1 Class Schedule

Section 0002: 8:30A - 9:20A MWF 118 MLH (MacLean Hall)
Section 0003: 11:30A - 12:20P MWF 112 MH (Macbride Hall)

2 Instructor

Sayan Bandyapadhyay, Office: 101F MacLean Hall, Email: sayan-bandyapadhyay@uiowa.edu, Office hours: 10:30A – Noon TTh (and by appointment)

3 Teaching Assistants

There is no TA for section 0002. There are two TAs for section 0003.
Qi Qi, Office: 101N MacLean Hall, Email: qi-qi@uiowa.edu, Office hours: 4:30 - 6:00P T
Xin Man, Office: 201N MacLean Hall, Email: xin-man@uiowa.edu, Office hours: 4:45 - 6:15P Th

4 Course Website

The main course website is [http://homepage.cs.uiowa.edu/~sbandyapadhyay/sp2019algo/](http://homepage.cs.uiowa.edu/~sbandyapadhyay/sp2019algo/). We will post homework assignments, news and updates about the course on this website. We will use ICON for posting the grades and rubriks.

5 Syllabus

There are three main parts of this course: design, analysis and application. In the design part, we will study fundamental techniques for designing algorithms for computational problems. In the analysis part, we will see how to analyze correctness and performance of algorithms. In the application part, we will design algorithms by applying the techniques we learned previously, and analyze them. The tentative syllabus is the following.


We will regularly post the topics covered in the classes on our course website.

6 Course Goals and Objectives

The main goal of this course is to help students learn how to design and analyze algorithms for basic computational problems. Upon completion of this course, students will be able to do the following:

- Analyze the time complexity of algorithms.
- Demonstrate a familiarity with standard algorithms.
- Apply algorithmic design techniques and tools of analysis.
- Design efficient algorithms for common engineering problems.
7 Prerequisites

CS:2210 with a minimum grade of C-; CS:2230 with a minimum grade of C-; (MATH:1850 or MATH:1550 or MATH:1860 or MATH:1560)

8 Textbook and References

References: 1. Algorithm Design by Jon Kleinberg and Éva Tardos
2. Algorithms by Sanjoy Dasgupta, Christos Papadimitriou and Umesh Vazirani

9 Grading

Plus/minus grading will be used for this course. The grading for this course would be based on 7–9 homework (25%), 2 midterms (25% each) and a final exam (25%). Homework will consist of only problem solving exercises. There will be no programming assignments. We would rather focus on algorithm design and analysis. The homework will be due one week from the posting date in class. Thus if a homework is posted on a Friday, the due date would be the next Friday. Note that late homework will not be accepted. Students are asked to strictly follow the following regulations while working on their homework.

- Write your name, section number, name of collaborators (see Collaboration) on the front page.
- Make sure your writing is readable by another human being.
- You should be as clear and precise as possible. Sloppy answers would get fewer points.
- While writing algorithms, first write in the details in english what your algorithm does, then write a pseudocode, prove correctness (if asked), and analyze the algorithm (if asked). Explanation of the algorithm with examples and figures will secure more points.

10 Exams

The two midterms will be held on March 1 and on April 5, respectively. They will be held outside of class between 6:30P – 8:30P 140 SH. Dates and times of the final exam will be announced by the Registrar around the fifth week of the semester. Watch for updates from the Registrar. Once exam times and schedules are announced we will post it on our course website. All the exams will be closed book exams.

11 Collaboration

In exams, any kind of collaboration will not be accepted. Up to a limited extent collaboration is encouraged for solving the homework assignments. Each student is allowed to discuss homework with at most two other students. A student should use those discussions for solving problems they have attempted before, but were not able to solve on their own. In no means, should they use this chance to just copy the solution from others. They will be expected to understand a solution they have turned in. Also a student should write the solution in their own words. So, if solutions of two students are identical, it will be considered plagiarism (except in a few cases where solutions are bound to be equal). A student should also mention the names of their collaborators and level of collaboration in the solution sheet they turn in. If you are unclear about what constitutes academic dishonesty, contact the instructor or consult the CLAS Code of Academic Honesty at [http://clas.uiowa.edu/students/handbook/academic-fraud-honor-code](http://clas.uiowa.edu/students/handbook/academic-fraud-honor-code)

12 Attendance

Students are expected to attend all the classes and exams, and to submit the homework within the due dates. It is also worth noting that this course will follow the University and College of Liberal Arts and Sciences (CLAS) policies that require that students be allowed to make up missed examinations and
assignments due to illness, certain University activities, circumstances beyond a student’s control (such as a death in the family), or mandatory religious obligations. See http://clas.uiowa.edu/students/handbook/attendance-absences for more details on this policy. Attendance will not be marked, however there is a strong correlation between attendance and performance in the course. For most students, to be successful in this course will at the minimum require consistent attendance.

13 Effort Level

According to University guidelines, a student should expect to work for 2 hours per week (outside the classroom) for each course credit. This is a 3 credit course and so you should expect to spend on average about 6 hours per week studying lecture notes and the textbook, solving homework, preparing for exams, etc. However, the “6 hours per week” estimate is an average and it also presupposes that you attend classes regularly, pay attention in class, visit me with your questions during my office hours, etc.

14 Departmental Information

Department of Computer Science, 14 MacLean Hall. The office of the DEO, Prof. Alberto Segre, is located here.

15 Administrative Home

The College of Liberal Arts and Sciences (CLAS) is the administrative home of this course and governs its add/drop deadlines, the second-grade-only option, and other policies. These policies vary by college (https://clas.uiowa.edu/students/handbook).

16 Electronic Communication

Students are responsible for official correspondences sent to their UI email address (uiowa.edu) and must use this address for all communication within UI (Operations Manual, III.15.2).

17 Accommodations for Disabilities

UI is committed to an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as mental health, attention, learning, vision, and physical or health-related condition) by registering with Student Disability Services (SDS). The student should then discuss accommodations with the course instructor (https://sds.studentlife.uiowa.edu/).

18 Nondiscrimination in the Classroom

UI is committed to making the classroom a respectful and inclusive space for all people irrespective of their gender, sexual, racial, religious or other identities. Toward this goal, students are invited to optionally share their preferred names and pronouns with their instructors and classmates. The University of Iowa prohibits discrimination and harassment against individuals on the basis of race, class, gender, sexual orientation, national origin, and other identity categories set forth in the University’s Human Rights policy. For more information, contact the Office of Equal Opportunity and Diversity (diversity.uiowa.edu).

19 Academic Integrity

All undergraduates enrolled in courses offered by CLAS have, in essence, agreed to the College’s Code of Academic Honesty. Misconduct is reported to the College, resulting in suspension or other sanctions, with sanctions communicated with the student through the UI email address (https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code).
20 CLAS Final Examination Policies

The final exam schedule for each semester is announced around the fifth week of classes; students are responsible for knowing the date, time, and place of a final exam. Students should not make travel plans until knowing this final exam information. No exams of any kind are allowed the week before finals (https://clas.uiowa.edu/faculty/teaching-policies-resources-examination-policies).

21 Making a Complaint

Students with a complaint should first visit with the instructor or course supervisor and then with the departmental executive officer (DEO), also known as the Chair. Students may then bring the concern to CLAS (https://clas.uiowa.edu/students/handbook/student-rights-responsibilities).

22 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 must uphold the UI mission and contribute to a safe environment that enhances learning. Incidents of sexual harassment must be reported immediately. For assistance, definitions, and the full University policy, see https://osmrc.uiowa.edu/

Acknowledgement. This syllabus is made by consulting the syllabi of the same course taught in the past by Prof. Sriram Pemmaraju and Prof. Kasturi Varadarajan.