# CS 1: Introduction To Computer Programming, Fall 2013

## Final exam: cover sheet

**Due:** *Friday, December 13, 09:00:00*

This is the CS 1 final exam cover sheet. You should read this cover sheet in its entirety **before** you begin the exam.

## Preliminaries

- This exam is due on **Friday, December 13, 09:00:00**. Please submit your text answers electronically through http://csman.cs.caltech.edu, just like you do with your assignments.
- There is **no time limit** on this exam. Yes, you read that right. No time limit. Take as long as you like, except that you *must* hand the exam in on time or else face significant late penalties (9.0 marks/day). You can work in non-consecutive sessions if you like. You can use the Python interpreter (see below), take your time debugging, etc. We estimate that this exam should not take longer than six hours if you have kept up with the material and understand it.
- This exam may cover any of the material in the course up to and including lecture 21, though it will naturally be more oriented towards the material in the second half.
- This is an **open-book** and **open reference** exam, with some restrictions. You may not consult the work of any other student in CS 1 (*e.g.* a copy of their assignments), or printed notes written up by other students in the course or even not in the course. You are allowed to consult any notes you yourself have prepared, or any notes prepared by a CS 1 TA or the instructor. You're also allowed to consult your own assignments, including any comments on them submitted by your grader. Also, you may consult the online Python documentation for Python 2.7.5 located here (and also linked from the CS 1 home page under "Course software"). Make sure that you are consulting the documentation for the correct version of Python! The most recent Python documentation refers to a version of Python which

is not the version we are using in this course, and this could cause a lot of confusion.

- You may **not** ask questions about the exam problems on internet forums. Also, in the (unlikely) event that you find some code online which happens to solve one of the exam problems, you may not read it, consult it or use it in any way.

- You may consult the PDF (electronic) versions of the CS 1 lectures. However, we recommend that you not print out paper copies of the CS 1 lectures in the interests of saving trees. We also **strongly** recommend that you use the "Course syllabus" web page on the course website to help you find the lecture(s) covering particular topics.

- This is an **open interpreter** exam. You may use WingIDE or a Python interpreter to test your code. However, we recommend that you don't spend large amounts of time debugging your code. We're more interested in seeing that you know what you're doing than that every single detail is perfect (this is in sharp contrast to the assignments!).

- There is **no collaboration** on this exam. Show us what *you* know. Do not discuss the exam with anyone (in or outside of Caltech) before the final due date under *any* circumstances, even if you have both turned in your answers already. You also can't discuss the exam with a TA or the course instructor, except to ask for clarifications of questions. If you attend a lab section before the due date, do not discuss the exam with the TA. Do not not look at anyone else's code, and do not let anyone else see your code.

- Be aware that violating the reference or collaboration policies is a violation of the Honor Code, and will be dealt with accordingly.

- Here is how your exam should be formatted. Note that **we will deduct a significant proportion of your final grade (up to 1/4 of the total grade) if you violate any of these rules.** If you have any questions about these rules, contact us before starting the exam and we'll clarify them.

    1. Type up your exam in any **plain text** editor of your choice, including WingIDE. A plain text editor is one which saves text in an unformatted state; therefore, you may not use word processors like Microsoft Word unless you know how to make it save files as plain text (and you *will* lose marks if you do this wrong!). We recommend you use WingIDE since you are already familiar with it, and since it definitely saves text as unformatted plain text.

    2. Your final exam should consist of one **plain text file** called `final.py`.

**You should write your full name and your CS cluster login name in comments on the first two lines of each file, like this:**

```
# Name: Joe Blow
# CMS cluster login name: jblow
```

(Naturally, you'll substitute your own names for the names given above.)

3. Your final exam should consist of executable Python code. Python code you write should not be commented-out, except that normal Python comments in your code are OK. In addition, all Python functions you write should have docstrings. For instance:

```
# Problem 4.3
def howdy(s):
    '''Print a cool greeting.'''
    print "Howdy, %s" % s
```

4. **Do not** submit code in non-plaintext form; Microsoft Word documents, Rich Text documents, and PDFs are examples of non-plaintext formats. Again, **Microsoft Word documents, Rich Text documents and PDFs are not acceptable submission formats!** If you do not know what format your editor saves its files in, you should ask someone more knowledgeable (like your TA) to help you.

5. **Make sure** that all of the lines in your midterm file have **no more than 80 characters in a line**. Most text editors (including WingIDE) will show you what column you're on as you're editing, so this will help you keep the line lengths to a maximum of 80 characters. WingIDE also has a helpful red line at the 80-column mark, so if your lines go over this, they're too long.

6. Here is a tip which will make it much easier to tell if your exam is formatted correctly. First, copy the files containing your final exam answers to your CMS cluster account. Then type this at the terminal prompt:

```
% more final.py
```

(where the `%` is the terminal prompt; yours may be different). If the files are displayed as you expect them to look on the terminal, then there is probably no problem. If any of the files don't display at all or look like random garbage, then it is almost certainly in the wrong format and you'll have to ask a TA for help. If there is a warning about the file being a binary file, it is definitely in the wrong format. Note that changing the file extension (*e.g.* from `.pdf` to `.txt`) does *not* change

the file format, so don't do that. Alternatively, you may find that the file is readable but the indentation is messed up, or there may be some very long lines. This probably indicates that it is a valid text file, but that you have a problem with your text editor (for instance, you may be using tabs instead of spaces or letting lines wrap instead of hitting the return key to begin a new line). You should fix this unless you want to lose marks.

7. At this point, you've seen examples of good and bad style and you should have at least skimmed the Python Style Guide posted on the CS 1 Moodle page. Therefore, if your code exhibits very bad style you will lose marks for it. We will mainly be concerned with aspects of style that have been covered in the assignments.

- **If you did not read the preceding formatting rules, go back and read them now.** Remember: you **will** lose a lot of marks for not following the rules!
- In addition, we will take marks off if your code is extremely convoluted and/or hard to understand, even if it's technically correct. Good commenting can improve matters, but try to find simple solutions to problems where possible!
- The exam will receive a floating-point score between `0.0` and `18.0`, based on your performance across all of the problems. There is no minimum grading on the final exam, and the point value of each problem is indicated next to the problem. There is also **no rework** on the final — it's an exam, after all, not an assignment.
- If you need a clarification of anything on the exam after you've started writing it, you may send email to your TA or to the instructor (Mike) at mvanier@cs.caltech.edu.

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Go here to take the final.

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