Syllabus

CS 181AG: Network Algorithmics

Instructor: Arthi Padmanabhan

Fall 2022

Description. This course presents the core components of the internet and the algorithms that make the internet run faster. Students will become familiar with how the internet works, common networking bottlenecks, and principles to overcome them. They will also read and discuss current topics related to the internet. Topics include routing, IP lookup, packet classification, traffic management, and security.

Schedule. Classes start Aug 29 and end Dec 7. Lectures will take place Mondays and Wednesdays in person in SHAN 3425 from 1:15 – 2:30 (Section 1) and 2:45 – 4 (Section 2). The midterm will be a take home 1-hour exam to be completed the week of Oct 25 – 28. The final will be a take home 3-hour exam to be completed during finals week.

Lectures. The primary way to learn the course material is through lectures. Lecture format will be interactive. Lectures (slides and video) will be available on the course website right before class. The book "Network Algorithmics" by George Varghese (link on course webpage) will complement the lectures.

Assignments. There will 10 assignments total, all released and to be submitted through Gradescope. They will generally consist of a programming problem, some short answer questions, and a reading with some questions. A basic Python3 installation will suffice for the programming portion. You will have a total of 5 "life happens" late days to use with no penalty. For extenuating circumstances, please come talk to me.

Discussion. A goal of this course is to interact with the material through discussions with your peers and me. This semester we will be using Slack for discussions. Please let me know if by the start of classes, you have not received an email invitation to the Slack CS181AG workspace.

Evaluation. This course contains 10 assignments, 1 midterm exam, and 1 final exam. Assignments are worth 60% of your grade, the midterm will be 15%, and the final will be 23%. The last 2% are for participation and can be earned as follows: 1% for dropping by office hours in the first two weeks to introduce yourself and 1% for filling out the midterm evaluation.

Academic Honesty + Collaboration Policy. All students in this course agree to follow the Harvey Mudd Honor Code. Students are strongly encouraged to discuss course material and assignments with each other. However, writing up the code and final answers to assignments should be done individually. The best information about the internet is on the internet - please do use the internet to learn more about the topics covered, but do not Google answers to homework questions or review problem sets/solutions from similar courses.

Accessibility. HMC is committed to providing an inclusive learning environment and support for all students. Students with a disability (including mental health, chronic or temporary medical conditions) who may need accommodations in order to fully participate in this class are encouraged to contact the Office of Accessible Education at access@g.hmc.edu to request accommodations. Students from the other Claremont Colleges should contact their home college's Accessible Education officer.