CS 3330: Algorithms

Summer 2018

Class Schedule

The course meets 9:30-10:45 am Monday, Tuesday, Wednesday and Thursday at 105 MLH (MacLean Hall).

Instructor and Office hours

Sikder Huq, 101A MLH, sikderrezwanul-huq@uiowa.edu
Office hours: Mondays and Tuesdays from 11:00 am to 12:30 pm in 101A MLH, and by appointment

Teaching Assistant and Office hours

David McDermott, david-mcdermott-1@uiowa.edu
Office hours: Tuesdays and Wednesdays from 12:30 pm to 1:30 pm in 301 MLH

Course Web Page

https://sites.google.com/site/saikatcit05/teaching/summer18cs3330
Homework assignments and lecture notes will be posted in this course Web page. We will use ICON for posting grades and homework solutions.

Textbook

Algorithm Design by Kleinberg and Tardos. As a reference, we may also use lecture notes from Jeff Erickson at http://jeffe.cs.illinois.edu/teaching/algorithms/

Course Objectives

Upon successful completion of this course, students are expected to:
• learn how to abstract clearly stated algorithmic problems from real world problems
• learn different techniques to solve algorithmic problems
• be able to identify algorithm design technique appropriate for the context
• learn how to mathematically analyze algorithms and quantify their merits
• develop algorithmic intuition (i.e. develop a feel for the difficulty of the problems) and ability to effectively communicate algorithms

The course is expected to cover the following topics:

• Introduction
• Asymptotic Order of Growth
• Basic Graph Algorithms
• Greedy Algorithms and Analysis
• Recursive Thinking: Divide-and-Conquer
• Recursive Thinking: Dynamic Programming
• Network Flow and Applications
• Randomized Algorithms
• NP-completeness

Grading

Final grade will be determined by the following components:

• **Homework assignments** (30%): There will be approximately six homework assignments during the course. Some of the homework problems will be based on programming.

• **Exams** (65%): There will be one mid-term and one final exam. The mid-term exam will cover 30% and the final exam will cover 35% of the total grade.

• **Participation** (5%): You are expected to actively participate in the class discussions. There might be in-class exercises and short quizzes, and some of them will be graded.

Grades will be curved. CLAS expects senior level undergraduate classes to have the following approximate distribution: 22% A, 38% B, 36% C, 3% D and 1% F.
Late Policy

You may use a quota of three days for the entire semester for late submissions. When you submit an assignment $X$ days late, your quota gets decreased by $X$ irrevocably. You can only be late by an integer number of days. For example, if you submit 5 hours after the deadline, your quota is depleted by one day. Once you use up your quota of three days, any assignment submitted late will not be accepted and you will get 0 points for that assignment.

Exams

The mid-term exam will take place in class on July 9, and the final exam will take place in class on August 2. Details of the exams will be announced later.

Cheating

Unless otherwise indicated, it is generally acceptable to discuss high level ideas about homework problems with peers. However, you should think about the problem and try to solve it by yourself for at least 30 minutes before you discuss it with anyone. Copying or using someone else’s solution is prohibited. It will be considered as cheating if you submit a solution and fail to orally explain it to the TA or instructor.

The College of Liberal Arts and Sciences Policies

Administrative Home

The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at https://clas.uiowa.edu/students/handbook.

Electronic Communication

University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences (Operations Manual, III.15.2, k.11).

Accommodations for Disabilities

The University of Iowa is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability
(which includes but is not limited to mental health, attention, learning, vision, and physical or health-related conditions). A student seeking academic accommodations should first register with Student Disability Services and then meet with the course instructor privately in the instructor’s office to make particular arrangements. Reasonable accommodations are established through an interactive process between the student, instructor, and SDS. See https://sds.studentlife.uiowa.edu/ for information.

**Academic Honesty**

All CLAS students or students taking classes offered by CLAS have, in essence, agreed to the College’s Code of Academic Honesty: "I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty.” Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled (CLAS Academic Policies Handbook).

**CLAS Final Examination Policies**

The final examination schedule for each class is announced by the Registrar generally by the fifth week of classes. Final exams are offered only during the official final examination period. No exams of any kind are allowed during the last week of classes. All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar’s web site and will be shared with instructors and students. It is the student’s responsibility to know the date, time, and place of a final exam.

**Making a Suggestion or a Complaint**

Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident (Academic Policies Handbook).

**Understanding Sexual Harassment**

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Office of the Sexual Misconduct Response Coordinator for assistance, definitions, and the full University policy.

**Reacting Safely to Severe Weather**

In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Department of Public
Safety website.