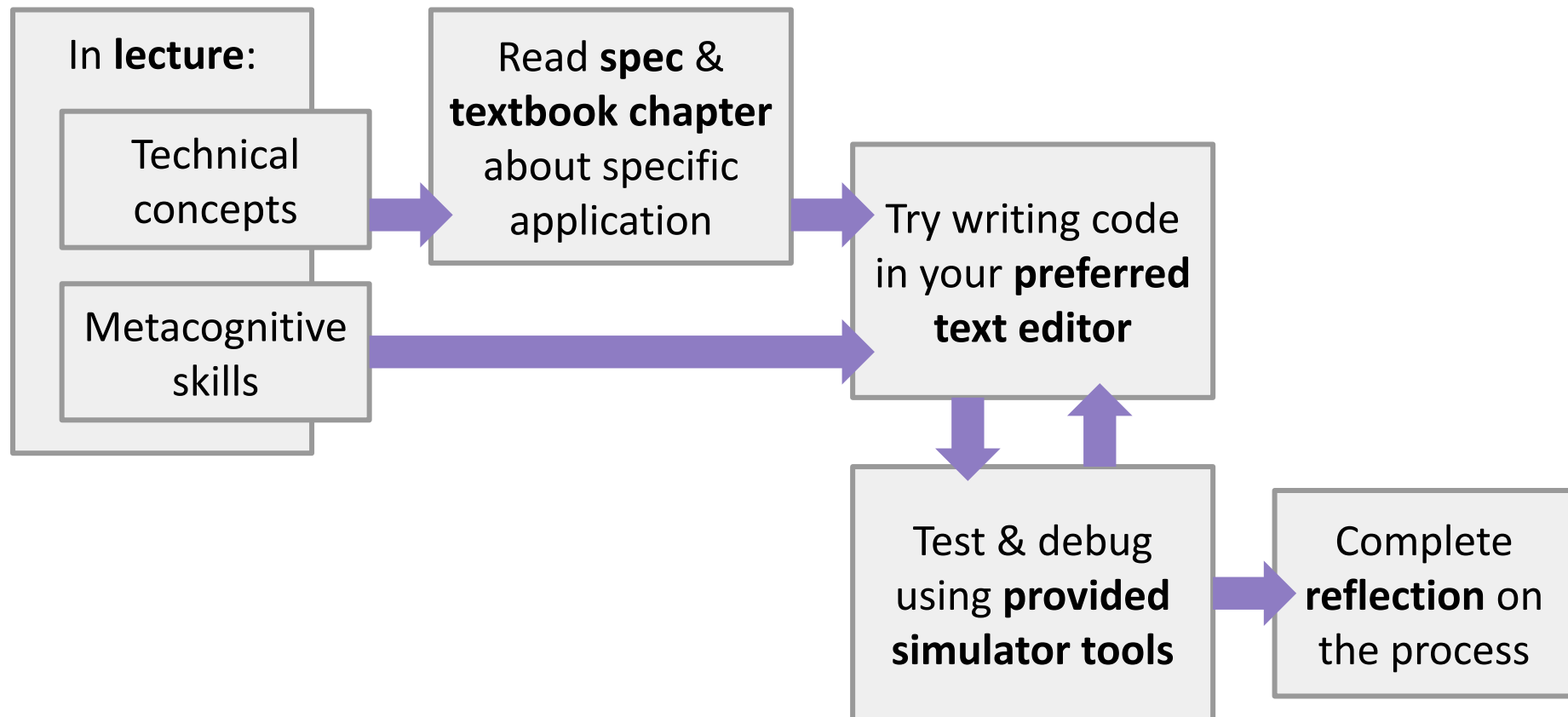
- ❖ How to get assignments
 - You will get a git repository for the quarter
 - We use to distribute starter code
 - You use to organize and submit your projects

- ❖ Specifications, textbook chapters, and references will be on the course website

- ❖ Don't worry if you aren't comfortable with git! We'll provide all the info you need.

Programming Project Series

- ❖ How to complete programming projects



Social Computing Reflections

- ❖ Computing is truly a social discipline!
 - Almost all the technologies we work on affect human beings (some in more direct ways than others)
 - As computer scientists, we need to consider the social implications of our work
- ❖ Some projects will include reflections on some of the social aspects of computing
 - Goal is for them to be fairly open-ended, giving you control over the direction of your reflection
 - More specifics will be released w/the first reflection
- ❖ Hopefully we will also be able to have in-class follow up discussions on these reflections
 - A great chance to share ideas with your peers!

Course Infrastructure Demo

Project 0

- ❖ **Programming Component: Gitlab Set-Up**
 - Connecting your CSE Linux environment (attu or VM) to your GitLab repo in preparation for the labs
- ❖ **Metacognitive Component: Zoom Links Worksheet**
 - Organizing your Spring quarter courses and identifying the key learning spaces that you will be accessing online throughout the quarter

DUE THIS THURSDAY 4/1 BY THE START OF CLASS

First Lecture Reading: Boolean Logic

- First lecture reading is on the course calendar!
 - Please complete it before lecture this Thursday
 - Bring any questions you have to lecture on Thursday!
- Again, it should only take you ~10 minutes
 - Don't feel like you have to have perfected the material by the start of class!
- Readings will be posted at least a week ahead of time
 - Hopefully provides you some flexibility as to when you complete the reading

Questions?

Reaching out!

Office Hours: Zoom links available via Canvas

- ◆ **Porter** Wednesdays 4:00 - 5:00PM
- ◆ **Leslie** Tuesdays 4:00 - 4:30PM
- ◆ **Margot and Eric:** Will schedule OH time based on survey results

If you are in a different time zone where it will prevent you from attending office hours, please let us know! We are happy to try and set-up an appointment at a different time to support you.

Course Staff Email: cse390b-staff@cs.uw.edu

Use the Discussion Board to ask and answer general course questions!