CPSC 225
Intermediate Programming

CPSC 124: Introductory Programming
- syntax and semantics of fundamental procedural and OO programming constructs (variables, expressions, conditionals, loops, classes, methods, etc)
- introduce basic program design

CPSC 225: Intermediate Programming
- program correctness and robustness
- managing collections
  - core ADTs (lists, stacks, queues, priority queues, maps, sets)
  - fundamental data structures (arrays, linked lists, binary trees)
- core algorithms (sorting and searching) and algorithmic techniques (recursion)
- adopt object-oriented programming as the central organizing principle of programs
  - objects, classes, inheritance and polymorphism
  - develop/reinforce basics of OO design
- some specific techniques (streams)
- continue to build programming skill

CPSC 329: Software Development
- managing the development of large programs (development processes, advanced OO analysis and design)
- specific techniques (e.g. GUI programming, networking, threads)

Prerequisites

- **C- or better in CPSC 124**

This means you are comfortable with the syntax, semantics, and applications of –
- variables, expressions, assignment statements
- conditionals
- loops
- static methods (functions and procedures)
- introduction to classes, objects, methods
- arrays (1D and 2D)

And that you have basic program development and debugging skills.

Course Materials

http://math.hws.edu/bridgeman/courses/225/s25/

CPSC 225: Intermediate Programming
Spring 2025

Instructor	Stina Bridgeman bridgeman@hws.edu Lansing 302, x3614	Office Hours	TBA or by appointment (schedule)
Class Hours and Meeting Place	lecture MWF 9:40-10:40am (Gearan 228) lab Th 1:10-2:40pm (Rosenberg 009)		

Course Links

- Schedule
  (the course schedule, including links to handouts, assignments, reading material...pretty much everything you want on a daily basis is here)
- Course Information
  (course description, textbook information, required materials and software, assignments and evaluation, etc)
- Course Policies
  (attendance, academic integrity and collaboration, late/makeup work, extensions, getting help, disability accommodations, etc)

Documentation and Reference Material

Course Materials

- textbook is available online
  - can view online (free), download PDF or ebook (free), or order a printed copy (not free but fairly cheap)

- we will be using Linux, Java, and Eclipse
  - all of the necessary software is available on the lab machines in Rosenberg 009 and Lansing 310 and via the Linux VDI
  - it is also possible to set up your own computer (optional)

- if you have a laptop you can bring to class, please do so
  - also bring it to lab tomorrow to make sure everything is set up properly for in-class use

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Course Schedule

check here for readings, assignments, handouts, examples from class, etc

CPSC 225	Data Structures and Algorithms	Spring 2025

CPSC 225 Schedule

Class preparation assignments are generally based on the assigned reading and are due by 10pm the night *before* the class for which they are listed. For readings, "Eck" refers to the textbook (Introduction to Programming Using Java).

Dates for things in light gray are for planning purposes and may be adjusted slightly. Expect class preparation assignments for most classes, weekly labs, and several projects.

	Assignments
Week 1: 1/21-1/24	
Topics: course introduction; review of procedural programming	
Wed	**introductory survey** (to be posted)
Fri	**class prep** (to be posted) due Thu 1/23 10pm
Week 2: 1/27-1/31	
Topics:	
Mon	
Wed	

Assignments

- the purpose of assignments is to gain knowledge and practice skills
  - doing (and struggling) is essential for mastery

- readings and class prep assignments introduce new material
  - due the night before class
  - expect some reading and a short assignment for many classes

- in-class exercises, labs, and projects are an opportunity to practice and learn the material
  - expect labs most weeks
  - expect four projects over the course of the semester

Assessment

- labs and projects are an opportunity for formative assessment
  - get feedback and (in most cases) an opportunity to revise and resubmit
- summative assessment is based on in-class exams and in-person interviews for projects

- final grade
  - 30% engagement
    - based on effort and achievement on labs and projects, effort on class prep assignments and in-class exercises, attendance
  - 70% mastery
    - based on demonstration of competencies through in-class exams and project interviews
  - must achieve a passing mastery grade in order to pass the course regardless of the engagement grade

Expectations

- attend all scheduled class and lab sessions

- spend approx. 8 hours per week outside of class on reading, completing assignments, and studying
  – you may need to spend more
  – if you routinely spend significantly less, you may not be sufficiently mastering the material

Generative AI and Other Resources

- generative AI can be used in multiple ways, both good and bad
  – as a professional tool
    • e.g. for code generation, testing and debugging, an unreliable peer to bounce ideas off of
  – as a learning aid
    • to help you understand something new
  – as a learning cheat
    • to get the end result without learning the process of how to get there for yourself

- (this applies to all other resources as well – YouTube, other websites, friends and colleagues, etc)

Generative AI and Other Resources

- **only authorized resources – and no AI – may be used on exams and during project interviews**
  – your grade in the course should reflect *your* knowledge and skills
- **AI will not be used as a professional tool in this course**
  – AI is an unreliable peer and *you* need to know enough to find and correct its mistakes
- we may discuss some situations where AI is useful as a learning aid
  – AI use is always optional (reasons you may not want to use it will also be discussed)
- you should not use AI (or other resources) as a learning cheat on labs or projects
  – where detected, you will receive a 0 (or similar low score) for engagement on that assignment
  – final grade is heavily based on in-person assessments so you shortchange yourself if you bypass learning

2