

Software Engineering – Fall 2025 (CPS 353)

Time and location

Lecture: MR 11:00 AM – 12.15 PM

Prerequisites

CPS310 Minimum Grade of C-
Prerequisite Form (emailed)

Credit hours

3

Instructor

Katherine Brainard

Pronouns: They/Them (let's just all use they/them?)

Alternate Pronouns: She/Her

Email: brainark@newpaltz.edu

Office: SH 247

Drop-in Office Hours: M/R 9:30am - 10:30am, T 1pm - 2pm

By Appointment Office Hours: T 2pm - 3pm (Calendly link available on Brightspace)

Course description

This course is an introduction to the practices of software engineering as used to build large-scale or long-lasting pieces of software with a team of people.

The main concepts covered in the course are:

- Version Control,
- Code Reviews, Pair Programming, Coding Style
- API Design
- Testing/Debugging
- Multi-thread, Multi-process and distributed computing
- Virtual Machines
- Performance testing and tuning
- Exception handling

Student Learning Objectives

On successful completion of the course, students will be practiced in using techniques to build large scale software. They will be able to design and implement well-tested and easily maintained code, as well as work collaboratively with others using advanced industry techniques. They will be able to create and tune software that runs on multiple machines and uses multiple CPU cores effectively.

Text Book

Required TextBook: None.

Useful Supplemental Texts:

Effective Java, Joshua Bloch, 3rd Edition

ISBN: 978-0134685991

Java Concurrency in Practice 1st Edition, Brian Goetz et al, 1st Edition

ISBN: 978-0321349606

Other Resources

I will make relevant resources available to you at the Brightspace course site. All course material, including Course Calendar, Syllabus, assignments, and tests will be posted on Brightspace.

Semester Long Project

Weekly checkpoints will be posted on the course web site, which will build on previous weeks to create a semester-long project.

The overall project grade for the semester will be based on the project that is submitted at the end of the semester; the grade will be based largely on the weekly checkpoints, but will also incorporate some additional capstone elements.

Exams

There will be two exams: a midterm and a final exam. Please note that the final exam is **in class**, not during the general finals week - the final **project** for the class is due during finals week instead.

Makeup Exam

If you are unable to take either the midterm or the final due to a medical or personal emergency, or you're unhappy with your grade on either exam, you may take the makeup exam that will be held during the university-scheduled final exam slot for the course. No other makeup exams will be offered. Note that there is only **one** makeup exam - students who are experiencing sufficiently frequent emergencies that they miss both the midterm and the final should look into a course withdrawal or medical leave of absence.

Grade Breakdown

20% Weekly Checkpoints

20% Final Project

30% Midterm Exam

30% Final Exam

Grading

Final letter grades will be based on your total percentage score, according to the scale:

A 100 – 93	A- 92.9 – 90
B+ 89.9 – 87.5	B 87.4 – 82.6
B- 82.5 – 80	C+ 79.9 – 77.5
C 77.4 – 72.6	C- 72.5 – 70
D+ 69.9 – 67.5	D 67.4 – 62.6
D- 62.5 – 60	F Below 60

Summary of Topics Covered and Course Schedule

Subject to change

Week 1 - Intro to Collaborative Coding

Week 2 - API Design

Week 3 - Testing & Debugging

Week 4 - Introduction to Threading

Week 5 - Common Multithreading Patterns

Week 6 - Testing multithreaded code

10/16/25 - Midterm

Week 7 - Multi-process/distributed computing

Week 8 - Delayed computation (MapReduce, Spark)

Week 9 - Docker & Virtual Machines

Week 10 - Yourkit, Performance testing/tuning, Memory management and garbage collection

Week 11 - Exception handling

Week 12 - Final Review

11/20/25 - Final

12/15/25 - Final Project Due

12/18/25, 10:15 am - Makeup Exam (Official Final Exam Slot)

On plagiarism (or cheating)

All work in the class will have to be done individually, except when collaborative work is explicitly assigned. While you may be allowed to check references online, sharing of code or other work in any form will be considered plagiarism. Copying and pasting work of any kind from other students or web resources is also considered plagiarism. You may be given a zero for the whole test/assignment if plagiarism is detected in even a single question.

AI Use

No stochastic code generation is permitted for this course. That includes, but is not limited to, ChatGPT, Claude, Gemini, and Copilot. Any use of these tools may require that work be re-done without them. This is in contrast to deterministic code generation tools, which are allowed (and explicitly included in the course content).

Late Work Policy

Weekly checkpoints have recommended completion dates, but students who require more time to complete the checkpoint requirements can submit whenever those requirements are met. **However:**

- checkpoints can only be submitted once feedback from the previous checkpoint has been addressed
- feedback may take up to 4 days after checkpoint submission; handling such external dependencies with proper project management is part of the graded work for the final project and one of the learning objectives of the course
- the final project due date is a hard deadline; **no late submissions** are accepted

Students who are more than a week behind the recommended checkpoint schedule should meet with the professor to discuss options, as they are in danger of not being able to complete the final project.

Attendance/Late arrival

Attendance is expected, but not mandatory. If you miss a class, you need not inform me, just make it up from the Brightspace notes. You are, however, responsible for all that goes on in the classroom, present or not (which includes things that are missed if you arrive late)

Please see the following for additional campus-wide policies on attendance.

[Religious Beliefs & Class Attendance](#)

[Black Solidarity Day](#)

Important Dates:

- Last day to withdraw from the course without getting a W in transcripts: Feb 3, 2025
- Course Withdrawal Date (last day to withdraw from the course without getting a failing grade): Nov 14, 2025
- For other important dates, see the Academic Calendar:
<https://webapps.newpaltz.edu/calendars/academic/202509/1>

Campus Policies

Please be aware of the most [current Campus Policies](#) applicable to issues such as Academic Integrity, Computer/Network Use, Identity Verification, Accommodation of Individuals with Disabilities, Title IX, and Veteran & Military Services.

SEI

Towards the end of the course you will get a chance to provide a "Student Evaluation of Instruction". Students are encouraged to complete this; I value your feedback and use it to improve my teaching and planning.

Reasonable accommodation of individuals with disabilities statement

Students needing classroom and/or testing accommodations related to a disability should contact the Disability Resource Center (Student Union, Room 210, 845-257-3020) as close as possible to the beginning of the semester. The DRC will then provide students' instructors with an Accommodation Memo verifying the need for accommodations. Direct specific questions about services and accommodations to Deanna Knapp, Assistant Director (knappd@newpaltz.edu).

Veteran and Military Services statement

The Office of Veteran and Military Services (OVMS) is committed to serving the needs of veterans, service members and their dependents during their transition from military life to student life. Student veterans, service members or their dependents who need assistance while attending SUNY New Paltz may refer to www.newpaltz.edu/veterans; call 845-257-3120, -3124 or -3074; or stop by the Student Union, Room 100 South.

Computer and network policies statement

Users of SUNY-New Paltz computer resources and network facilities are required to comply with the institutional policies outlined in the Acceptable Uses and Privacy Policy (<https://sites.newpaltz.edu/csc/policies/acceptable-uses-and-privacy-policy/>).

Basic Needs

To learn effectively you must have basic security: a roof over your head, a safe place to sleep, enough food to eat. The Division of Student Affairs has compiled a broad range of resources, including a list of campus services, local agencies, and support networks, that can assist students with managing their basic needs. Please consult these resources or contact the Division of Student Affairs should you need additional information.

Names & Pronouns

SUNY New Paltz recognizes the importance of a diverse student body, and we are committed to fostering equitable classroom environments. You are invited to share how you want to be referred to, both in terms of your name and your pronouns (he/him, she/her, they/them, etc.). I will do my best to address and refer to all students accordingly and will support you in doing so as well. In this classroom, we will respect and refer to people using the names and personal pronouns that they share.

Taking Care: Illness and Absences

While the national COVID-19 public health emergency has ended, SUNY New Paltz still has policies in place to protect the health of our community. [Click here to view COVID-19 FAQs and up-to-date information about those policies.](#)

Students with an illness that prevents them from attending class (COVID-19, influenza, etc.) should exercise self-care and consult the testing recommendations on the [Student Health Service \(SHS\) website](#). Faculty will receive "professor notes" from the SHS when a student has an illness that prevents them from attending class.