

# Data Structures (810:052) Summer 2009

**Lecture Time and Place:** 12:30 AM Tuesdays in ITTC 328 starting May 12<sup>th</sup>

**Lab Time:** arranged

**Web-site:** [www.cs.uni.edu/~fienu/cs052sum09/](http://www.cs.uni.edu/~fienu/cs052sum09/)

**Class Email List:** Send messages to [810-052-01-summer@uni.edu](mailto:810-052-01-summer@uni.edu) from your UNI account (let me know other email addresses that you want to use)

**Instructor:** Mark Fienup ([fienu@cs.uni.edu](mailto:fienu@cs.uni.edu))

Office: ITTC 313

Phone: 273-5918 (Home 266-5379)

Office Hours: TBA and arranged

**Prerequisites:** Introduction to Computing (810:051)

**Goals:** After this course, you should be able to (1) write “medium” sized programs using algorithmic problem solving and functional decomposition in analysis, design, and implementation, (2) implement and understand the algorithms for manipulating the abstract data types (ADTs) stacks, queues, lists, strings, trees, and graphs, and (3) be able to select appropriate data structures when writing medium size programs.

**Assignments:** Assignments will consist of "pencil-and-paper" exercises, laboratory exercises, and programming projects.

**Pedagogic Approach:** I'm planning on having roughly the same number of homework assignments and labs as a “normal” semester course, but compressed into a shorter time frame. With less face-to-face lecture and lab time, you'll need to do much of the learning from reading the textbook and doing labs on your own.

**Required Text:** *Fundamentals of Python: From First Programs through Data Structures*, 1st Edition, 2010, Kenneth A. Lambert, ISBN-10: 1-4239-0218-1, ISBN-13: 978-1-4239-0218-8

## Chapters covered:

11. Searching, Sorting, and Complexity.

12. Tools for Design, Documentation, and Testing.

13. Collections, Arrays, and Linked Structures.

14. Stacks.

15. Queues.

(Test 1 covering Chapters 11 -15)

16. Linked Lists.

17. Recursion.

18. Hierarchical Collections: Trees.

19. Unordered Collections: Sets and Dictionaries.

20. Graphs.

(Final exam: Comprehensive, but focusing on details of chapters 16-20)

**Grading policy:** There will be two tests (including the final). I'll announce tests at least one week in advance to allow you time to prepare. Tentative weighting of course components is:

In-class Work:	5 %
Assignments:	25 %
In-class Test 1:	23 % (~ end May/early June)
Final:	24 % (~ end of June/early July)

Grades will be assigned based on straight percentages off the top student score. If the top student's score is 92%, then the grading scale will be, i.e., 100-82 A, 81.9-72 B, 71.9-62 C, 61.9-52 D, and below 52 F.