

Syllabus

CS2316 Data Manipulation for Science and Industry Fall 2015

Personnel

Lecturer: Bill Leahy
Email: bleahy@gatech.edu
Office: CCB 105 (Inside 104B)
Office Hours: TBA

TA's

Jacob Evans – Head TA
Kate Unsworth
Keren Rempe
Daniel Kim
Jessica Jiang
Nicole Gottret Murillo
Zeba Munshi
Moussa Hodjat-Shamami
John Hagood
Gabriela Adler
Michael Tarbell

TA Contact Information will be posted on T-Square.

Purpose

CS2316 Data Manipulation for Science and Industry is a course designed for Industrial Engineering students and other students who will be working in a modern data-rich computerized environment. The world is awash with data and this course will give you some tools, techniques to help convert data into useful information. We will be using the Python language. [Why Python?](#) To get the maximum benefit from the course: CODE. Write code, try new things. After lecture that night try what was shown in lecture. Don't be afraid to experiment. The best way to get to Carnegie Hall is to practice, practice, and practice. Learning a computer language and associated tools is the same!

Course Objectives

There are detailed course objectives here: [Detailed Course Objectives](#)

A short summary is presented here:

- Students will be able to program Python programs using subset of data types and using assignment, method calls, while loops, for loops, and conditionals.
- Students will learn how to use and manipulate several core data structures: Lists, Dictionaries, Tuples, and Strings.
- Students will be able to construct simple graphical user interfaces that drive their programs.
- Students will understand the process and skills necessary to effectively deal with problem solving in relation to writing programs.
- Students will be able to test and debug programs.
- Students will understand and employ objects, functions and modularity.
- Students will be able to read and write data to and from text and formatted text files such as Comma Separated Value (CSV) files and eXtensible Markup Language (XML) files.
- Student programs will be able to interact with websites and load data from them (web scraping).
- Student programs will be able to read and write data to/from SQL databases.
- Students will be able to manipulate data from one format into another.

Lecture and Recitation

Lecture: M, W, 2:05 am – 2:55 am CULC 152

Recitation(s):

A1 4:35 pm - 5:55 pm Instr Center 107

A2 6:05 pm - 7:25 pm Instr Center 205

A3 4:35 pm - 5:55 pm Instr Center 107

A4 6:05 pm - 7:25 pm Instr Center 105

A5 4:35 pm - 5:55 pm Boggs B6A

A6 6:05 pm - 7:25 pm Van Leer C341

GR 6:05 pm - 7:25 pm Van Leer C341

Course Materials

- Required Text: “How to Think Like a Computer Scientist”: Learning with Python (3rd edition) by: Peter Wentworth Jeffrey Elkner, Allen B. Downey, and Chris Meyers. Free Online Version: Open Book Project
- Required Text: “Dive into Python 3” by Mark Pilgrim. Free online version: DiveIntoPython3.org ISBN: 978-1430224150
- Optional (But highly Recommended) Reference Text: Programming in Python 3 2nd ed (PIP3) : Mark Summerfield - Addison Wesley ISBN: 0-321-68056-1

- Software:
 1. Python (version 3.4.2) <http://www.python.org> (If you run on Mac OS X, you will need [ActiveTcl](#) as well)
 2. Pymysql for Python3

Letter Grades

Letter grade assignments are given according to the following cutoffs with no rounding:

90.00 <= A <= 100
 80.00 <= B < 90.00
 70.00 <= C < 80.00
 60.00 <= D < 70.00
 0 <= F < 60.00

Grading Policies

The grading breakdown is as follows:

Homework (10)	40%
Quizzes (8)	40%
Final Exam	20%
Total	100%

Homework: There will be approximately 1 homework per week. They will normally be due Wednesday at 11:55 pm. There will be a 6 hour grace period. Homework assignments turned in during the grace period will incur a 25% penalty.

The last homework assignment will be due during the final week of class.

Proper Code Style Code clarity is crucial for your homework in this class. For this reason, using good style (good variable names and good commenting practices) is required on all coding homework assignments. Failure to sufficiently comment or use good style will result in a deduction of up to 10 percent of your grade.

Timely handling of grade disputes: Disputes of grading on homework, assignments, quizzes, etc. must be discussed within one week of their return or posting. Should you find yourself having an issue with a grade, contact your grading TA. After you talk with your TA, if you are not satisfied you may contact the head TA or course instructor.

Late Work and Missed Exam Policy: Assignments must be turned in before the date and time indicated to be considered "on-time". There are no makeups for missed quizzes. Any request for

exceptions to this policy should be made in advance when at all possible. Valid excuses are: documented illness, judicial procedures, military service, death in the family, or official school functions. Documentation must be provided on letterhead with the signature of a physician, supervisor, or other appropriate official.

Events such as sleeping through your alarm, alarm malfunction, not being aware of the exam will not be considered excuses.

Most weeks there will be a quiz in lecture on Friday. The final quiz given the week before Dead Week will be a makeup quiz. Anyone who missed a quiz for a valid excuse (see below) will make up the missed quiz at that time. For the rest of the class this quiz will not count but will serve as a practice quiz for the final exam. Everyone will take the same makeup quiz.

If you miss more than one quiz for valid excuses we will handle this on a case by case basis.

If you miss a quiz without a valid excuse you receive a 0.

Valid excuses are: documented illness, judicial procedures, military service, death in the family, or official school functions. Documentation must be provided on letterhead with the signature of a physician, supervisor, or other appropriate official.

If you arrive to a quiz late you may be refused admittance and get a zero.

Email Policy for this Course

Please try to use your official Georgia Tech email when sending email to us. Please attach cs2316 to the beginning of the subject of your email! Please also indicate who you are within your email. Make sure your email works.

TA Help Desk

When? Click on the TA Help Desk Link

Where? The College of Computing Building Room 107A

TAs will be available in this room according to the schedule posted. Take advantage of this useful opportunity for help!

Assignment Submission

Almost all assignments will be submitted electronically via T-Square.

Access T-Square at <https://t-square.gatech.edu/>

Collaboration

Quizzes, exams and timed labs are to be completed alone with no outside assistance.

Collaboration with other students in this CS 2316 class is an important learning method. We require pair programming for several homework assignments in this class because programming

in pairs creates higher quality code and improves student learning. However, collaboration does not mean that you can use code written by other students. Please read the "What Is Allowed" document for examples of how to collaborate without plagiarizing or sliding into academic dishonesty. The following guidelines will help you understand the difference between collaboration and plagiarism.

Students may only collaborate with fellow students currently taking CS 2316, the TA's and the lecturer. Collaboration means talking through problems, assisting with debugging, explaining a concept, etc. You should not exchange code or write code for others.

For individual assignments, each student must turn in a unique program. For pair programming assignments, you and your partner should turn in identical assignments.

Your submission must not be substantially similar to another student's submission.

Collaboration at a reasonable level will not result in substantially similar code.

For all homework assignments, you must write comments at the top of each file you turn in detailing the following information:

Include your name (and partner's name(s) for pair programming assignments)
Include your gt email address

Include your collaboration statement - the wording of the collaboration statement should be:

"I (we for pair programming assignments) worked on the homework assignment alone, using only this semester's course materials."

OR

"I/We worked on this homework with [give the names of the people you worked with] and referred to [cite any texts, web sites, or other materials not provided as this semester's course materials for CS 2316]."

Keep in mind that you are allowed to work with other students currently in CS2316. Do give credit though using the collaboration statement. Bill and the current TA's should be treated as course material and need not be listed in the collaboration statement.

You are expressly prohibited from sending any assignments to fellow students via any electronic means. Doing so will be considered Academic Misconduct. This includes storing code online in an unsecure fashion.

Course Expectations

- Lecture attendance is required.
- Keep up with the reading. Readings should be completed before class on the date indicated on the Calendar.
- Use the course discussion forums wisely to have discussions about course material with your classmates and the TAs. You are also expected to follow good Internet etiquette.

- Do your homework! Learning to program is like learning a sport. You cannot win the Super Bowl by pulling a historic all-nighter. It takes actual practice and time to get good. The assignments that are given are opportunities to learn the material that you will be responsible for on exams. Use collaboration wisely to help you learn.
- Take responsibility for your course work submissions; it is your job to make sure that you successfully turned in what you meant to turn in. Be sure to verify your submission. This is how you make sure that you get credit for the work you do.
- Be prepared when you go to get help from a TA or your instructor. Bring your work with you.
- Take initiative. Begin your assignments early and if you think you need help, come prepared. Use the resources that are provided for you, and be determined to succeed from the start.
- Read, understand, and follow the [Georgia Tech Academic Honor Code](#)