CSE 390B, Autumn 2022

Building Academic Success Through Bottom-Up Computing

Course Introduction

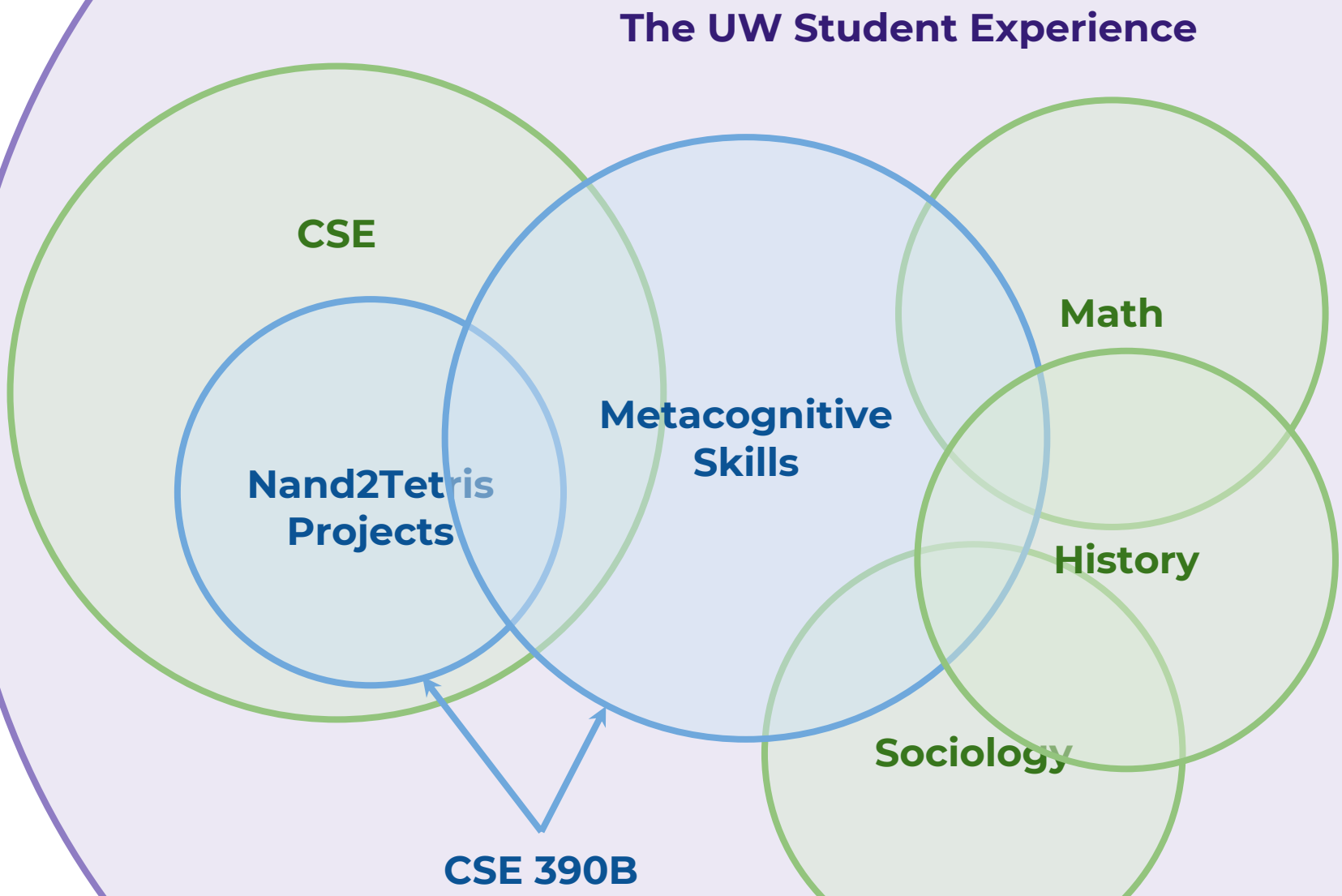
Welcome to CSE 390B!

Introduction to CSE 390B, Course Logistics, and Project Overview

Lecture Outline

- **What is CSE 390B About?**
  - **Overview of CSE 390B**
  - **Why the Course Matters**
- Course Logistics
  - Lectures and Assignments
  - Course Policies and Resources
- Programming Project Series
  - Nand2tetris Overview
  - Tools demonstration

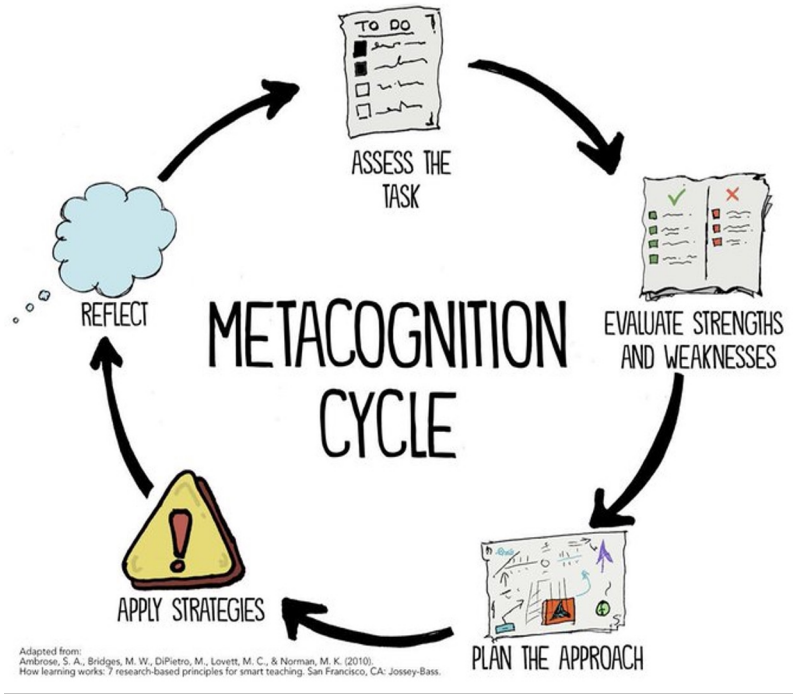
What is CSE 390B?



Metacognitive Skills

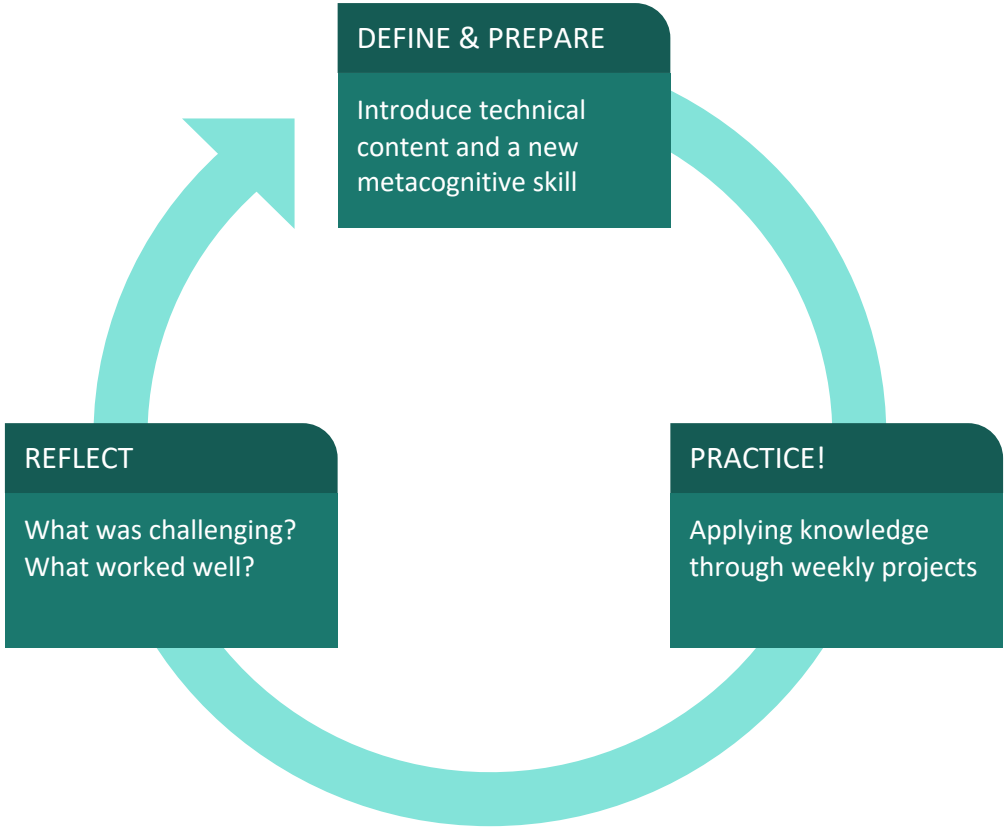
- What does **metacognition** mean?
  - Awareness of your thought process

- Metacognitive skills we will cover:
  - Time Management
  - Annotation Strategies
  - Exam Preparation
  - Test-Taking
  - Note-Taking
  - Written & Oral Communication
  - Testing & Debugging
  - Design Decisions



The Connection

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



Sneak Peek of CSE 390B

- Fascinating question:
  - What happens under the hood when code runs?
- Fascinating answer:
  - Many layers of abstraction, each with its own answer
- Nand2tetris: Project for exploring bottom-up layers
  - Can do everything with NAND gates and input / output
- An empowering, coordinated, broad look at "how computers really work"
  - Closest to the Hardware / Software Interface CSE 351 but lower level, with elements from Digital Design (CSE 369), Operating Systems (CSE 451), and Compilers (CSE 401)

Why Does CSE 390B Matter?

- Technology is based on bottom-up computing
  - Learning how computers work is foundational to computer science
  - You'll see the birds-eye view of computer science and understand how your courses fit into the big picture
- This course equips you with a toolbox
  - A CSE degree isn't just about learning technical concepts
  - A college education is also about preparation for a career and your future (collaboration, organization, etc.)
- This course empowers you to explore
  - You will become independent learners and be autonomous in your learning for future UW courses and beyond

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Succeeding in CSE 390B

- 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 until the day before to do your assignments
- This course rewards participation
  - Lecture participation is expected
  - In-class activities are meant to help you with your weekly projects
- Like other college courses, earning a good grade requires that you put in the effort
  - What you get out of the course is what you put in
  - We expect students to work hard and give their best effort

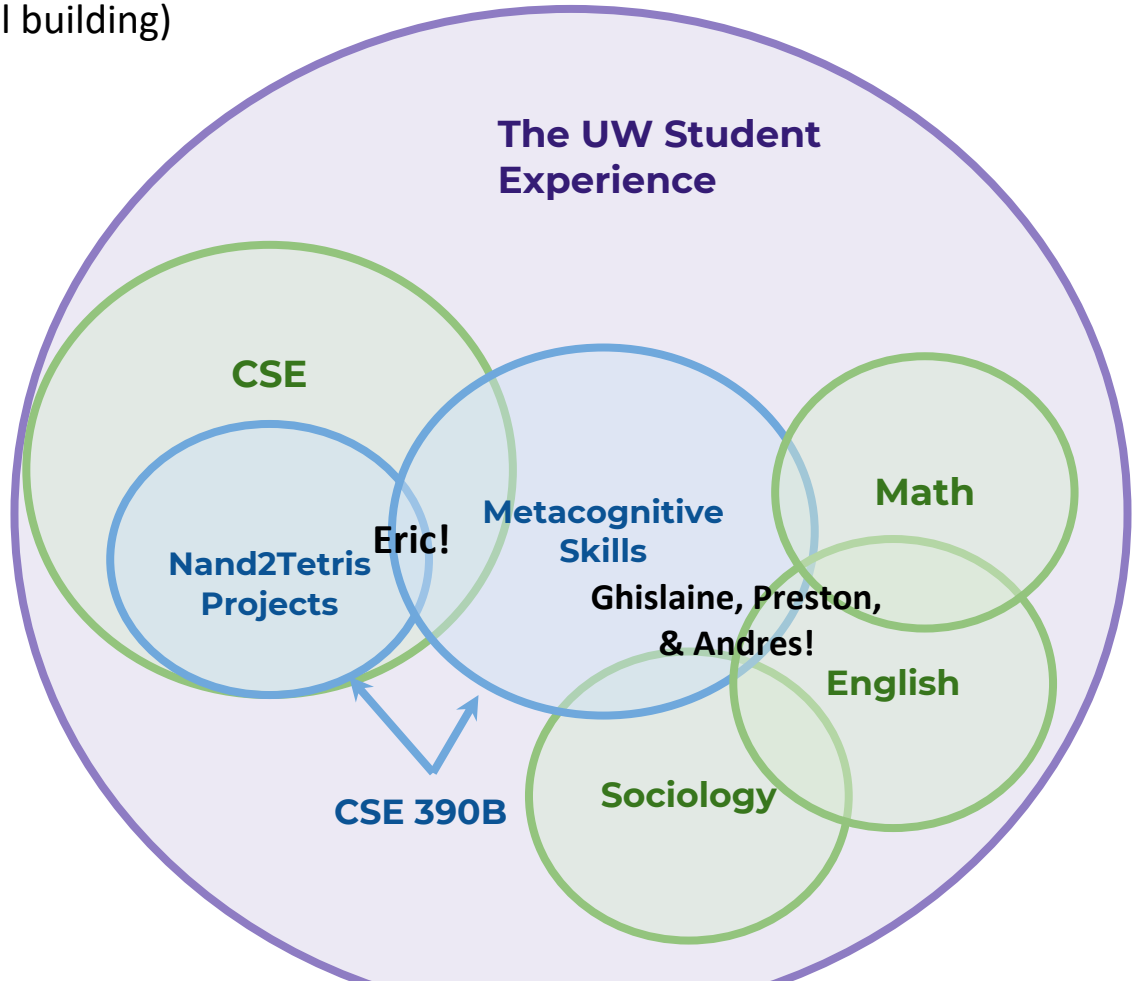
Course Staff Roles

Eric

Teaching the technical (bottom-up computing) and metacognitive (academic skill building)

Ghislaine, Preston, and Andres

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



Grading Breakdown

- 40%: A sequence of eight projects
  - Each will have a metacognitive and technical, programming component
  - Projects will be assigned on Thursdays and generally due the following Thursday
- 20%: Midterm Exam
- 20%: Final E-Portfolio Project & Presentation
- 20%: Participation
  - 10%: Lecture attendance and Poll Everywhere questions
  - 10%: Student-TA meeting attendance and engagement

Academic Integrity

- Work to be completed and submitted **individually**
  - Do not share your solutions with others
- Collaboration allowed and encouraged, but discussions must be at a high-level
  - You may share implementation strategies and debugging tricks, but NOT lines of code or your entire solution
- Do not seek answers or solutions from those not in the class or from the website
- If you have any questions about what is considered academic integrity or not, please ask the course staff

Student-TA Meetings

- Weekly 1:1 Student-TA Meetings
  - A required element of the course (factored into participation grade)
  - 45 minutes each week (the first meeting will be one hour)
  - 1:1 Student-TA meetings will begin Week 2 based on the availability of you and the TA

- Student Expectations
  - Come prepared, on time, and ready to discuss with your TA
  - Tardiness, absences, or frequent rescheduling will negatively impact your participation grade

Lecture Polling

- A way for you to instantly practice and solidify the concepts covered in lecture
  - Research shows the act of thinking about an application question is a highly effective way to learn
- Factored into participation grade (completion only)
- We will be using Poll Everywhere
  - Sign up now for an account at https://pollev.com/
  - Requires SSO log-on

Poll Everywhere

Vote at https://pollev.com/cse390b

How will Poll Everywhere be used in lectures?

A. To grade you on whether 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 factor into the participation grade based on correctness of responses
D. To see who is paying attention during lecture
E. We're lost…

Five-minute Break!

- We'll take a five-minute break close to the middle of every lecture
- Feel free to stand up, stretch, use the restroom, drink some water, review your notes, or ask questions
- We'll be back at:

Late Policy

- **Five late days** for the quarter
  - Do not need to tell the course staff ahead of time
  - Maximum of two late days can be used per project
- *Guaranteed* to pass if you earn a raw score of at least 50% on each project, all submitted by the end of the quarter
  - Importance of staying persistent and resilient
- In extenuating circumstances, you may ask for an extension
  - Only considered if the request is made before the project deadline
  - See syllabus for extension request instructions
- 10% deduction per additional late day

Course Resources

PAUL G. ALLEN SCHOOL OF COMPUTER SCIENCE & ENGINEERING

- Course Webpage
  - Main source for everything related to CSE 390B
  - Includes syllabus, course calendar, project specifications, and all the relevant resources for the course

canvas

- Canvas
  - Access to lecture recordings via Panopto
  - Check remaining late days (updated after every project)
  - Accessing necessary resources for projects

gradescope

- Gradescope
  - Where you will submit the metacognitive parts of the projects
  - You will receive your project grades and feedback here

Course Resources

- GitLab
  - Project distribution and submission of technical, programming parts of the projects

- Ed Discussion Board
  - The place to ask and answer questions related to the class (logistics, projects, general questions, etc.)
  - Course staff will post announcements here

- Email the course staff: cse390b-staff@cs.washington.edu
  - Please use for matters separate from what you would post on the Ed board or for urgent requests only
  - Tag the subject line with “[urgent]” if necessary

Course Resources

- Office Hours
  - Located in CSE2 152 or 153
  - See course calendar for office hours times and locations
  - A space for you to ask questions and receive help on technical projects and metacognitive concepts
  - Also feel free to stop by to just work on projects or say hello!

Monday	Tuesday	Wednesday	Thursday	Friday
03 12:30-13:30 Office Hours (Andres) CSE2 152	04 14:30-15:50 Lecture 2 CSE2 G04	05 12:00-13:00 Office Hours (Sean) CSE2 152	06 14:30-15:50 Lecture 3 CSE2 G04	07
14:00-15:00 Office Hours (Ghislaine) CSE2 153	16:00-17:00 Office Hours (Preston) CSE2 153		16:00-17:00 Office Hours (Eric) CSE2 153	
			23:59 Project 1: Course Resources Worksheet & GitLab Setup due	

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  - **Nand2tetris Overview**
  - **Tools demonstration**

Programming Project Series

- nand2tetris
  - You will build an entire (simulated) computer
  - Source: Single hardware logic gate
  - Destination: A computer program that runs a game of Tetris
  - Topics: Hardware concepts (Boolean logic, sequential logic, computer chips, etc.), low-level software, fundamentals of operating systems, virtual machines, compilers

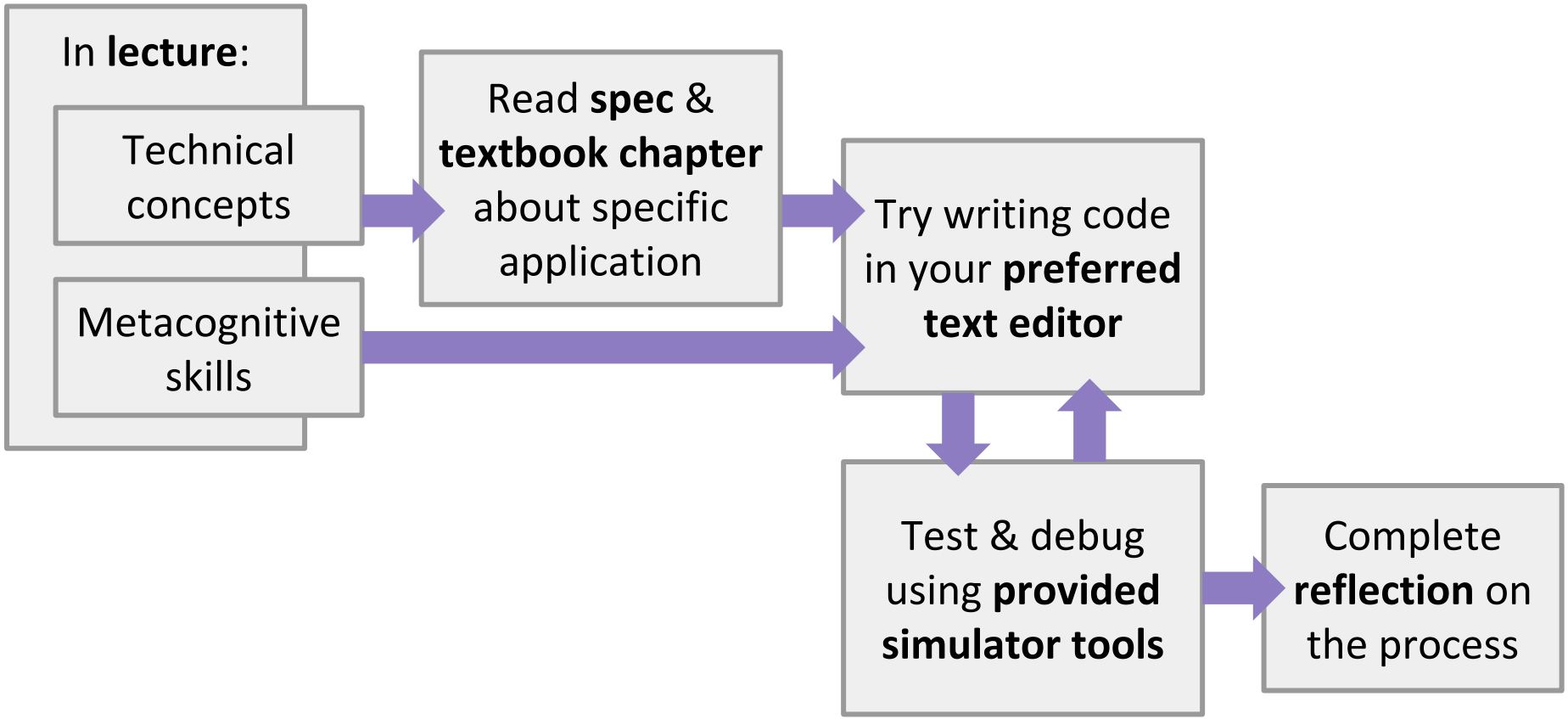
- Acknowledgements
  - Projects adapted from the open-source nand2tetris curriculum
  - Everything you need will be distributed by the course staff

Programming Project Series

- Getting your assignments: you will have your own GitLab repository for the quarter
  - For distributing starter code
  - Used for organizing and submitting your projects
- Specifications, textbook chapters, and references will be on the course website
  - We'll provide the instructions you need for using Git
- We will generally grade a project by the date the next project is due (approximately one week after the deadline)

Programming Project Series

- Roadmap for completing the programming projects:



Project 1 Overview

- Programming Component: **GitLab Setup**
  - Will help prepare you for future CSE 390B projects
- Metacognitive Component: **Course Resources Worksheet** and **Project 1 Reflection**
  - Organize your resources for this autumn quarter
  - Identify key learning resources that you will be accessing throughout the quarter
- Estimated time to complete: 1 hour
- **Project 1 due next Thursday (10/6) at 11:59pm**

Project 1 Demo

1. Understanding and using Git
2. Find your CSE 390B GitLab Repository
3. Add your SSH Key
4. Explore the starter code using your favorite editor
5. Make a commit

Steps outlined in detail in [Project 1 website]

Wrapping Up

- **Project 1 due next Thursday, 10/6 at 11:59pm**
- Eric's office hours immediately after lecture today, on this same Zoom link (for today only)
- See you all next Tuesday! 👋