Problem Set Policies

Thanks to the entire Fall 2013 CS103 staff for helping out with this handout!

This handout contains information about the problem sets for CS103. Specifically, it contains

- **General advice** on how to approach problem sets;
- **Submission instructions** so you know how to turn in the problem lets;
- **Late policy** information, which includes information about free late periods;
- **Citation policy** information about what you are permitted to cite;
- **How we grade**, so you have a better sense of what we're looking for; and
- **Regrade policies**, which outlines our policy on regrading assignments.

We strongly recommend that you read through this handout before starting Problem Set One.

General Advice

Here are some general pointers about how to approach the problem sets.

- **Look over the problems early.** Many questions on the problem sets require creative insights to solve. We suggest reading over all the problems as soon as the problem set goes out so that you will have the time to play around with them over the course of the week.

- **Attend recitation sessions.** The weekly recitations sessions in CS103 cover problems similar to those on the problem sets. If you need help getting started, we strongly suggest stopping by a recitation session to get some insights.

- **Visit office hours when needed.** The problem sets in CS103 are challenging. If you get stuck or need a clarification on any of the problems, you are encouraged to attend office hours. We have lots of office hours each week, so hopefully there's a time works for you!

- **Work on your own before working in a group.** Although you are allowed to work in groups (see the handout on the Honor Code for more information), we recommend that you make an effort to solve all problems on your own before working in groups. Many mathematical results are easily understood once presented but hard to develop independently, and it takes practice to be able to look at a problem and understand how to approach it. Working in a group can help you come up with the necessary insights, but if you're not careful you might end up relying on others to come up with these insights for you. 40% of your grade comes from the exams, so this may hurt your overall grade.

- **Don't submit your first draft.** When you come up with an answer to a problem and write a formal proof, your first iteration will likely have some unnecessary digressions, logical errors, or excess detail. We recommend writing a draft of each problem and cleaning it up before submitting. Taking the time to rewrite your proofs and clarify your reasoning will both cement your understanding of the material and help your overall assignment grade.

- **Read feedback carefully**. We *strongly* encourage you to read over all of the graders' feedback on your graded problem sets. The TAs try to give targeted, constructive feedback on how to improve your proofwriting skills, which we hope will help you improve over the course of the quarter.

Submission Instructions

There are three ways to submitting assignments. Any of these options will work for us:

1. Hand in a physical copy of your answers at the start of class. This is probably the easiest way to submit if you are on campus.

2. Submit a physical copy of your answers in the filing cabinet in the open space near Keith's office (Gates 178) in the Gates building. If you haven't been there before, it's right inside the entrance labeled "Stanford Engineering Venture Fund Laboratories." There will be a gray, metal filing cabinet with a slot labeled "CS103" where you can drop off your solutions.

3. Send an email with an electronic copy of your answers to the submission mailing list. We have a dedicated mailing list (cs103-aut1314-submissions@lists.stanford.edu) where you can email electronic copies of the problem sets *(note that this is different from the normal staff mailing list)*. If you do submit electronically, please include the string "[PS*n*]" in the subject line, where *n* is the number of the problem set. (When submitting checkpoint problems, please put the string "[PS*n* Checkpoint]" in the subject line instead). You should receive an automatic confirmation that your submission was received; if you don't, please retry your submission and contact the staff list if you still don't hear back. If you do submit electronically, **submit your assignment as a single PDF**.

A note on electronic submissions: we grade electronic submissions by searching the submissions mailing list for all emails with the subject line for the current problem set. If you send your submission to the wrong mailing list or have an incorrect subject line, we might not find your problem set and it might not get graded. If you submit electronically and don't hear back with feedback at the scheduled time, you might want to double-check to make sure you submitted to the right place and with the right subject line.

If you are an SCPD student, you are welcome to submit your assignments through the SCPD office, but we strongly suggest also submitting through one of the above methods as well. It sometimes takes a few days for assignments to get from the SCPD office to the graders, so if you submit purely through the SCPD office you might not get feedback on your work in time for the next problem set.

Late Policy

This course is fast-paced and we'll be moving through material quickly. Because of the diversity of the material we'll be exploring, you may find that some homework assignments are easier or harder than others. For extra flexibility, you have three free "late periods" you can use. Each late period lets you submit one of the assignments one class period past the due date without penalty. For example, a problem set due on Friday could be submitted at the next Monday's lecture using a late period, and a problem set due on Monday could be submitted on Wednesday using a late period. You don't need to let us know that you'll be using a late period; we'll be sure to collect late submissions from the normal drop-off locations.

While you may use these late periods on any of the assignments (except Assignment 9), **you may use at most one late period per assignment**. Late periods may be used on the checkpoint assignments, though we would strongly prefer if you tried to get them in on time because they're designed to help prepare you for the rest of the problem set. Turning them in late will make it almost impossible for us to offer feedback before the main assignment comes due. Assignment 9

must be submitted on-time and late submissions will not be accepted, since a late period would carry the assignment due date past the final exam start time.

If you have already used all of your late periods and submit an assignment past the due date, we will multiply your grade on that assignment by 0.75. To make it possible to release solutions to problem sets on time, **no submissions will be accepted more than one class period after the assignment due date, even if you use a late period.**

If you have any extenuating circumstances, such as a family or medical emergency, and need extra time to complete the assignments, please contact us by emailing the staff list. We're more than happy to accommodate. However, all requests for extensions must be received before the assignment due date.

Standing on the Shoulders of Giants

Over the course of CS103, we will write a lot of proofs across different domains – sets, graphs, computing machines, etc. When working on the problem sets, you may find it useful to reference a result that was proven elsewhere in the course. If so, that's totally fine; most of modern math is done by building off of existing results. If you do reference a result we developed elsewhere in the course (perhaps in lecture, in the course notes, in previous problem sets, on an exam, etc.), please be sure to make a note of where the result came from so that when we're reading over your proofs, we can check that you're using that result properly.

Some of the exercises in the course notes and recommended readings are interesting and important results whose proofs are nontrivial. In the interest of fairness, we require that you not cite any results given as exercises in the course notes or recommended readings unless you first prove those results.

In the interest of fairness to other students, we discourage you from citing results from outside CS103. Some of the problems on the problem sets follow immediately from advanced theorems from other math classes that most CS103 students probably aren't aware of, and it would not be fair for us to give full credit to proofs of the form "Using Dumbledore's Second Gryffindor Theorem as proven in *History of Magic, ...*" Therefore, if you do cite a result taken from outside CS103, we may deduct points. **All the results in this class can be proven purely with the material from lectures and earlier problem sets**, so if you find yourself needing to build off more advanced mathematical results, you are probably missing a simpler line of reasoning.

How We Grade

When grading assignments, we will grade both for correctness and for clarity. When looking for correctness, we will check whether your reasoning is correct, whether you prove the desired result, whether all your intermediary steps are valid, etc. If your proofs contain logical errors, or prove statements other than the ones you needed to prove, or assume results beyond the scope of the course, we may deduct points for correctness.

When reading proofs for clarity, we will grade your proof based on how clearly it lays out its argument. If your proof proceeds on unnecessary tangents, doesn't clearly articulate where it's going, uses unnecessarily cryptic notation or shorthand, etc., then we may deduct clarity points.

By reading both for clarity and for correctness, we hope to help you understand how to write clean proofs as well as correct proofs. It's possible to write correct proofs that are entirely inscrutable or clean proofs that are completely incorrect. By taking both into account while grading we hope to guide you on the path to clear, elegant, correct proofs.

Regrade Policies

We do our best in this course to grade as accurately and as thoroughly as possible. We understand how important it is for your grades to be fair and correct, especially since the graders' comments will be our main vehicle for communicating feedback on your progress. That said, we sometimes make mistakes while grading – we might misread what you've written and conclude that your reasoning is invalid, or we might forget that you proved a key result earlier in your answer. In cases like these – where we've misread or misinterpreted your proof – you're encouraged to contact the course staff and ask for a regrade. We want to make sure that your grade is accurate and will try to correct any errors we've made.

To ask for a regrade, you can stop by office hours and ask Keith or the TA running the office hours to look over the problem in question. To make it easier for us to do this, please write up a short paragraph describing, for each part you'd like regraded:

- What problem you want us to look over,
- What specific deduction you think is incorrect, and
- Why your initial answer is correct.

We ask you to provide this writeup because we typically "batch up" regrades for each problem set and handle them all at once. Having a short writeup of what to look over makes it significantly easier for us to process all our regrades.

All regrade requests for problem sets must be received within **one week** of the date in which the problem set is returned, and regrade requests for exams must be received within **one week** of the date in which the exam is returned. After this point, we will not consider any regrade requests. We want to encourage you to review all feedback on the problem sets and exams as soon as possible so that you can learn from the feedback we leave.

Please do not ask for regrades based on the severity of a deduction. We grade the problem sets based on criteria we've developed over several quarters and try to make our deductions as consistent as possible. If your proof contains an error and we made a certain point deduction for it, we will do our best to make the same deduction on all problem sets that contain the same error. Therefore, if you ask for a regrade because you believe that we have deducted too many points for a particular error in your proof, we will almost certainly not adjust the point total; it wouldn't be fair to reduce a deduction we applied uniformly to all problem sets.

It seems strange that I need to write this here, but please treat the course staff civilly and respectfully when asking for a regrade. The TAs and I sometimes make honest errors, and if that happens we're happy to correct them. Although we know it's frustrating if your grade is lower than you expect it to be, we expect you to be considerate when asking for regrades. We reserve the right to refuse regrade requests to students who are disrespectful when asking for a regrade.