CS 105 – Intro Computing: Non-Tech

CS 105 is an introduction to basic concepts and applications in computer science. This course is an introductory course in computer science directed at non-technical majors. The goal of the course is to gain an understanding of how computing devices function through working with algorithms, data manipulation, and programming languages.

While students will learn how to program in Python 3 (a current, popular programming language), the focus of the course will be on design and implementation techniques, basic algorithmic structures, and logic. After completing this course, students should be able to think like a computer scientist.

1. Course Details

This is a very large class. As a result, it is important that all students follow the correct procedure to get help. As much a Dr. Harris would like to respond to student emails and meet each student for each issue, it is simply not possible. We have excellent support staff, including teaching assistants and course assistants. Please follow this procedure to gain help. Sticking to this procedure will help ensure all students have equal opportunity to gain assistance and help keep the course running smoothly.

1. Begin by using Piazza (subject to the rules in the Piazza section below). Often times your classmates can rapidly answer such questions. The entire course staff also monitors Piazza.
2. Contact one of the TAs or CAs. If Piazza does not resolve the problem, contact a TA or CA. As described below, we use a Google calendar to show free times for the course staff. You do not need to contact the TA for your lab section, instead pick any staff member that is free when you are according to the calendar.
3. If the TA or CA cannot resolve the issue, they will elevate the issue to Dr. Harris for you. Unfortunately, Dr. Harris cannot fairly field email directly from students.

Lecture (AL2 – M 1600-1730)

Professor
Albert F. Harris III, Ph.D., Esq.
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Office hours: by appointment made through your TA or CA

Teaching Assistants

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2. Topics Covered

- Core Concepts
  - CS Architecture Layers: Hardware and Software
  - Networking/Internet Technology
- Data Visualization
- Data Use and Manipulation
- Programming
  - Algorithm Basics
  - Functions, Variables, Classes
  - Control Structures/Paradigms
    - Conditionals
    - Loops
  - Data Structures
  - Specific types of algorithms
    - Searching
    - Sorting
  - Abstractions
    - Use and Design

3. Languages and Tools

- Microsoft Excel
- Python

4. Required Materials

- **Compass** (compass2g.illinois.edu) – Students are automatically enrolled in Compass. We are only using compass to post grades as the semester goes along.
- **Piazza** – Make sure you have access to the course Piazza. This is your main line of defense for assistance.
- **Course Website** – https://courses.engr.illinois.edu/cs105/sp2018/ - We will post all course materials needed by students to the course website. Check it often and definitely prior to (or during) each lecture.
- "**Python Programming: An Introduction to Computer Science**" 3rd Ed. Zelle. (required textbook) – *available at the Illini Union Bookstore*
- **Clicker 2** ("iClicker") (required) – *available at the Illini Union Bookstore*
  - You must go on Compass and register your iClicker before class to get attendance credit
- **MS Excel** (2010 or later) – Save all files in `.xlsx` format (not `.xls`).
- **Python 3** – Free from www.python.org (go to downloads), it is important that Python 3 and NOT Python 2 is used for the class.

5. Exams

There is one midterm and one comprehensive final exam. The final exam will be during the University-scheduled time slot during finals week. Conflict exams will be available for students that have a conflict as outlined in the student code: http://studentcode.illinois.edu/article3_part2_3-202.html. Conflict exam sign-ups will start about two weeks before the exam and end one week before the primary exam date.

The midterm exam and the final exam will be all multiple choice. The midterm is typically a 1- to 1.5-hour exam and the final is double that size.

6. Attendance and Participation

Class attendance is strongly encouraged. There is a direct correlation between students with poor grades and poor class attendance. During class, many of the homework and lab problems are solved. If you simply take notes, you should have very little difficulty with the course material. Additionally, there will be questions to be answered via the iClicker throughout various lectures. Every student is expected to answer each question (getting the correct answer is not as important as engaging in the process). Attendance will be taken based on these questions being answered. To be counted present, every question must be answered. While there is no penalty for missing classes (other than missing the material and likely struggling with grades, there is extra credit for showing up. Students who miss less than three (3) lectures will receive an attendance bonus: their final grade will be **increased** by three (**3**) percentage points (*e.g.*, if your final grade for the class was 90 out of 100, you will receive a 93). This is enough to move your grade from a B+ to an A- for example. You are each responsible for ensuring you have the iClicker with you, that it has batteries, and that it was registered. Dr. Harris will not take handwritten answers to the iClicker questions or in any other way count someone present in the absence of a working iClicker.

7. Grading

- **20%**: Lab Submissions
  - Each lab will have an associated submission that will be graded. the two (**2**) lowest lab scores will be dropped prior to calculating the lab-based component of the final grade.
- **40%**: Machine Problems (MPs)
  - These are assignments that are structured to give you more practice with the concepts learned in lecture and lab. Much of learning computer science is practice. Like a foreign language, the more you do it, the easier it is to learn.
- **15%**: Midterm
- **25%**: Final (comprehensive)

Your final grade is determined based on the above breakdown. Conversion to letter grades will be based on your final course percentage after a curve is applied. Of course, the curve will be determined after all grades are in.

Regrade requests must be made within **one (1) week** of the grade in question being posted and must be made through the channels discussed in lecture (beginning with a request to a TA, not the professor). Additionally, regrade requests will not be entertained if not accompanied by comparison to any answers posted, to the extent such answers exist. The professor reserves the right to deny regrade requests from any students that have made **two (2)** or more foundationless requests.

8. Deadlines, Late Turn-in, and Absentee Policy

Each assignment will have a deadline associated with it. Lab assignments must be turned in by the end of your lab period (epsilon a small grace period). Lab assignments not turned in by the deadline will receive a zero (**0**).

Late MPs will be graded, however, a full letter grade (10%) will be deducted per day late from the score. Once the score drops below 65%, it will become an automatic zero (0).

All assignments must be turned in via the electronic handin site used by the class (as will be explained). No emailed or hand-delivered assignments will be accepted. It is important that you follow the directions as to how to name files and check to make sure that you save your files prior to handing them in. It is also important that you leave only **one** version of your solution on the submission site. If multiple versions exist, the autograding script will choose one to grade and its choice will be final. This will be practiced during Lab 0.

A visit confirmation letter from McKinley Health Center (or other health centers) does NOT excuse you from assignments. You must get an absence letter from the Office of Dean of Students. All documentation for absences, including physician notes, must be validated by the Dean of Students.

9. Lab Policy

Each student must attend the lab for which they are signed up. Students may not make up a lab by attending a different lab section. Labs are to be done individually. Treat them like mini-quizzes. Do not discuss your labs with your neighbors.

10. Social Integrity

Whether in lab, on a message board, or via some other messaging system, everyone is accountable for treating each other with respect. There is zero tolerance for inappropriate content of any kind. If you are unsure if something is inappropriate, please do not post it. If you have a concern about a student or TA, please contact the professor or the course coordinator.

Do not share solutions to course assignments through any means. Unless explicitly stated, your work is expected to be your own.

11. Academic Integrity

Academic misconduct of any kind is taken very seriously by the University and the college. All cases of cheating will be reported to the University, your department, and your college. You should understand how academic integrity applies to computer science courses (https://wiki.illinois.edu//wiki/display/undergradProg/Honor+Code). Note that the sanctions for cheating on a programming assignment includes a loss of all points for the assignment **and** that the final course grade is lowered by one complete letter grade.

With the exception of any labs or assignments that explicitly state otherwise, your work in this class must be your own. That means:

- Your work must be entirely completed by your own hands. This means that all of the code that you submit that is part of your solution **must be typed by you**. This excludes any code the TA or professor gives to you as a template or starting point.
- As a result, this means you must **never send your solution** to a friend, even just for them to "look at it." We consider the act of sending a solution to a friend the same as copying a solution. (Sending a text message with a screenshot of your code is also sending your solution.) Be honest, do not engage in creative cheating or try to find loopholes. The rules will be liberally interpreted to fit the intention of the policy.
- Posting of working/partial solutions to labs, MPs, or any other class assignment or tests is not allowed on any forum.
- Be very careful about what you post on Piazza. If the instructor has not yet posted a solution to a lab or MP, you should not post code related to that lab or MP.

- The content of exams should NOT be shared under any condition. Even if the exam questions are covered in lecture, there is to be no sharing of any pictures or slides (unless approved by the instructor) that are used to help explain solutions.

Additionally, you are responsible for protecting your own work. In the past, we had cases of copying solutions from other students without their knowledge. To avoid having your work copied without your knowledge:

- Refrain from leaving source code lying around the lab (either in hardcopy or on screens)
- Protect your files!
    - If you are using a friend's computer, do not leave your work on their computer
    - Save your work in a secure location and remove any copies of your work from their computer (including emptying trash)
- Do not give your passwords to anyone
- Enter your passwords in a way that cannot be seen by others
- Do not leave a login session active on an unattended computer
- Never e-mail or share your work to a friend – even if they only need "help on just one small part"

12. Academic Accommodations

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, call 333-4603, e-mail disability@illinois.edu or go to the DRES website. If you have academic accommodations already in place with DRES, please contact the course coordinator with a copy of your letter so we can ensure accommodations in a timely manner.