Mathematics 4880: Design and Analysis of Algorithms Spring 2013

Instructor

Dr. Bill Slough Old Main 3212 581-7529 E-mail: waslough@eiu.edu Office hours: MW: 2:00-3:00, F 2:00-4:00; other times by appointment.

Texts

Skiena, The Algorithm Design Manual, Second Edition, Springer, 2008.

Cormen, Leiserson, Rivest, and Stein, *Introduction to Algorithms, Second Edition*, McGraw-Hill, 2001. (On reserve in Booth Library)

Overview

This course examines the techniques and principles used to design and analyze algorithms for a variety of problems of both practical and theoretical interest. At the conclusion of this course, you should be able to:

- prove the correctness of an algorithm
- analyze a variety of algorithms
- apply well-known algorithm design techniques to unfamiliar problems
- appreciate the importance of efficiency

Exercises

Textbook exercises and programming "challenges" provide useful reinforcement of classroom topics and both will be assigned throughout the semester. Music students practice scales for proficiency; by analogy, computer scientists learn their craft by designing, implementing and analyzing algorithms.

Evaluation

There will be two semester exams and a final, as shown below. Exam dates are tentative, but will not be sooner than shown here.

Exam 1	Monday, February 18	20%
Exam 2	Monday, April 1	20%
Programming Challenges	— as assigned —	15%
Homework Exercises	— as assigned —	15%
Final	Wednesday, May 1, $10:15-12:15$	30%

Course Grade

The following scale will be used as a first approximation to your grade:

90–100: A 80–89: B 70–79: C 55–69: D 0–54: F

In borderline cases, factors such as overall trends and the final exam score will be taken into consideration. It is possible that the "cut-off" scores given above will be lowered, but they will not be raised. As a result, an overall score of 80 is *guaranteed* to receive at least a B, whereas a score of 78 *might* result in a B.

To receive a final grade of C or better, you must earn a minimum of a C in each of the graded components of this course.

Attendance, Make-up, and Late Work

The course policy on attendance and make-up work follows the guidelines described in the EIU catalog¹. To briefly summarize:

- You are expected to attend class meetings as scheduled.
- When an absence occurs, you are responsible for material covered in your absence.
- You are expected to notify me in advance of an anticipated absence on an exam day. If you cannot reach me, call the Mathematics and Computer Science Department (581-2028) and leave a message for me.
- You will have the opportunity to make up work for properly verified absences due to illness, emergency, or participation in official University activities. It is your responsibility to initiate plans for make-up work and complete it promptly.
- Late submissions of homework is permissible only for properly verified absences due to illness, emergency, or participation in an official University activity.

Student Conduct

The Office of Student Standards provides guidelines for expectations of all EIU students². You are expected to observe and meet these expectations for this class. Violations of this conduct can have serious consequences, including a failing grade for the course. Violations include cheating on examinations, collusion, and conduct which disrupts the academic environment. All work turned in, including homework submissions, is to be your own work.

Miscellaneous

• By pointing your web browser to

http://www.eiu.edu/~mathcs/mat4880

you can obtain late-breaking news of interest related to this course, class handouts, descriptions of assignments, and code needed to complete assignments. This web site will evolve over time; check back frequently to stay informed.

- Homework exercises are to be done on your own; they are not intended as group projects.
- Regular attendance and class participation are important components of this class.
- If you have a documented disability and wish to receive academic accommodations, please contact the Coordinator of the Office of Disability Services (581–6583) as soon as possible.
- Feel free to seek me out for help. If my office hours don't fit your schedule, I'm available to meet with you at many other times—just let me know in advance. Also, I will respond promptly to any e-mail you wish to send me.

¹See http://catalog.eiu.edu/content.php?catoid=23&navoid=796#clas_atte for full details. ²See http://www.eiu.edu/~judicial/studentconductcode.php for more details.