Syllabus

Com S 311

Spring 18

Staff

- Instructor: Pavan Aduri, 112 Atanasoff Hall. `pavan@cs.iastate.edu`.
- Instructor. Kevin Liu. 209 Atanasoff Hall. `jialiu@iastate.edu`
- Teaching Assistant. Nikhil Bansal. `nbansal@iastate.edu`
- Teaching Assistant. John Hansen. `johnch@iastate.edu`
- Teaching Assistant. Xiaoyuan Li. `forbesii@iastate.edu`
- Teaching Assistant. Trent Muhr. `muhr@iastate.edu`.
- Teaching Assistant. Hugh Potter. `hdpotter@iastate.edu`.
- Teaching Assistant. Nasim Sabetpour. `nasim@iastate.edu`
- Teaching Assistant. Marios Tsekitsidis. `tseki@iastate.edu`
- Teaching Assistant. Xiaochen Yang. `yangxc@iastate.edu`
- Teaching Assistant. Menglu Yu. `mengluy@iastate.edu`
- Teaching Assistant. Evan Woodring. `woodring@iastate.edu`

Lectures and Recitations

- Section A: Tuesday, Thursday 8:00–9:15AM. Gilman 1352, Pavan Aduri.
- Section B: Tuesday, Thursday 5:10–6:25PM, Coover 2245. Kevin Liu.
- Section 1: Tuesday, 9:00–9:50AM, Gilman 0611, Hugh Potter.
- Section 2: Tuesday, 10:00–10:50AM, Gilman 1312, Hugh Potter.
- Section 3: Monday, 10:00–10:50AM, Gilman 1114, Trent Muhr.

- Section 4: Monday, 10:00–10:50AM, Atanasoff B0029, Hugh Potter.
- Section 5: Tuesday, 1:10–2:00PM, Gilman 0611, Marios Tsekitsidis.
- Section 6: Wednesday, 9:00–9:50AM, Carver 0160, Nasim Sabetpour.
- Section 7: Wednesday, 10:00–10:50AM, Atanasoff B0029, Trent Muhr.
- Section 8: Wednesday, 1:10–2:00PM, Coover 1012, Marios Tsekitsidis.
- Section 9: Tuesday 11:00–11:50AM, Sweeney 1160, Trent Muhr.

Office Hours Pavan's office hours are in Atanasoff 112, Kevin's office hours are in Atanasoff 209. TA office hours are in Pearson 0145.

Monday. 11-12 (Hugh); 2-3 (Nasim), 3-4 (Marios), 4-6 (Menglu), 6-7 (Kevin)

Tuesday. 9-10 (Xiaochen), 9:30–11 (Pavan), 11-12 (Hugh). 12-1 (Trent), 2-4 (John)

Wednesday. 11-1 (Nikhil), 2-4 (Evan), 4-6 (Menglu), 6-7 (Kevin)

Thursday. 9-10 (Xiaochen), 9:30–11(Pavan), 12:30–2:30 (Xiaoyuan)

Friday. 9-10 (Marios), 10–11(Trent), 11-12(Marios)

Course Objectives.

- Know a set of standard algorithms (and data structures) and be able to model a problem to use them.
- Gain a strong foundation in designing algorithms based on common techniques, including greedy, divide and conquer, dynamic programming, etc.
- Be able to reason about correctness of algorithms, either by proof or providing a counter example.
- Be able to recognize intractable problems and have an idea on how to develop approximation algorithms.
- Be able to implement algorithms given their description.

Course Topics (Tentative)

- Formalisms, Problems, Proofs
- Big O and other asymptotic bounds
- Common data structures, including hash tables, trees, and containers, and algorithms on these data structures
- Sorting and searching
- Graphs and graph algorithms
- Greedy algorithms
- Dynamic programming
- NP completeness
- Approximation algorithms and Heuristics

Exams. There are two midterm exams and a final exam. Midterm exams are on **Feb 22 and April 3**. Please note that these are night exams.

Homeworks and Programming Assignments. Homeworks and programming assignments will be assigned over the semester. There will be around 5–8 Home works and 2–4 Programming Assignments. **A programming assignment and a homework might be assigned at the same time.** All programming assignments must be written in Java and submitted electronically to the Blackboard system. Homeworks can be either hand written or typed. Homeworks should be submitted in a physical dropbox located in Atanasoff Hall. **A homework and/or programming assignment will be due during the dead week.**

Grading

- Midterm Exam 1: 10 %
- Midterm Exam 2: 15%
- Final Exam: 25 %
- Homeworks: 30%
- Programming Assignments: 20%

Letter Grades. We will curve to assign letter grades. Average will be $C+$. Minimum cumulative numeric grade required to avoid F is 45%. We will divide the range 100 to *Average* into equal size buckets and assign grades $A, A-, B+, B, B-$ and $C+$. Similarly, we will divide rye range 45 to *Average* into equal size buckets and assign grades $D-, D, D+, C-, C$.

Text Book. The Algorithm Design Manual, Steven S. Skiena, Springer.

Optional Text
Introduction to Algorithms, Third Edition Cormen, Leiserson, Rivest, Stein, MIT Press

Academic Dishonesty Policy. The class will follow Iowa State Universities policy on academic dishonesty. Anyone suspected of academic dishonesty will be reported to the Dean of Students Office. Please see
`http://www.dso.iastate.edu/ja/academic/misconduct.html`

Disabilities. Iowa State University complies with the Americans with Disabilities Act and Sect 504 of the Rehabilitation Act. If you have a disability and anticipate needing accommodations in this course, please contact your instructor to set up a meeting within the first two weeks of the semester or as soon as you become aware of your need. Before meeting with instructor, you will need to obtain a SAAR form with recommendations for accommodations from the Disability Resources Office, located in Room 1076 on the main floor of the Student Services Building. Their telephone number is 515-294-7220 or email `disabilityresources@iastate.edu`. Retroactive requests for accommodations will not be honored.

DeadWeek. This class follows the Iowa State University DeadWeek policy as noted in section 10.6.4 of the Faculty Handbook.

Harassment and Discrimination. Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon race, ethnicity, sex (including sexual assault), pregnancy, color, religion, national origin, physical or mental disability, age, marital status, sexual orientation, gender identity, genetic information, or status as a U.S. veteran. Any student who has concerns about such behavior should contact his/her instructor, Student Assistance at 515-294-1020 or email dso-sas@iastate.edu, or the Office of Equal Opportunity and Compliance at 515-294-7612.

Religious Accommodation. If an academic or work requirement conflicts with your religious practices and/or observances, you may request reasonable accommodations. Your request must be in writing, and your instructor or supervisor will review the request. You or your instructor may also seek assistance from the Dean of Students Office or the Office of Equal Opportunity and Compliance.

Contact for Information On University Policies. If you are experiencing, or have experienced, a problem with any of the university policies (on academic dishonesty, dead week, harassment and discrimination, ,religious accommodation) email academicissues@iastate.edu.