Homeworks, Quizzes & Assignments: Guidelines & Grading Rubrics

Statistics 310 • Probability & Statistics • Spring 2015

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Homeworks

Weekly homework assignments (11 in total) will be given throughout the semester. They will be assigned on Thursdays and due the next Thursday at 1pm; due dates and assignment dates are given in the separate *Schedule* document. No late homeworks will be accepted; no exceptions. Homeworks can be completed cooperatively, but each student must provide their own write-up that reflects their individual thinking. Any resources, including Wolfram alpha or `R`, can be used to complete homework assignments. If Wolfram alpha or another computing device is used for calculations, please state the input and output from the program.

All homeworks will be administered entirely online through `OpenStaxTutor.org`. For each question, students will be asked to answer the question by showing their full work either by typing into the space provided or uploading a photo of their work. Then, multiple choice answers will be presented and students will choose the answer corresponding to their work. Once the answer is submitted, students will receive immediate feedback on their answer and a fully worked solution to the question.

To receive full credit for each homework assignment students must:

- Answer 80% or more of the questions correctly.
- Show full work for all questions on the assignment.

In other words, students can miss some problems (and use the solutions as practice examples) and still receive full credit for the assignment. But, students must fully complete ALL questions on the assignment, otherwise points will be deducted.

Finally, if there is a mistake on any question or solution on the OpenStax page, the *first student* to correctly identify the mistake and post the correct solution on `Piazza` will receive *+5 points* towards their supplemental assignments (bonus points) score.

Quizzes

Short quizzes (9 in total) will be given throughout the semester. These will be assigned on Thursdays and due the next Tuesday at 1pm; due dates and assignment dates are given in the separate *Schedule* document. No late quizzes will be accepted; no exceptions. Quizzes must be completed individually, in one contiguous time interval, and are *pledged via the Honor Code*. All quizzes are open book, open notes, open Wolfram alpha, R or another calculating device. Internet use outside of OpenStax Tutor is NOT permitted.

Each quiz will consist of 3-4 short questions that:

- Test understanding of current concepts.
- Test higher level reasoning using current concepts and skills.
- Test material previously covered in the course.

These should take about 30 minutes to complete, but no strict time limit is enforced. Again, quizzes must be completed in *one contiguous time segment* and time stamps will be checked to enforce this.

Quizzes will be structured similarly to homework assignments where students will be asked to provide their fully worked answers in the space provided or upload a photo of their work before being presented with multiple choice answers. Feedback on answers and solutions will not be posted until the quiz is due.

Supplemental Assignments

Instructions:

- You can earn up to 5% bonus points towards your overall grade by completing supplemental assignments. (5% is approximately equal to dropping your lowest homework and quiz scores.)
- To receive the full 5% bonus, you must earn a total of 110 assignments points. (Getting over 110 points, still earns 5%).
- All supplemental assignments are fully optional and students can complete any combination of them.

Statistics in Practice Essays: 20 points each. Up to 3 essays accepted.

- Choose a current or recent news article or blog post related to statistics. Be sure to choose an article that is (i) interesting to you and (ii) which you can relate to topics learned in class.

  Hint: Try keyword searches for "statistics", "probability", "big-data" and etc. in major news outlets. The instructor also has collected fun magazine articles related to statistics in DH 2098. Students may come during office hours to choose an article and make copies.

- Write a 500 - 600 word essay that addresses the following questions:

  1. Why did you choose the article? Why are you interested in this topic?
  2. What did you learn from the article?
  3. How does the article connect to what you have learned in class?
  4. What questions are you left with after reading the article? Is there anything that was left unexplained or about which statistical evidence for the conclusion is lacking?

- Hard copies of these essays can be turned in at any time throughout the semester to either the instructor's mailbox or in class. The last day that essays will be accepted is **April 16**.

Grading Rubric:

20 points	Makes insightful comments on the connection between the article and Stat 310 as well as critical evaluations of the statistical evidence presented. Well-written and well organized with NO spelling or grammatical errors.
16-19 points	Article accurately summarized with thoughtful comments and connections. Well-written with minor spelling and grammatical errors or minor flaws in organization and flow.
12-15 points	Too little emphasis on connections to material from class and critical evaluation of the statistical evidence. Minor flaws in spelling and grammar as well as organization and flow.
8-11 points	Did not adequately answer questions raised in the guidelines. Several spelling and grammar mistakes as well as organizational flaws.
< 8 points	Too short. Poorly written. Failed to answer questions raised in the guidelines.

Challenge Problems: 10 points each. 9 assigned.
There will be 9 total challenge problems - difficult word problems or mathematical proofs - appended to the end of each quiz assigned through OpenStax Tutor. These are to be completed individually in a contiguous time interval (i.e. no breaks!) and are *pledged via the Honor Code*. The problems are open book, open notes, and open Wolfram alpha / R, but not open Internet. Ample partial credit will be given for the problems based on sound mathematical reasoning with a detailed grading rubric given below. Students may also wish to consult the "Problem Solving Strategies" document on the course webpage for guidance and suggestions on approaching challenging mathematical problems.

Grading Rubric:

10 points	Correct solution. Excellent progress through strategy levels that exhibits intuition, creativity, perseverance, and reflection. Proper justification of all steps and strategies used.
8-9 points	Correct solution or nearly the correct solution (modulo a minor calculation error, for example). Progress through most of the strategy levels, but some justification is lacking.
5-7 points	Nearly correct solution, but with important steps or strategies left unexplained. Alternatively, an incorrect answer reached, but excellent progress through beginning strategy levels and a viable solution path outlined.
3-4 points	Incorrect solution. Approached the problem well and outlined the relevant context, but logical flaws or mistakes in the proposed solution path.
< 3 points	Incorrect solution. Trivial attempts made to solve the problem. Flawed problem set up and solution paths.

Netflix Project & Competition: 60 points.
Students will have an opportunity to complete a small data science project and competition that uses concepts from joint distributions to mine the Netflix movie rating data. (Actually, a data set very similar to the Netflix data will be used, as we are not allowed to use the original Netflix data due to privacy concerns!) This project will be **assigned on February 26** and is due on **April 16**. Data sets for this project, sample R scripts, and the project description and assignment will be posted on the course website on February 26. The project can be completed individually or in teams of two. Also, in addition to the project (worth 60 points), students will have an opportunity to compete to build the best mini movie recommendation system. The student or team that most accurately predicts movie ratings for unseen movies will receive 10 extra points. Further details of this competition will be given when the project is assigned.

Additional Opportunities: Variable points.
Additional opportunities to earn points will be available throughout the semester and announced in class. These will include items like completing surveys, attending interesting statistics seminars, or being the first to find and correct mistakes in OpenStax Tutor.