CS144 Administrative Details

CS144 Staff

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Summary

CS144 is an introductory course on computer networking, specifically the Internet. It focuses on explaining how the Internet works, ranging from how bits are modulated on wires and in wireless to application-level protocols like BitTorrent and HTTP. Students implement a handful of low-level protocols and services, including reliable transport, IP forwarding, and a Network Address Translation device. Students gain experience reading and understanding RFCs (Internet protocol specifications) as statements of what a system should do. The course grounds many of the concepts in current practice and recent developments, such as net neutrality and DNS security.

Prerequisites

The formal prerequisite for CS144 is CS110. CS144 is a systems course: a significant portion of your grade is based on programming assignments in C. Most core, low-level systems today (OS kernels, cloud services, databases, networking stacks) are still written in C, for good reasons. If you are not very comfortable with C and familiar with gdb, then you will likely find the programming assignments very difficult. There will be a gdb tutorial early in the quarter as a refresher course, but if you have never used gdb before we cannot stress strongly enough that you should learn how to as soon as possible. It will cut your debugging time by half or more. And since most programming time is spent debugging...

Credits

If you are an undergraduate, you must enroll for 4 credits. Graduate students may enroll for either 3 or 4 credits.

Grading

Computer networking covers a wide range of topics and expertise, ranging from low-level protocol design and implementation to analytical evaluation of networking performance. The ethos behind CS144’s grading scheme is that mastery of a subset of this broad area demonstrates a mastery of the material. Correspondingly, CS144’s grading scheme weighs your high grades and accomplishments more than your lower grades and misunderstandings. In practice, this leads to a slightly complicated grading formula.

Your grade in CS144 is based on your performance on written problems (a midterm, a final, two homeworks) and five programming labs. Excelling at either demonstrates a sufficient understanding of the material. Correspondingly, CS144 has a “max” policy for your final grade, using a weighted sum of your writing and programming grades.

If your writing grade is higher than your programming grade, then your final grade is \( \frac{2\text{writing}}{3} + \frac{\text{programming}}{3} \). If you programming grade is higher than your writing grade, the weighting is reversed; \( \frac{\text{writing}}{3} + \frac{2\text{programming}}{3} \)
Your programming lab grade is a simple average of the five assignments.

Because the final exam is cumulative but the midterm only covers half of the quarter, acing the final demonstrates you have mastered the material regardless of a possibly poor midterm grade. Correspondingly, your exam grade is $\max(\text{final}, \text{avg}(\text{final}, \text{midterm}))$.

Finally, you are responsible for two writing homework assignments during the quarter. Each week has a new writing assignment, which generally asks you to describe and justify a solution to a specific network design questions. You must pick two (only two) of these homework problems to hand in. After your graded homework is returned to you, you have the option of, within one week, rewriting and resubmitting based on the feedback given. If you resubmit, you will be regraded on the resubmission and this grade is the final grade. You may resubmit any given homework only once. Homework assignments comprise one quarter of your writing grade (exams are the other three quarters).

Putting it all together, the grading formula is:

\[
e = \max(\text{final}, \text{avg}(\text{final}, \text{midterm}))
\]

\[
h = \text{avg}(\text{hw}_1, \text{hw}_2)
\]

\[
w = \frac{3e+h}{4}
\]

\[
p = \text{avg}(p_1, p_2, p_3, p_4, p_5)
\]

\[
\text{grade} = \max(\frac{2w+p}{3}, \frac{w+2p}{3})
\]

If you feel you were graded incorrectly on a homework, lab, or exam, please let us know as soon as possible. At the end of the quarter, we take the distribution of numerical grades and decide what ranges correspond to what letter grades. We don’t decide on grade ranges a priori because sometimes exam questions are harder or easier than we thought they would be, and so want to be able to adjust accordingly. However, CS144 is not graded on a curve: we decide on grade ranges, not class population percentages. **We do not publish what numerical grade ranges correspond with letter grades.** We keep these secret because we’ve found publishing them sometimes leads a few students on the edge to try to scrape up a few points here or there through persistence rather than a mistake in grading, and this reduces our ability to address other student questions.

**Late Policy**

Programming labs are due on Wednesday, at the beginning of class. You may turn in any programming lab in late, until Friday, 8:59PM. If you turn an assignment in late, its maximum grade is capped at 90%. This does **not** mean 10% is deducted. A 75% will be a 75%, but a 95% will be a 90%. The idea is that you can turn in something that mostly works and receive full credit for your work, rather than fall behind in class in order to make up for a penalty. Programming labs turned in after Friday, 8:59PM receive no credit.

Homework assignments are due on Sunday, 5:59PM. Late homework assignments receive no credit. Homework rewrites are due approximately one week after they are handed back (the due date/time will be clearly stated).

If a real-life event (wedding, funeral, sports matches, hospitalization, etc.) disrupts your ability to turn an assignment in on time, please let us know as early as possible. Clearly, some such events, such as a trip to the emergency room, are less expected than others, and we understand. Emailing the staff 48 hours before an assignment is due asking for an extension because you have a wedding to go to might be met with a frown; emailing us two weeks before the assignment is due and we’ll do our best to accommodate.

**Incomplete Policy**

Our general policy is to never give incompletes for CS144. If you are falling behind or something life-changing comes up, please contact us immediately and we’ll try to work something out. Generally, taking too heavy a course load is not a great justification: courses last a quarter for a reason. But, for example, two years ago H1N1 knocked out a few
students for 2 weeks, and we were able to make accommodations and give advice on how to proceed. The reason we don’t allow incompletes is because programming assignments use VNS. Grading them outside the normal quarter is exceedingly difficult. Furthermore, chances are you’d rather not spend the winter holiday filling in protocol header fields.

**Office Hours, Piazza, and Email**

If you have a question about the class material or a programming assignment, you have three ways to ask: in person (office hours, after class, etc.), Piazza, and email to the staff email address. Here are some guidelines on how you can ask questions to maximize the amount and quality of help we can provide.

Please use Piazza for questions about programming assignments and general course questions. Using Piazza means that everyone can benefit from the answer; it may be that other students had the same question. Please do ask questions about the requirements of the assignment, the provided code, or the expected behavior of your system. Please don’t ask questions that relate to how to implement a solution. For example, please don’t ask questions that include or ask for source code. If you have any uncertainty about whether a question is OK, please email the course staff. We’ve made it so that you can ask questions anonymously on Piazza. You can find answers to almost any general C question on the web.

One note about Piazza: we’ve left the discussions from last year available for you to read and view. However, some assignments have changed slightly since last year (in particular, programming lab 5), such that some of the answers or discussion might be incorrect. So please don’t hesitate to ask questions even if they repeat something asked last year.

If you have questions about your particular solution to an assignment, you should come to office hours. If you are an SCPD student, you can arrange to talk with a staff member over the phone.

Please use email for personal questions (e.g., arranging an appointment, questions about grading). Email is better than office hours for questions on grading because it may be the staff member at office hours wasn’t the one who graded your assignment.

Generally speaking, it’s almost impossible to answer programming assignment questions over email. The round-trip time is too long, and it’s not interactive. Email discussions often boil down to needing a TA to find a bug for you, which isn’t very educational.