Course Information

Welcome to CS323, Data Structures and Algorithms. We meet 8:30am to 9:45am Tuesday/Thursday in room W201, with no regular lab.

This course continues CS171, where you should have already seen Java (interfaces and inheritance), some elementary data structures, sorting (like mergesort and maybe quicksort), and some basic graph algorithms (like BFS). Our other prerequisite is CS224, for mathematical background (big-Oh, probability, loop invariants). Compared to CS171, this course considers somewhat harder topics, and our approach will be a bit more conceptual and analytic, with a roughly 50/50 mix of written and programming work.

Our textbook is Algorithms (4th ed.) by [Sedgewick](http://algs4.cs.princeton.edu/home/) and Wayne. It is also used by some sections of CS171. We will use use some resources from the book website:

http://algs4.cs.princeton.edu/home/

Staff: Your instructor (writing this) is Michelangelo Grigni. Contact me by e-mail at [mic@mathcs.emory.edu](mailto:mic@mathcs.emory.edu) by phone at 7-7922, or in my office (W426). My office hours will be posted on the web. We will also have at least one undergraduate grader, and possibly also a graduate TA, I’ll announce more when we get a name.

Graded Work: There will be (probably) five graded homeworks, typically with both written and programming parts. There will be a in-class midterm exam (Thursday 3/17) weighted like 2 homeworks, and a final exam (3pm-5:30pm, Monday 5/2) weighted like 3 homeworks. Each graded item will be curved so that the median non-zero mark is at least 82% (B-). If there are any quizzes or other graded items, those will count (all together) as at most one more homework mark.

Syllabus: I do not have a precise syllabus yet, but the core topics will be as follows: union-find (Section 1.5), priority queues (2.4), red-black trees (3.3), hashing (3.4), graphs including MST and Bellman-Ford (Chapter 4), string algorithms (5). As time and preparation permits, we may also consider advanced topics such as max-flow and B-trees (6). We will also add some topics from outside the textbook, in particular: persistence, the Burrows-Wheeler transform, Cuckoo hashing, and TSP heuristics.

Online Support and Handouts: There will be occasional printed handouts like this one, and frequent online notes and source code. All resources will be available via our course web page:

http://mathcs.emory.edu/~cs323000/
On Math/CS lab machines, the same material may be found via our course “share directory”, 
\[\text{/home/cs323000/share/}\]. These resources should be working by the end of the second week. We may also use an online Q&A website, I have not decided that yet.

**Policies:** It is your responsibility to know what has been covered in class, to read along in the book, to turn in your work, and to attend the exams. Having missed a class is not a sufficient excuse for late work.

Unless I instruct you otherwise, you should have no outside help on homeworks. You should not share your solutions with other students, nor seek solutions from other sources. On the other hand, the following kinds of collaboration are allowed: interpreting the statement of a problem, understanding an error message, learning features of a language or software tools, reviewing the textbook and course notes. If you are in doubt about what is allowed, ask me.

Your work for this class is governed by the Emory Honor Code[^1] and the Math/CS SPCA[^2] (Statement of Policy on Computer Assignments). In particular, this means you should take care to protect the confidentiality of your homework files. Apparent honor code violations will be referred to the Emory Honor Council. We may use an automated system to help detect plagiarism.

[^1]: http://catalog.college.emory.edu/academic/policy/honor_code.html
[^2]: http://mathcs.emory.edu/spca.php