Elements of Software Design
CS 313E
Fall 2016

[51320]: MWF 12:00 pm - 1:00 pm GDC 2.216
[51325]: MWF 2:00 pm - 3:00 pm GDC 2.216

Instructor: Dr. William C. (Bill) Bulko (bulko@cs.utexas.edu)
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Phone: 512-471-7021
Office Hours: posted at http://www.cs.utexas.edu/~bulko/

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Office Hours: M 3:30 - 5:30 at desk 2
                          W 3:30 - 5:30 at desk 3

[51325]: Pei-Chi (Peggy) Huang (peggy@cs.utexas.edu)
Office: TA Station on the first floor of GDC
Office Hours: Tu 10:30 - 12:30 at desk 2
                          Th 2:00 - 4:00 at desk 3

Course Website: http://www.cs.utexas.edu/~bulko/2016fall/313E.html

Course Prerequisites: CS 303E or equivalent.

Course Textbook: "Problem Solving with Algorithms and Data Structures Using Python" by Bradley N. Miller (Author), David L. Ranum (Author). Required.

University Calendar: Key dates are listed at http://registrar.utexas.edu/calendars/15-16.

Course Objectives:

This is the second course in the Elements of Software series for non-CS majors. As per the prerequisite for this class, it is assumed that you know a programming language (such as C, Java, or Python) at the level taught in CS 303E. The emphasis of this course will be on software development using object-oriented methodology.

In this course, we will learn:

- how to analyze and design software.
- how to create reusable software components and to compose programs from already available components.
- some basic data structures and algorithms and how to match the data structures and algorithms to problems.
- how to evaluate programs for their functionality and their performance.

Although we will be following the required text book closely, our classes will be a venue for solving problems, writing programs, and exchanging ideas.

Class Attendance and Participation Policy:

Your performance in this class will be determined by you! It will require a strong dedication to learning the material, and may require a substantial time commitment to complete the programming assignments.

- **Class attendance is mandatory.** You are expected to show up on time for class, and stay for the whole lecture.

- Cell phones **must** be silenced and put away for the entire lecture unless use is approved by the instructor. You may not make or receive calls on your cell phone, or send or receive text messages during lectures.

- You are responsible for all material posted to the web site and sent as email. Ignorance of such material is no excuse. You are responsible for all material presented in the lectures. Note that lectures are likely to include some material that is not available elsewhere (such as in the textbook).

- Religious Holy Days: by UT Austin policy, you **must** notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, I will give you an opportunity to complete the missed work within a reasonable time after the absence.

- Your conduct in class should be conducive towards a positive learning environment for your class mates as well as yourself.

Grading Procedures:

Your performance in this class will be evaluated using your scores for ten programming assignments and three exams. Homework and exams will be graded by the TA, and the scores will be entered on Canvas. Check your scores regularly on Canvas to make sure that we have entered them correctly. If you wish to dispute a grade, you have one week from the date the grade is posted to do so. Send your TA an e-mail and see if you can resolve your differences. If you cannot resolve your differences, you may send me an e-mail explaining the situation. *We will not entertain any grade disputes after one week.*

Homework (40%):

There will be programming assignments that you can complete in the CS Lab. You may choose to use your own computer to work on these assignments. If you work on your home computer, you will have to download and install Python. There is a graphical development environment (IDLE) that comes with Python that you can also install.

The only way to learn programming is to program. Doing the programming assignments is crucial to performing well in class. Assignments will be given almost every week. Each assignment will have a clearly stated due date and time. Assignments start out being easy but get harder over the semester. If you are having considerable difficulty with Assignments 2 and/or 3, please see the Instructor immediately.

The assignments will require a substantial time commitment over several days. **Be sure to budget sufficient time to complete assignments before the deadline.**

Turn in your assignments on time. This permits grading to start promptly after the submission deadline so that assignments maybe returned promptly. **You can also turn your assignment in up to 24 hours late for a 10% penalty, or up to 48 hours late for a 20% penalty. After 48 hours past the deadline, your assignment will not be graded and you will receive a zero.** If you turn your assignment in late, you <u>must</u> notify the TA that you have done so. Canvas does not automatically inform us of your late submissions.

Specific grading criteria vary on each assignment. However, in general, programs that do not compile correctly on IDLE will receive no more than 80% of the possible points. Other point deductions are given for such things as: incorrect results, missing features, bad solution logic, no documentation etc. No matter what configuration of software that you have on your home computer, the assignment that is turned in must run successfully on the CS Lab configuration in order to be graded.

All assignments will be submitted using Canvas. **Remember to keep a copy of your source code (i.e. the .py file) somewhere, unedited after you submit it.** This will be useful in cases where

your program gets lost or corrupted, and the timestamp on the file can be used to prove you completed the assignment on time.

For assigned programs, the source code (.py file) must be turned in. The source code must be a text file that can be run through a Python interpreter. Word processing files (those created with Microsoft Word, for example, and ending with .doc extension) will not be accepted.

If you want us to help you debug your program, come to us during our office hours with your laptop and we will go through the program with you. Do **NOT** just e-mail the program to us for debugging unless we specifically ask you to do so. We will not respond to e-mails that have full length programs that have to be debugged.

Assignment Identification: All assignments must be submitted with the proper header, containing your name (as registered), your unique section number, and the assignment number at the top of the assignment. The format for the header will be specified in the assignment. That specification will override any other header specification.

In addition, because assignments are submitted as files on Canvas, they must have the correct file name, which will be specified in the assignment handout. You must also ensure that you turn in the assignment to the correct unique section folder - that is, the section you are currently registered in. Lost assignments are typically caused by turning in an incorrect file name and/or turning a file into the wrong section folder. Assignments which omit the header or are incorrect in any one or more of these requirements, will have the grade reduced by 5% of the maximum grade.

Exams (60%):

There will be three midterms, each worth 20% of your total grade. The three exams will take place during the regular lecture session, in the same room. The third exam will take place on the last day of class. **There is no final exam for this course.**

Make-up tests will be given only for the following reasons. In all cases you <u>must</u> provide some form of documentation.

- Ill health
- Family emergency
- Official UT conflict (Having three tests on the same day is *not* an official UT conflict!)

Questions concerning test grades should be given to me in writing along with your test within the next class day that the test is handed back. We will not entertain any disputes after that time.

Final Grades:

A standard plus/minus system will be used to calculate final grades:

94+	A
90-93	A-
87-89	B+
84-86	B
80-83	B-
77-79	C+
74-76	C
70-73	C-
67-69	D+
64-66	D
60-63	D-
0-59	F

Academic Integrity:

University of Texas Honor Code: the core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community. Each student in this course is expected to abide by this code. Any work submitted by a student in this course for academic credit will be the student's own work.

Study Groups

- You are encouraged to form study groups of 4-5 students to meet regularly (weekly is recommended) to discuss the course. Typically, you will review the lectures, do the reading, and attempt the homework independently before your weekly meeting with your study group. **Studying for tests together is permitted and encouraged.**

- While you are free to discuss the course material with your classmates and are encouraged to form study groups for the exams, collaboration on homework or programming assignments is **not** permitted. Helping a friend understand the intent of a homework or programming assignment specification is permitted.

- Students who work together too closely (e.g. design their solution together) should be aware that this is a form of cheating called collusion and is subject to academic penalties. Cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e-mail, an e-mail attachment file, a diskette, or a hard copy.

- If you are unsure about how to work together with your friend in a legal, helpful manner, do come and talk with us. Remember, it is always okay to "work together" with your professor or TA!

- You are responsible for turning in your own work on all assignments. **Unauthorized** collusion is not allowed and constitutes a violation of the university's policies on academic integrity.

- You are responsible for protecting your work from being copied by others. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment. Penalty for violation of this Code can also be extended to include failure of the course and University disciplinary action.

- During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations will result in failure of the exam, and may lead to failure of the course and University disciplinary action.

- **Do not post solutions to any problems on Piazza**.

The homework, programs, and exams must be the work of students turning them in. University policy (see Dean of Students' policies on academic integrity) will be followed strictly. We will be running a sophisticated program on all submitted assignments to detect plagiarism. If we do detect any cases of academic dishonesty, we will assign a grade of F to all students involved and refer the cases to the Dean of Students.

Acts that exceed the bounds defined by the approved collaboration practices will be considered cheating. Such acts include:

- Copying solutions, code, or programs from someone else or giving someone else your solutions, code, or programs

- Participation in a discussion group that develops a solution that everyone copies

- Posting your code to homework problems on Piazza or Facebook.

- Copying code from the internet (e.g. from Piazza or Facebook or other internet sites)

- Employing someone to write the solutions for you on homework assignment problems.

I urge everyone in the class to take appropriate measures for protecting your work. You should protect your files, homework solution sheets, etc. as deemed reasonable.

General University Notices and Policies

Use of E-mail for Official Correspondence to Students: All students should become familiar with the University's official e-mail student notification policy. It is the student's responsibility to keep the University informed as to changes in his or her e-mail address. Students are expected to check e-mail on a frequent and regular basis in order to stay current with University-related communications, recognizing that certain communications may be time-critical. It is recommended that e-mail be checked daily, but at a minimum, twice per week. The complete text of this policy and instructions for updating your e-mail address are available at **http://www.utexas.edu/its/help/utmail/1564** .

Documented Disability Statement: Any student with a documented disability who requires academic accommodations should contact Services for Students with Disabilities (SSD) at (512) 471-6259 (voice) or 1-866-329-3986 (video phone). Faculty are not required to provide accommodations without an official accommodation letter from SSD.

- Please notify me as quickly as possible if the material being presented in class is not accessible (e.g., instructional videos need captioning, course packets are not readable for proper alternative text conversion, etc.).
- Please notify me as early in the semester as possible if disability-related accommodations for field trips are required. Advanced notice will permit the arrangement of accommodations on the given day (e.g., transportation, site accessibility, etc.).
- Contact Services for Students with Disabilities at 471-6259 (voice) or 1-866-329-3986 (video phone) or reference SSD's website for more disability-related information: http://www.utexas.edu/diversity/ddce/ssd/for_cstudents.php

Behavior Concerns Advice Line (BCAL): If you are worried about someone who is acting differently, you may use the Behavior Concerns Advice Line to discuss by phone your concerns about another individual's behavior. This service is provided through a partnership among the Office of the Dean of Students, the Counseling and Mental Health Center (CMHC), the Employee Assistance Program (EAP), and The University of Texas Police Department (UTPD). Call 512-232-5050 or visit http://www.utexas.edu/safety/bcal.

Q drop Policy: The State of Texas has enacted a law that limits the number of course drops for academic reasons to six (6). As stated in Senate Bill 1231:

> "Beginning with the fall 2007 academic term, an institution of higher education may not permit an undergraduate student a total of more than six dropped courses, including any course a transfer student has dropped at another institution of higher education, unless the student shows good cause for dropping more than that number."

Emergency Evacuation Policy: Occupants of buildings on the UT Austin campus are required to evacuate and assemble outside when a fire alarm is activated or an announcement is made. Please be aware of the following policies regarding evacuation:

- Familiarize yourself with all exit doors of the classroom and the building. Remember that the nearest exit door may not be the one you used when you entered the building.
- If you require assistance to evacuate, inform me in writing during the first week of class.
- In the event of an evacuation, follow my instructions or those of class instructors.

Do not re-enter a building unless you're given instructions by the Austin Fire Department, the UT Austin Police Department, or the Fire Prevention Services office.