

## Course Information

Welcome to CMP 101, Data structures and abstract data types. My office is 319 Applied Sciences, and my office hours are Tuesdays-Thursdays from 4-5. My e-mail address is [dph@cse.ucsc.edu](mailto:dph@cse.ucsc.edu).

**Prerequisites:** The prerequisites for this class are: CMP 12b, CMPE 16, Math 19B (or 11c), and Math 27. Transfer students **must** have credit for these courses approved by the CIS/CE board office.

**Text: Introduction to Algorithms** by Cormen, Leiserson, and Rivest.

**TA and Sections:** Terry Furey, [booch@cse](mailto:booch@cse), first office hours: Mon 3:30-4:30 in Trailer 12b, sections TBA.

**Course Work:** This course will have four or five substantial programming assignments, four or five written homeworks, an in-class midterm and a final examination from 8:00–11:00 am on Wednesday Dec. 16. No make-up exams will be given. This work will be weighted as follows.

Midterm	20%
Programs	25%
Homeworks	20%
Final	35%

Thus if five programs are graded on a 100 point scale and four written assignments are graded on a 20 point scale, each written point will be worth 5 programming points. To pass the course you must pass *BOTH* the programming portion and the final, in addition to having a sufficient overall total. Incompletes will only be given in response to medical/family emergency **and** the student has been doing clearly passing work.

**Assignments:** Each assignment is to reflect the *individual's* understanding. Copying another person's program or written assignment is cheating, and will not be tolerated. Although helping each other understand the material is desirable, under no circumstances should you "lend" or "borrow" portions of programming assignments. A breach of academic honesty on any assignment will lead to a non-passing grade in the course.

**Class Accounts:** The programming assignments must run on the Athena system. Login to a server (either `si` or `am`) using account name `register` and password `athena` to create an account for yourself.

Useful commands include: "`bind_locker public`" to use `rn` and many other services, "`bind_locker cmps101`" to gain access to the class locker, "`rn -q ucsc.class.cmps101`" to read the class newsgroup, and "`Pnews`" to post messages to the class newsgroup. The class newsgroup is a very effective way for us to clarify homework assignments and get late-breaking news to the students. You are expected to read the newsgroup regularly and it is your responsibility to know the information that has been posted there. Feel free to post your questions there. Myself, the TA and the tutors will be reading it and answering your questions. Also check out the web page at "<http://www.cse.ucsc.edu/classes/cmps101/>".

**Syllabus and Reading:** The following lists when I expect to cover the various topics (although we may not quite make this pace). I recommend that you at least skim the appropriate sections before lecture, even if it is difficult to understand. Later, go back and read carefully to ensure that you fully understand the material.

<i>Week</i>	<i>Chapter</i>	<i>Topics</i>
0	1, ho#3	Introduction, Abstract Data Types
1	2, 4.1–4.3,	Asymptotic Notation, Recurrences, master theorem, induction
2	7, 5.5, 11.4	heaps and heapsort, Priority Queue
3	12, 13	Dictionaries, Hashing, trees, Binary Search Trees
4	14,	Red-Black trees,
5	22.1–22.3	Disjoint Sets, midterm?
6	22.1–22.3, 23.1–23.4	Graphs, Searching Graphs, topological sort
7	23.5, 24	Strongly connected components, Minimum Spanning Trees
8	25, 26	Single Source Shortest Paths, All pairs shortest paths
9	8,9	Quicksort, Radix sort
10	9	Sorting Lower bounds, review.

I am assuming that everyone is **already** familiar with the material in Chapter 3, Sections 5.1 through 5.4, and Chapter 11. Students should double-check their knowledge of these sections during the first week.