CSE 390B, Spring 2023

Building Academic Success Through Bottom-Up Computing

Course Introduction

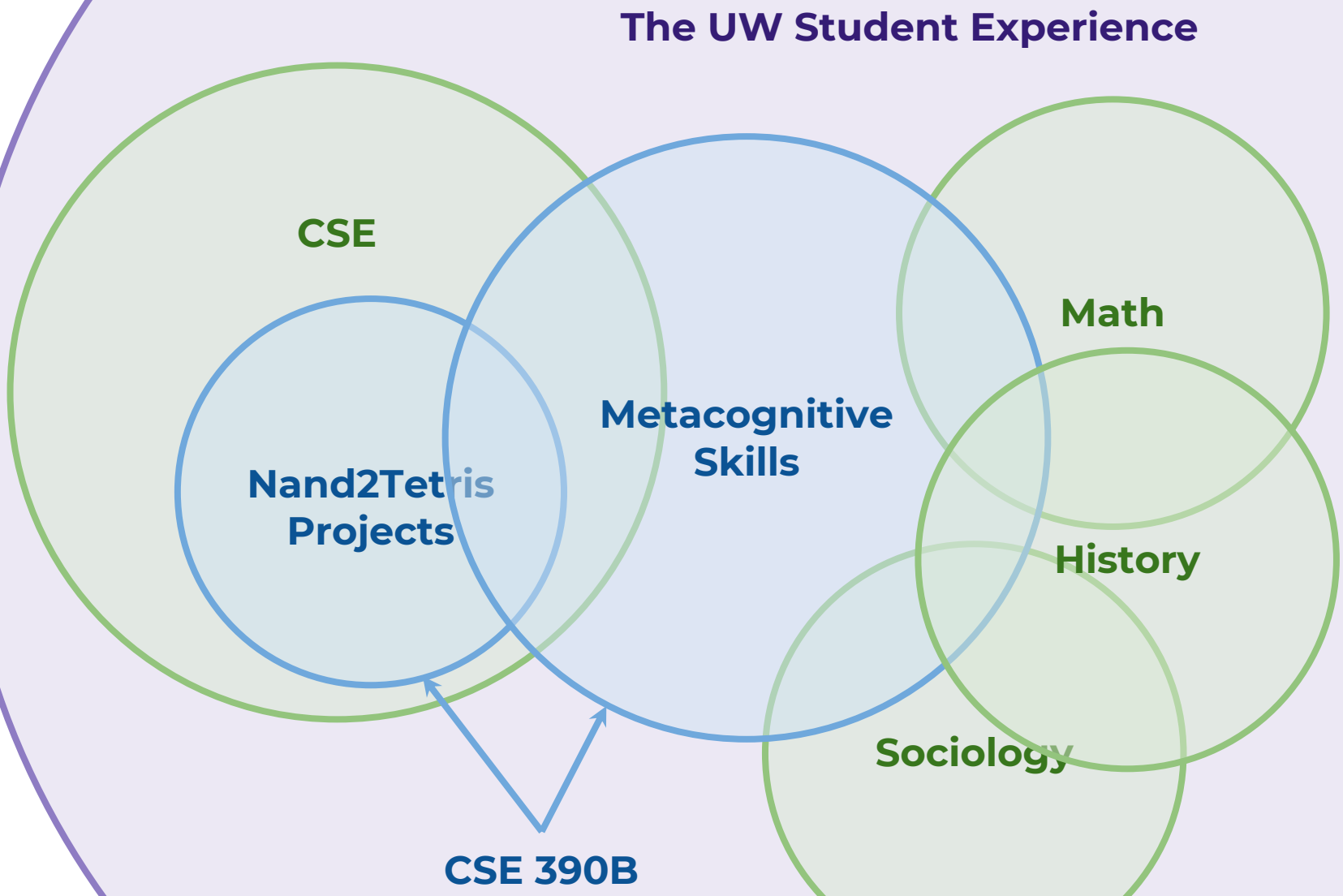
Welcome to CSE 390B!

Introduction to CSE 390B, Course Logistics, Programming Project Series 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

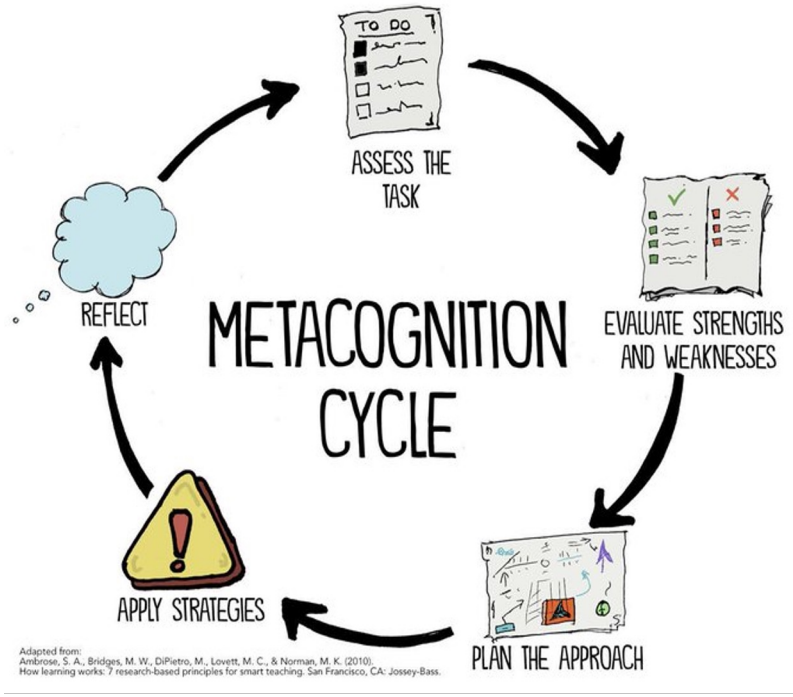
What is CSE 390B?



Metacognitive Skills

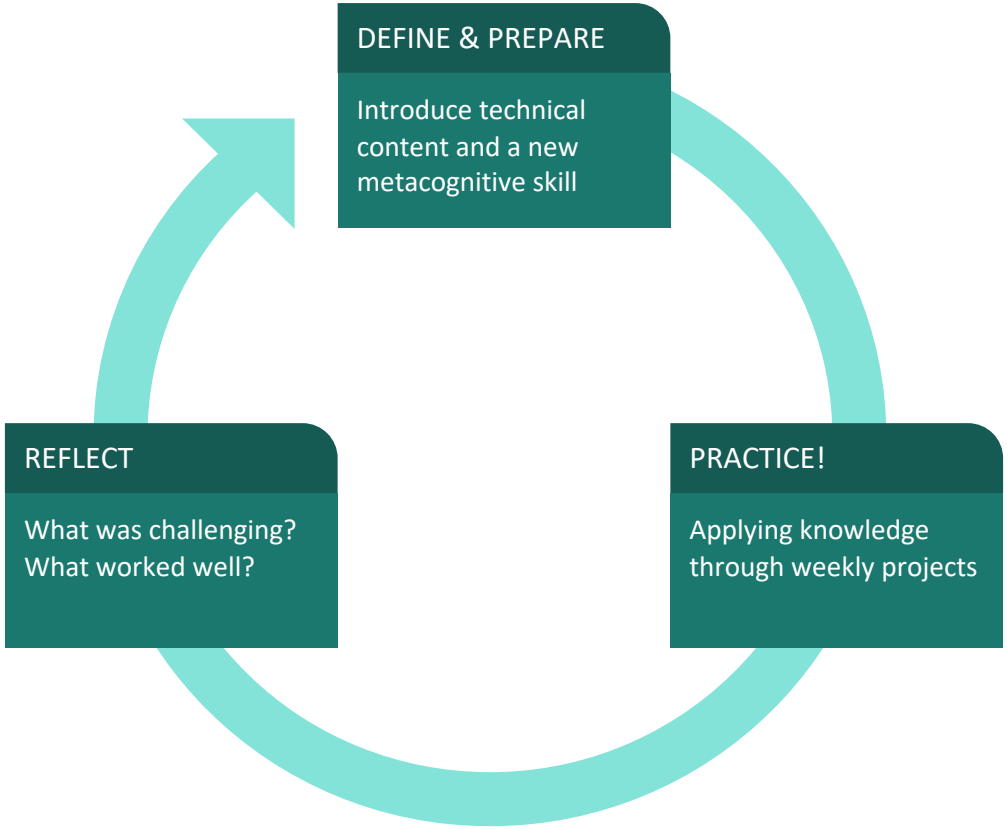
- What does **metacognition** mean?
  - Awareness of your thought process

- 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

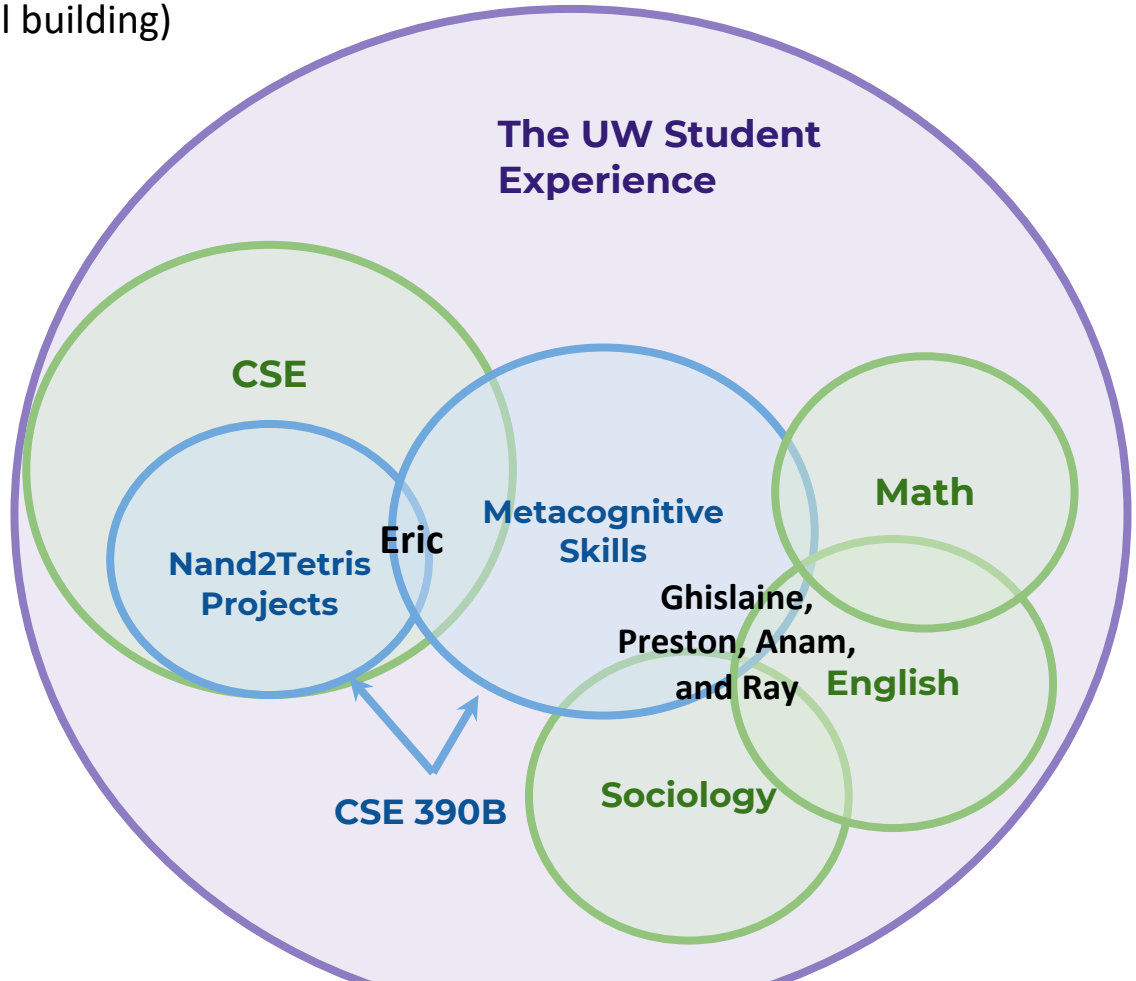
Course Staff Roles

Eric

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

Ghislaine, Preston, Anam, and Ray

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 to an hour each week
  - 1:1 Student-TA meetings will begin Week 2 based on the availability of you and the TA
  - Sign-up sheet for your first 1:1 meeting linked here
- 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

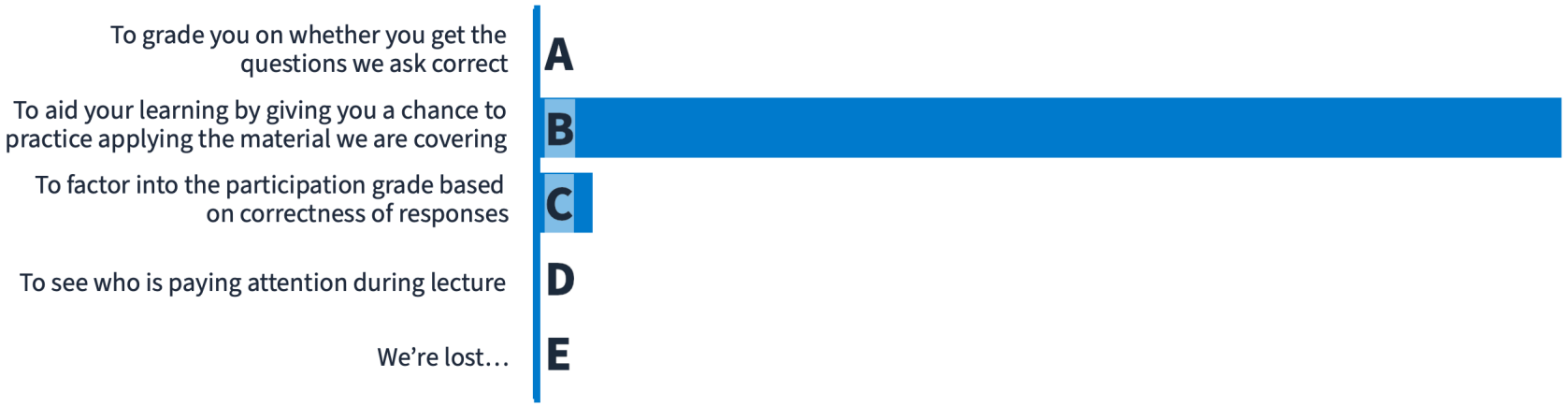
- A way for you to instantly practice and solidify the concepts covered in lecture
  - Research shows the act of thinking about an application question is a highly effective way to learn
- Factored into participation grade (completion only)
- We will be using Poll Everywhere
  - Sign up now for an account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

Lecture 1: Course Introduction

When poll is active, respond at **PollEv.com/cse390b**

Text **CSE390B** to **22333** once to join

How will Poll Everywhere be used in lectures?



Total Results: 21

Powered by Poll Everywhere

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

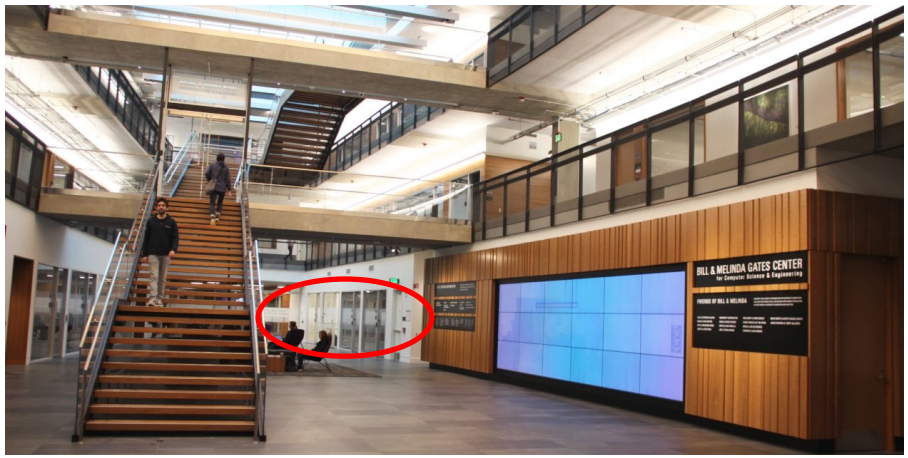
- GitLab
  - Project distribution and submission of technical, programming parts of the projects

- 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
  - You may also reach the course staff over email if you'd like
  - Usually, a faster response over email

Course Resources

- Located in one of the TA offices
- A space for you to ask questions and receive help on technical projects and metacognitive concepts
- Feel free to also stop by to just work on projects or say hello!
- Office hours times and location posted on the course calendar (still TBD)



Lecture 1: Course Introduction

Respond at **PollEv.com/cse390b**

Which office hours times work best for you? (Select multiple)

- Mondays, 2:30-3:30pm
- Tuesdays, 1:30-2:30pm (right before lecture)
- Tuesdays, 4-5pm (right after lecture)
- Wednesdays, 4-5pm
- Thursdays, 1:30-2:30pm (right before lecture)
- Thursdays, 4-5pm (right after lecture)

Total Results: 61

Powered by Poll Everywhere

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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

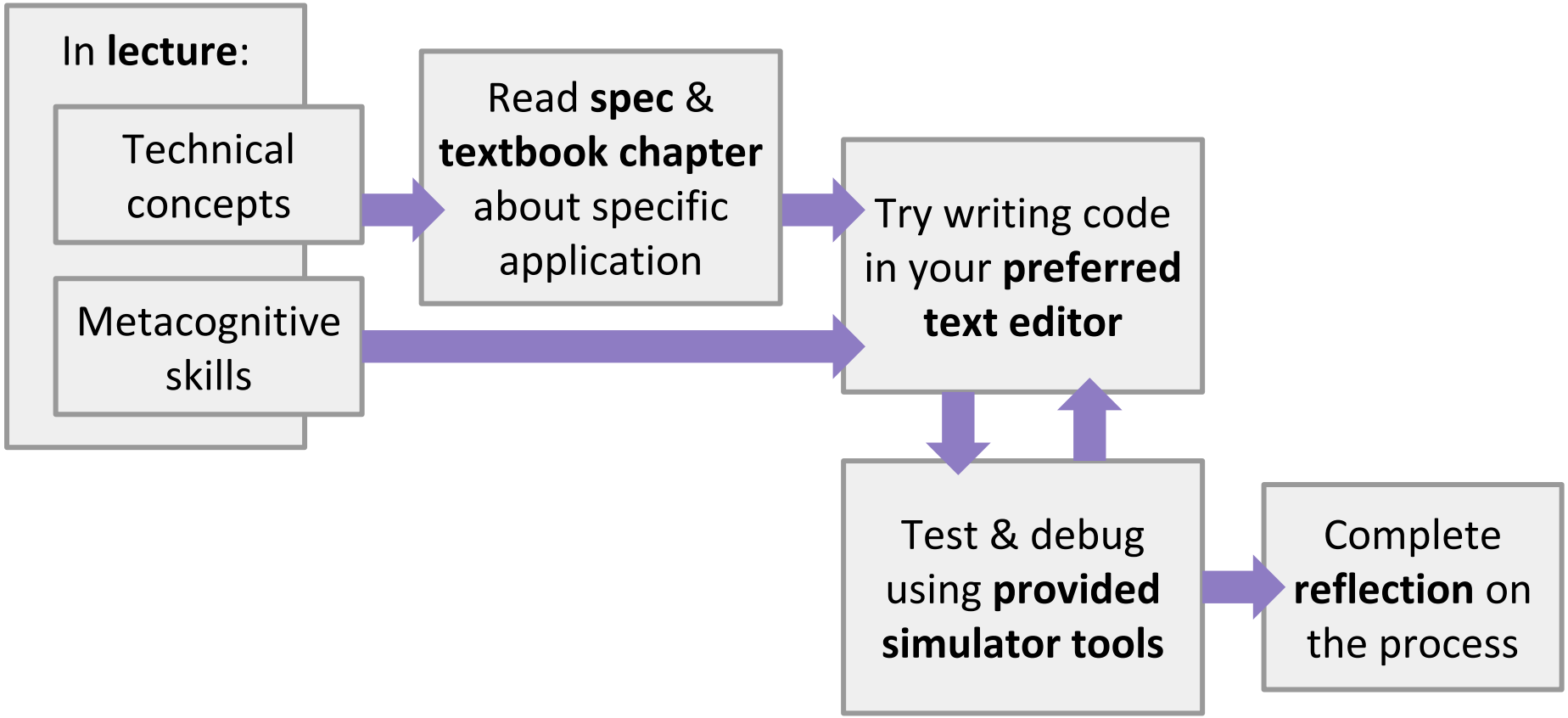
- Acknowledgements
  - Projects adapted from the open-source nand2tetris curriculum
  - Everything you need will be distributed by the course staff

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 spring quarter
  - Identify key learning resources that you will be accessing throughout the quarter
- Estimated time to complete: 1-2 hours
- **Project 1 due this Thursday (3/30) 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 webpage]

Post-Lecture 1 Reminders

- **Project 1 due this Thursday, 3/30 at 11:59pm**
- Please post on the Ed discussion board any questions you have from Project 1
- See you all this Thursday! 👋