

1 Grading Guidelines

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The following should be regarded as what they are: merely *guidelines* rather than hard-and-fast rules.

1.1 General Grading Guidelines

The following guidelines apply to grading both homeworks and projects:

- The grading should be as consistent as possible:
 1. For each assignment, between different students.
 2. Between different assignments, though that is less important than (1).
- To help achieve consistency, it may be a good idea to hold off on completing grading, until the late submission deadline has passed. Of course, end-of-semester and other deadlines may preclude this.
- For what seem to be minor problems, $1/2$ a point can be taken off. However, when the overall assignment grade is recorded it should be rounded up to the nearest integer.
- The guidelines given here are not inviolate and can be violated when it makes sense to do so.

1.2 Exam and Homework Grading Guidelines

- Not all homework/exam questions have exactly one answer; in fact, some homeworks questions may be vague, intentionally or sometimes unintentionally. The student's answer to such questions should be graded against what the question (and any clarifications made to it) actually specifies and not only by comparison with the solution. For such questions, the provided solution may be only one of many possible solutions.
- It is the student's obligation to ensure that work turned in is readable by any average person. A grader should not feel obligated to decipher illegible scribbles.
- It is the student's obligation to clearly indicate which answers are canceled; if there are multiple answers to the same question, then only the last answer will be graded.
- A reasonable answer should get at least 50% of the maximum points for that question.

- If a question is marked [RECORD], then the grader should record the grade obtained for that question individually for each student.

1.3 Project Grading Guidelines

- A project may be submitted multiple times before the project submission deadline. Only the last submission should be graded. It is expected that students do not abuse this privilege.
- If a project does not compile, the student should usually get no more than 65%. Depending on how complete the project is, it may get appreciably less. In this case, it is useful to look for README or other files the student may have enclosed explaining the status of his or her project.

If it doesn't compile because it appears to be missing a file, then the grader **may** attempt to contact the student by email. However, the grader has no obligation to do so, since it is entirely the student's responsibility to ensure that the submission is complete.

- If a project compiles and passes all its runtime tests it should be guaranteed at least 85% assuming it has met **all** aspects of the project specification. Note that this does not imply that a project which fails a single test cannot get more than 85%.
- The remaining 15% should be a judgement call on the grader's part. Things like the following:
 - Quality of code. Is it modular? Does it exhibit cut-and-paste reuse rather than reuse using programming constructs?

If a reader cannot understand the code because the code logic is convoluted with assignments to the same variable interspersed in complex control flow, then that is often an indication of poor code quality. 5-10 points may be taken off for particularly egregious submissions.
 - Is it well-commented? Note that the important point is that the program should be easily understandable and not that it meet some bureaucratic guidelines that every function have comments in such-and-such form. Also note that a program understandable on its own with minimal or even no comments is preferable to a convoluted program which needs heavy commenting to explain its convolutions.
 - Is it over-commented? Does it exhibit the `i++; /* increment i */` syndrome?
 - Consistency of formatting and naming conventions. No particular style is mandated as we all have our favorites. The consistency though is important and IMHO a important indicator of how well

crafted the program may be. 5-10 points may be taken off for particularly egregious submissions.

- Are there unnecessary fixed limits built into the code? Are there arrays declared with a fixed size which does not naturally follow from the problem domain?
- Are there magic numbers hardwired into code rather than being referenced via symbolic names. This is such an egregious violation of good programming practice that even a single violation can be penalized by taking off 5 points.
- Does the project use the method(s) and algorithm(s) specified in the assignment. If not, you can take off much more than 15%, depending on how far off the project went from the spirit of the assignment.
- The grader should usually merely be glancing at the code. If a test case has failed, then an attempt may be made to try finding out what caused it to fail, but usually it would be unreasonable to spend more than a couple of minutes on it.

A graded project should be returned to the students either by hardcopy or electronically. The returned material should contain at least the following:

- a) The overall grade (and breakup if applicable).
- b) A copy of the student's README file.
- c) Log of the compilation.
- d) Some description of the test case(s) used along with inputs and expected outputs.
- e) Log of the program execution.

Additionally it may also contain listings of portions of the students programs with the grader's comments added.

1.4 Recording Grades

Before assignments are returned to the student, the grader should record those grades electronically. Since **mycourses** is not capable of performing the computations needed for determining the overall grade, it is advisable to use a spreadsheet like Google Sheets, to maintain the master copy of the grades for the class. After the master copy has been updated, the changes can be uploaded over to **mycourses** so that they can be accessed by students.

It is important to ensure that the spreadsheet distinguishes between assignments which were not turned in and those for which a zero grade was obtained. The former should not be used in computing course statistics whereas the latter should be used.

1.5 Accreditation Requirements

For accreditation purposes, it is necessary to track the work done by students. Specifically, if a question on a homework or exam is marked [RECORD], then the grader should record the grade obtained for that question individually for each student.

1.6 Assignment of Final Grades

Letter grades will be assigned strictly monotonically based on the overall grades with major input from the grader. If at all possible, students whose overall grades differ by a very tiny amount will receive the same letter grade.

Assignment of final grades will be done during a meeting after all work has been graded. For this meeting, the grader should provide a tab containing a summary of all the class grades (details of grades for individual assignments can be on other tabs). Headings on the summary tab should be fixed so that they are always visible as the content of the tab are scrolled. This tab should contain the following columns:

1. A single column for the student name titled **Student Name**. Each entry should be of the form *Last, First*.
2. A single column for the students B-number titled **B-Number**.
3. A single column for the grade for each project assigned titled **prj N** for N in 1, 2...
4. A single column the grade for for each homework assigned titled **hw N** for N in 1, 2...
5. A single column for the grade for each quiz assigned **qz N** for N in 1, 2...
6. A single column for each exam titled **exam1**, **exam2** and **exam3**.
7. A single column for the overall project grade out of 100, titled **PrjAvg** with lowest project dropped as per the course grading policy.
8. A single column for the overall homework grade out of 100, titled **HwAvg** with lowest homework dropped as per the course grading policy.
9. A single column for the overall quiz grade out of 100, titled **QzAvg** with lowest quiz dropped as per the course grading policy.
10. A single column for the overall exam grade out of 100, titled **ExAvg** with lowest exam dropped as per the course grading policy.
11. A single column for the overall course grade out of 100 titled **Total** weighted as per the weights specified in the course grading policy.

12. A single column for the assigned letter grade titled **Grade**. This column will be completed during the meeting.
13. During the meeting, the cutoffs used will be recorded in the spreadsheet, possibly on a separate tab.

There should be a row for each student with the rows set up in alternating colors so that they are easy to scan. These rows should be sorted in descending order by the **Total** column.

Additionally, at the top of the sheet there should be rows giving course statistics for each individual column:

1. Number submitted titled **Number**.
2. Maximum grade titled **Max**.
3. Average grade titled **Average**.
4. Minimum grade titled **Min**.

A printout should be provided before the meeting of this tab in landscape mode with the fonts and column widths adjusted so that all columns fit within a single sheet. If that is impossible and students can be uniquely identified by their names drop the B-number column.