The final will be a self-scheduled exam that may be picked up from 9:00 a.m. to 6:00 p.m. between Saturday, May 17th, and Sunday, May 25th from the monitor in the Registrar’s Office on the second floor of Hopkins Hall. Self-Scheduled exams must be returned to the monitor within two and one-half hours after they are taken out. The office closes at 8:30 p.m., so you must start by 6:00 p.m.

Here are the instructions from the front page of the exam:

This is a closed book exam. You have 150 minutes to complete the exam. All intended answers will fit in the space provided. You may use the back of the preceding page for additional space if necessary, but be sure to mark your answers clearly. You must hand in all paper used while working on the exam.

Look through all of the questions before you begin working. Be sure to give yourself enough time to answer each question—the points should help you manage your time.

If you do not understand what part of a question is asking, answer it as best you can and state any assumptions you are making in your answer.

You may not discuss any aspect of this exam with anyone except me until after the entire exam period is over. This includes students in the class, other students, other faculty, etc. If asked about the exam, the only acceptable response is “I’m not allowed to discuss it.”

I have neither given nor received aid on this examination.

Signature: ____________________________

Name: ____________________________

Time Started: _______________

Time Finished: _______________
You are responsible for anything we covered in class or in lab, and everything in the assigned reading from *Java Structures*, up to and including Dictionaries and HashTables. The exam is cumulative and will cover all topics from this semester. However, material covered since the second midterm will be emphasized. The topics covered since the second midterm include:

- Binary search trees
- Graph Representations: adjacency matrix and adjacency lists
- Graph algorithms: breadth-first and depth-first searches, reachability, topological sorting, Dijkstra's algorithm
- Dictionaries
- Hashtables

Here are the lists of topics from the first two midterms:

- Java syntax, as we have used it in our programming assignments.
- Classes, interfaces.
- Generic classes.
- Java memory management. What is allocated and how / when regular variables, arrays, and classes are created?
- Information hiding and why it's good.
- Extending classes with inheritance.
- Pre- and post-conditions, and assertions.
- Vector, its implementation in the structure5 package, and its methods.
- Linear and binary search.
- Recursion and induction.
- Singly and doubly linked lists.
- Stacks, Queues, Linear structures
- Iterators
- Ordered structures
- Trees, binary trees, general trees, tree traversals
- Heaps
- Priority queues
- Heapsort