Syllabus

Handout 1
CSCI 136: Spring, 2005
4 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	MT 2:30–4
TAs	Kristof Redei, Edmund Rucci, Jared Strait
TA Office Hours	Sun 7-11pm, Mon 7-11pm, Thurs 8-10pm
Lectures	MWF 10–10:50 in Physics 114
Labs	W 1–4 in TCL 217a
Web Page	`http://www.cs.williams.edu/~freund/cs136/index.html`

Texts

We will be using the following text book:

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

The book is available at the bookstore.

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.

Homework

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 11:59 p.m. on the due date, typically the Monday after lab. Each student may use a maximum of two 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.

There will be two midterm exams and a 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 4			Overview *Bailey*, Ch. 0
Feb 7–Feb 11	OOP and Java *Bailey*, Ch. 1	More Java	Assert and Assoc
Feb 14–Feb 18	Vectors *Bailey*, Ch. 2,3	More Vectors	
Feb 21–Feb 25	Recursion *Bailey*, Ch. 4	Recursion	Recursion/Complexity
Feb 28–Mar 4	Complexity	Sorting *Bailey*, Ch. 5	Sorting
Mar 7–Mar 11	Lists *Bailey*, Ch. 8	Lists	Stacks *Bailey*, Ch. 9
Mar 14–Mar 18	Stacks	**Midterm**	Queues
Mar 21–Mar 25			
Mar 28–Apr 1			
Apr 4–Apr 8	Iterators *Bailey*, Ch. 6,7	Comparables,Order *Bailey*, Ch. 10	Trees *Bailey*, Ch. 11
Apr 11–Apr 15	Implementing Trees	Tree Traversals	Tree Representation
Apr 18–Apr 22	Priority Queues *Bailey*, Ch. 12	Heapsort	Binary Search Trees *Bailey*, Ch. 13
Apr 25–Apr 29	Binary Search Trees	**Midterm 2**	Graphs
May 2–May 6	Graphs *Bailey*, Ch. 15	Graphs	Graphs
May 9–May 13	Dictionaries *Bailey*, Ch. 14	Hashtables	Review