

## Advanced Design and Analysis of Algorithms

### CS581, Spring 2009

**Class web page:** <http://www.cs.utk.edu/~parker/Courses/CS581-spring09>

Meeting place/time: Claxton 205, 11:10 AM – 12:25 PM

**Instructor:** Prof. Lynne E. Parker, Professor, Dept. of Electrical Engineering and Computer Science

*Office:* Claxton Complex 220

*Phone:* (865) 974-4394

*Email:* parker@eecs.utk.edu

*URL:* <http://www.cs.utk.edu/~parker>

*Office Hours:* Tuesdays and Thursdays, 12:30 – 1:30 PM, or by appointment (send email), or any time I am in my office

**TA:** Khairul Kabir

*Office:* Claxton Complex 110D

*Email:* kkabir@eecs.utk.edu

*Office Hours:* Wednesdays and Fridays, 3:00 – 4:00 PM

#### Course Description:

This course explores the analysis of algorithms and the relevance of analysis to the design of efficient computer algorithms. (This course will not involve programming.)

**Required Textbook:** *Introduction to Algorithms*, Second Edition, by Cormen, Leiserson, Rivest, and Stein, published by McGraw-Hill.

**Prerequisites:** Students should have a solid background in fundamental algorithms and data structures (CS302 or equivalent), and discrete mathematics (CS311 or equivalent). This background should include a working knowledge of sorting techniques, stacks, queues, lists, hash tables, heaps, B-trees, binary search trees, red-black trees, recursion, set theory, graph theory, counting and probability theory, basic calculus, and proofs by mathematical induction.

#### Evaluation:

Grading will be based on 11-13 homeworks and 3 exams, as follows:

**Homeworks (one HW with lowest grade dropped):** 15%

**Exam I (in class, Thursday, Feb. 19):** 25%

**Exam II (in class, Thursday, April 2):** 25%

**Final Exam (10:15 AM – 12:15 PM, Thurs., April 30):** 35%

Final grades will be determined by overall average, with the instructor reserving the right to curve the grades based upon class grade distribution and performance. Decisions on borderline grades will be based upon class attendance and participation. In any case, students will receive no less than the following grades for the given final numeric averages:

A: 90 – 100	C+: 75 – 79.9
B+: 85 – 89.9	C: 70 – 74.9
B: 80 – 84.9	D: 60 – 69.9
	F: 0 – 59.9

#### Class e-mail list:

TBA; will be set up after first class meeting. Be sure you receive the test message during the first week of classes, since important announcements may be sent via this email list, for which you are responsible.

#### Class Policies:

- **Class attendance:** Class attendance will be taken. Attendance may affect your grade if your final grade average is borderline; good attendance will likely push your grade higher while several absences will likely push your grade lower. You are responsible for all course material and announcements covered in class or posted to the class e-

mail list. If you miss class, you must obtain the covered material from a willing classmate. Neither the instructor nor the TA will be available (during office hours or other times) to repeat material covered in class.

- Schedule and readings: The topics to be discussed for each class will be posted on the class web site, along with relevant readings for each topic. You are expected to keep up with the readings as we go, as they will help provide the foundation for the homeworks and exams.
- Homework assignments and due dates: Homework assignments will be handed out in class and posted on the course web site. Homeworks are due *at the very beginning of class (within 5 minutes of the start time)* on the due dates, unless otherwise noted. *A grade of “0” will be given for homeworks turned in late, for any reason.* At the end of the semester, your one lowest homework grade will be dropped.
- Collaboration Policy: Discussing and exchanging ideas through study groups is encouraged, as this usually leads to a better depth of understanding. As part of the discussions, you may share ideas and thoughts, discuss the meaning of homework questions, or possible ways of approaching a solution. However, homework solutions must be written strictly by yourself. If one of your solutions is based on a key idea of someone else, you must acknowledge this in your homework, to avoid the perception of cheating. This form of collaboration is not an opportunity to copy answers from others.

Note that the purpose of the homework assignments is to help you learn the material so that you will do well on the exams. Since the homeworks count relatively little toward your overall grade, you should use this opportunity to learn from your own hard work and discussions with others, rather than take the lazy (and disallowed) approach of trying to find solutions to download from the Internet. In fact, you are not permitted to seek solutions on the Internet or from any outside source or materials; doing so will be considered cheating. Do not repeat the mistake of previous students who favored short-term gain (i.e., good grades on homeworks that count ~1%) by obtaining answers from outside sources, only to do badly on the exams because they did not achieve an in-depth understanding of the material by working harder at the homeworks.

- Cheating: Cheating will result in failure of the assignment or exam, and perhaps failure of the class. Each student is responsible for securing his or her work from copying. Each student is expected to abide by UT’s policies on Academic Conduct. Refer to the University of Tennessee Graduate School Catalog and the HillTopics Student Handbook for details.
- Exams: All exams (including the final exam) will be in-class, closed book, closed note exams. The final exam will be comprehensive, covering material from the entire course.
- Missed exams: If you have an excusable absence from an exam, your final exam grade may be counted as your missed exam grade. The instructor reserves the right to administer a make-up exam. Barring exceptional circumstances, you must contact the instructor to explain your absence within 24 hours of a missed exam. Otherwise, the absence will be considered unexcused, and your grade for that exam will be 0. Talk to the instructor immediately if you discover any conflicts with the given exam dates.
- Grading corrections: Bring any grading correction requests to the teaching assistant (for homeworks) or instructor (for exams) within 2 weeks of receiving the grade, or before the end of the semester, whichever comes first. After that, your grade will not be adjusted. If you find any mistake in grading, please let the instructor know. Your grade will not be lowered.
- Drop policy: Late drops are discouraged and are unlikely to be approved.
- Inclement weather: *Not that it ever snows in Knoxville anymore, but ...* We will follow the standard University of Tennessee policy on inclement weather, which is posted at <http://www.utk.edu/weather/>. In part, this policy states the following: “The University of Tennessee will remain open except in the most severe weather conditions. The Chancellor may officially close or suspend selected activities of the University because extreme weather conditions. When a decision to close is reached, campus and local radio and TV stations will be notified so that appropriate announcements may be made.” “Students are responsible for any academic work they miss due to absences caused by severe weather conditions. It is the individual student’s responsibility to take the initiative to make up any missed class work, and it is the instructors’ responsibility to provide a reasonable opportunity for students to complete assignments or examinations missed due to such absences.”