CS 189 Introduction to Machine Learning
Fall 2018

HW Guidelines

Etiquette

- We were *extremely* tolerant for HW 1 in terms of submission quality. In the future, you have two (and only two) options[1]:
  - Typed, with equations typeset using LaTeX, Word equation editor, or similar.
  - Immaculately handwritten and scanned, where "scanned" does *not* mean a crooked phone photo from a far distance.

  Going forward, we will not waste our limited resources trying to decipher a solution's sloppy, miniscule, or otherwise substandard handwriting and will simply give it a zero. This is an adult course. You should take as much pride in the submission as if you were (say) submitting a report to your boss.
- Similarly, when submitting on Gradescope, you need to need to select the correct pages for each problem, as we do not have time to hunt through your submission for each problem.
- If you wish to refer to previous parts of your solution, or solutions to other questions, please state precisely what you established. We do not have the time to cross reference with your solutions to earlier problems.
- Jokes/memes: +0.5 pts. on the problem if it's funny, -20 pts. on the homework if it isn't.

On Regrading

The instructors and GSIs are human, and we will make mistakes when grading. We are allowing regrades on Gradescope *at this time* as it has not yet been abused. With this in mind, consider only asking for a regrade if you feel you have been clearly and severely misgraded on a problem. Please make also consult the common errors outlined below; it may be possible that you believe that your solution is correct, but actually contains one of these errors. We will almost certainly not change our stance on issues of solution clarity and aesthetics. In particular, two similar errors/omissions may incur different deductions based on the clarity of the overall solution.

On Sampling

As we are only grading a random subset of problems from the HW, you may have chosen the "wrong" ones to do and received a poor grade. Try to not worry about this too much as your lowest HWs are dropped and the HWs are only worth 30% of the grade.

[1] If you are a DSP student, and this is an issue, please contact the course staff.

General Errors

- It is imperative that you check the "Erata" post for the relevant homework on Piazza. This will be pinned. If you provide a solution for an early version of a problem that does not incoporate the changes listed in erata, you may lose some, most, or all credit.
- Large blocks of equations with no words explaining the proof. At least include explanantions in the margin.
- Poor notation and/or introduction of new symbols with no explanation. If you don't know the notational convention, ask course staff.
- "Reverse proofs": starting with the item to be proven as true, performing many steps which may or may not be if and only if, arriving at something akin to $1 = 1$, and claiming success. Not only is this poor aesthetically, it is often wrong. Clearly state what you are aiming to prove, prove it, and state what you proved.
- Writing out matrix decompositions, e.g. $X = U\Sigma V^\top$ or $X = UDU^\top$, without stating which decomposition you are invoking. For decompositions like the SVD, it is helpful to include dimensions, since different dimension conventions may writing substantively different manipulations (see the notes of SVD and Spectral Decomposition, e.g.).
- It is often better to say nothing than to claim something false. See: unneeded invocations of the Central Limit Theorem.

Tips

- Once you have solved a problem, you may want to rewrite it out in a legible and logical way for the instructors. More often than not, the way that you personally arrive at a solution is *not* the way you should communicate it to a grader (or colleague or journal/conference reviewer).
- Try to use previous parts of a solution to solve subsequent ones. The order of subproblems is usually intentional.
- If you are unsure what you can assume for a problem, go to office hours and ask an instructor.
- Try to make your solutions as concise as possible, subject to the constrain that they are complete and understandable. You may, in the course of solving a problem, realize that some of your earlier steps were unnecessary. In this case, we encourage you to *rewrite* the solution removing all extraneous argumentation. This will make the graders happier, and potentially more lenient. On the other hand, solutions containing to many unnecessary points may lose credit, both because they are less clear, and because they demonstrate that you are unsure what precisely must be demonstrated to complete the problem.