Syllabus

Handout 1
CSCI 136: Spring, 2007
2 February

Data Structures and Advanced Programming

Instructor	Prof. Stephen Freund
Office	TPL 302 (top floor of Physics, facing West College)
Phone	597-4260
Email	freund@cs.williams.edu
Office Hours	Monday and Tuesday 2:30–4
TAs	Jessica Chung, Austin Stanley, Ben Wood
Lectures	MWF 9–9:50 in Jessup 206
Labs	W 1–4 in TCL 217a
Web Page	`http://www.cs.williams.edu/~freund/cs136/index.html`

Texts

We will be using the $\sqrt{7}$ edition the following text book:

- *Java Structures: Data Structures in Java for the Principled Programmer, Second Edition*, Duane Bailey.

We will provide this text book as a course reader. *You must use this edition.* You may pick up a copy of the course reader from Lorraine Robinson in TCL 303. A charge for the reader will appear on your next college bill.

Course Objectives

This course couples work on program design, analysis, and verification with an introduction to the study of data structures. Data structures capture common ways in which to store and manipulate data, and they are important in the construction of sophisticated computer programs. We will use the Java programming language in class and for the assignments.

Students will be expected to write several programs, ranging from very short programs to more elaborate systems. Since one of our goals in this course is to teach you how to write large, reliable programs composed from reusable pieces, we will be emphasizing the development of clear, modular programs that are easy to read, debug, verify, analyze, and modify.

We will use the computers in TCL 217a for the programming assignments. You will be given keys to access this room once the semester begins.

Course Work

There will be weekly lab programming assignments. All programs will be graded on design, documentation and style, correctness, and efficiency. Programs should be turned in electronically by midnight on the due date, typically the Monday after lab. Each student may use a maximum of three free late days during the course of the semester. A late day permits you to hand in an assignment up to 24 hours late, without penalty. Once those late days are exhausted, late homeworks will be penalized. Programs will not be accepted more than four days late.

Attendance in lab is mandatory. Repeated absence from lab will result in failure of the course.

There will be two midterm exams and a self-scheduled final exam. Homework exercises (non-programming assignments) will be assigned and collected in class periodically and there may be one or two in-class quizzes.

Grades will be determined as follows:

Final exam:	25%
Midterms:	15% each
Programs:	35–40%
Homework & other:	5–10%

Honor Code

Homework and lab assignments are to be the sole work of each student unless the assignment explicitly states otherwise. Students may discuss issues related to an assignment, provided that such discussions are cited in the material turned in. However, students may not collaborate on designing or writing code. Uncredited collaborations will be considered a violation of the honor code and will be handled appropriately. For a full description of the Computer Science Honor Code, please see `http://www.cs.williams.edu/~freund/honor.html`. If in doubt of what is appropriate, do not hesitate to ask me.

Tentative Schedule

This will undoubtedly change as we begin to explore these topics.

Date	Mon	Wed	Fri
Feb 2			Overview *Bailey*, Ch. 0
Feb 5–Feb 9	OOP and Java	More Java *Bailey*, Ch. 1	Assert and Assoc
Feb 12–Feb 16	Vectors *Bailey*, Ch. 2,3	More Vectors *Bailey*, Ch. 4	*Winter Carnival*
Feb 19–Feb 23	Recursion *Bailey*, Ch. 5	Recursion	Recursion/Complexity
Feb 26–Mar 2	Complexity	Sorting *Bailey*, Ch. 6	Sorting
Mar 5–Mar 9	Lists	Lists **Midterm In Lab**	Lists *Bailey*, Ch. 9
Mar 12–Mar 16	Stacks *Bailey*, Ch. 10	Stacks	Queues
Mar 19–Mar 23			
Mar 26–Mar 30			
Apr 2–Apr 6	Iterators *Bailey*, Ch. 7,8	Comparables *Bailey*, Ch. 11	Order
Apr 9–Apr 13	Trees *Bailey*, Ch. 12	Implementing Trees	Tree Traversals
Apr 16–Apr 20	Tree Representation	Priority Queues *Bailey*, Ch. 13	Heapsort
Apr 23–Apr 27	Binary Search Trees *Bailey*, Ch. 14	Binary Search Trees **Midterm 2 in Lab**	Binary Search Trees
Apr 30–May 4	Graphs *Bailey*, Ch. 16	Graphs	Graphs
May 7–May 11	Graphs	Dictionaries *Bailey*, Ch. 15	Hashtables