Feb 5, 7, 9
Objectives  To review object orientation and Java from COSC 182
Text reading  Chapters 0, 1 (Review of Object orientation); Appendix B (Review of Java)
Some things to know
   Standards of style, defining your own equals method, processing of command line arguments, precondition and postcondition (more next week).
Activities
   Individual Lab 1: Modifying the way in which a method solves a problem without modifying what it accomplishes. Unit testing of a single object in the development environment of your choice.
   In-class activity: Developing an abstract data type (Exercise 1.12)

Feb 12, 14, 16
Objectives
   To build teams, to review 2D arrays, to use the Java Vector and Random objects; to learn Java 5 generics
Text reading  Chapters 2, 3, 4
Some things to know  Lindenmayer systems, when to use
Activities
   A volunteer will tell us about javadoc from Chapter 2 on Wednesday.
   Team Lab 2: The Silver Dollar Game (pages 68f.)

Feb 19, 21, 23
Objectives
   To review time & space complexity, asymptotic time complexity, recursion, and comparison sorts; to learn a distributive sort
Text reading  Chapters 5, 6 (Sections 6.1–6.5 continue review COSC 282)
Some things to know  Time-space tradeoff, more practice choosing the right data structure.
Which sorts are stable, heapsort (class handout), radix sort.

**Activities**

Radix sort (in class)

Individual Lab 3: Timing sorting algorithms that use comparators

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**Feb 26, 28, Mar 2**

**Objectives**  To use iterators of your own design

**Text reading**  Chapters 7, 8

**Some things to know**  How to use filtering iterators & state-based programming

**Activities**  Team Lab 4: Two-towers problem (p. 182ff.)

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**Mar 5, 7, (9)**

**Objectives**  To design good data structures using interfaces and abstract base classes

**Text reading**  Chapter 9

**Some things to know**  List interface and implementation via Vector.

Single- and double-linked lists, circular lists, using dummy nodes in linked lists.

**Activities**  Exam 1 will be Friday, March 9

**Special exception to note**  I’ll be in Kentucky for the annual meeting of SIGCSE on March 9.

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**Mar 12, 14, 16**

**Objectives**  To evaluate list- versus vector-based stacks and queues

**Text reading**  Chapter 10

**Some things to know**  Stacks and queues

**Activities**  No homework. Catch up. Relax over Spring Break.

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---Spring Break, Saturday, March 17 through Sunday, March 25---

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**Mar 26, 28, (30)**

**Objectives**  To use ordered structures and binary trees when appropriate

**Text reading**  Chapters 11, 12 (through 12.6)

**Some things to know**  Pre-order, in-order, post-order, and breadth-first traversal

**Activities**  Individual Lab 5: [Binary tree problem to be assigned]

**Special exception to note**

I will be in California for my son’s wedding, with my department chair’s permission on March 30 and April 2. Class is canceled on March 30. Use the time to study for Exam 2 which will be on Monday, April 2.

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**Apr (2), 4**

**Objectives**  To learn the basis for compression techniques and priority queues

**Text reading**  Chapters 12 (12.7–12.9), 13

**Some things to know**  Huffman coding, vector-based heaps

**Activities**  Exam 2 will be Monday, April 2

**Special exception to note**  Exam will be given in my absence.

---Easter Break, Friday, April 6 through Monday, April 9---

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**Apr 11, 13**

**Objectives**  To learn the benefits of hierarchical data structures for searching
Chapter 14

Some things to know
Comparing binary search trees with red-black trees

Activities
Catch up!

Apr 16, 18, 20
Objectives
To see how hash tables uses the idea of a distributive sort to speed searching

Text reading
Chapter 15

Some things to know
Hash coding; open addressing versus external chaining

Activities
Team Lab 6: [To be decided]
A volunteer will tell us about: How hashing is used in computer security

Apr 23, 25, 27
Objectives
To contrast adjacency matrix versus linked representations of graphs

Text reading
Chapter 16

Some things to know
Reachability, topological sorting, diameter of a graph, idea of a greedy algorithm

Activities
Catch up!

Apr 30, May 2
Objectives
To compare three methods of hashing

Text reading
Chapter 14

Some things to know
Copy constructor, perfect hashing, linear probing, quadratic probing, external chaining

Activities
A volunteer will tell us about: What built-in support Java has for the data structures we’ve seen this semester so far.

May 4
School of MEB Scholarship Day. Attendance is required, except for times that you have classes in other Schools.

Activities
Submit a report of six paragraphs, in writing and in your course folder on the Q: drive. Write two paragraphs on each of three presentations that you attended. Do not count poster presentations. The first paragraph should be an objective part of what you heard, different from any printed abstracts that are available. The second paragraph is your evaluation of the presentation. Be sure to give name of speaker and title of presentation.

May 7
Objectives
To see how our course fits together

Text reading
No new chapters

Some things to know
(Review)

Activities
Team Lab 7: Timing hashing via linear versus quadratic probing methods

During Final Exam Week, Monday, May 14
10:30–12:30 a.m. Exam 3, not comprehensive, covering only since second exam.