Computer Science 125
Computer Science I
Spring 2018 MWF: 9:00 – 9:50 Lab: Thurs 12:30 – 1:50
Stuart Hall 308

Instructor: Dr. Stephen Hughes

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Office Hours: 315 Stuart Hall
Mon 10:00 – 11:00, 2:00 – 3:00
Wed 10:00 – 11:00
By Appointment or Open Door

COURSE DESCRIPTION

This course is an introduction to the fundamental concepts of computer science with an emphasis on problem solving and program implementation. Students will learn to conceptualize, plan, and implement programs using the Python programming language.

LEARNING OUTCOMES

Upon successful completion of this course, students will be able to:

- Discuss the importance of algorithms in the problem-solving process.
- Create and articulate algorithms for solving simple problems.
- Trace the execution of a variety of code segments and write summaries of their computations.
- Use a programming language to implement, test, and debug algorithms for solving simple problems using the following fundamental programming techniques:
    - Acquisition of data from multiple sources, including direct I/O, file I/O and random generation.
    - Naming and manipulation of primitive data
    - Organization of primitive data into compound data structures to facilitate processing.
    - Application of relational and logical operators to answer questions about the data.
    - Selection of appropriate conditional and iterative constructs to direct the sequence of instructions
    - Creation of named subtasks to aid in problem decomposition and algorithm verification
- Extract meaningful information from a variety of datasets.

CLASS ENVIRONMENT

This class will be taught in a practice-based environment. Some conceptual material will be introduced through lectures, but a majority of class time will be devoted to working interactively with the instructor and peers to co-develop and explore coding examples. You should expect to be called upon to present and discuss your work with small groups and with the class as a whole.

This course includes a lab component which invites you to practice targeted skills. You should use these activities to probe your understanding of the material: identify gaps, confirm comprehension, and formulate questions. Generally, lab activities will be posted on Wednesday afternoon and must be completed by class time on Friday. Lab exercises will frequently be followed by a "Post-lab assignment" that asks you to apply what you have learned in the lab to a new problem. Short quizzes will be given occasionally to ensure that you are keeping up with the pace of the class and to give you a sense of the level of mastery that is expected.

This class is expected to consume at least 150 hours of student work over the course of the term. To meet this expectation, you will need to work outside of our scheduled meeting time.

You should plan to dedicate a minimum of 10 hours per week to this class.

COURSE MATERIALS

Textbook:

Think Python: How to Think like a Computer Scientist (2nd edition)
Allen B. Downey, Green Tree Press, 978-1491939369

Note: The author of this book believes in free textbooks. It is available for download at the publisher's website: http://greenteapress.com/thinkpython2/thinkpython2.pdf. I will also post a copy on the Moodle site for this class. If you would like a tangible copy of the textbook, you can order it online for about $40.

You are required to have a (4GB min) thumb drive that you can use for coursework in this class. It is *highly recommended* that you dedicate the use of this drive *exclusively* to this class.

We will be using Python version 3 as the primary language for this class. This software is installed on the lab computers, but if you would like to install it on a personal machine, you may download it for free: https**://www.python.org/downloads/**

STUDENT ASSESSMENT

10%	**Labs Exercises and Quizzes**
40%	**Post-Lab Assignments**
30%	**Unit Exams:** Three in-class unit exams (10% each). These exams will occur on or about: Jan 29, Mar 2 & Apr 6
20%	**Comprehensive Final Exam** Apr 30, 2018

Letter grades will be assigned based on the following scale.

$90 \leq$ A- < 93	$93 \leq$ A	
$80 \leq$ B- < 83	$83 \leq$ B < 87	$87 \leq$ B+ < 90
$70 \leq$ C- < 73	$73 \leq$ C < 77	$77 \leq$ C+ < 80
$60 \leq$ D- < 63	$63 \leq$ D < 67	$67 \leq$ D+ < 70
	F < 60	

Your grades are considered confidential in accordance with FERPA
(See the Coe College Catalog or online at: http://www.coe.edu/academics/registrar/ferpa).

COURSE POLICIES

Attendance
I do not factor attendance directly into your grade. However, I believe that class attendance is vital to your success in this course; conversations held in class illuminate the class materials and should not be missed. Material covered during missed sessions is the responsibility of the student. ‘

Late Work
I value comprehension over strict deadlines. If you are unable to complete your work by the assigned deadline, come and talk with me about the obstacles that you are experiencing; I will be reasonable. I reserve the right to assess a 10% late penalty for work submitted after one week and to refuse any submissions made after two weeks. This course officially ends with the scheduled Final Exam session. No work for this class will be accepted beyond that point.

Office Hours
Office hours are an opportunity for you to clarify details you may have missed in class, discuss general computer science issues, or to have a profound conversation about the culinary differences between peas and lima beans. *It is time that is reserved for you*; I may appear busy, but you are not interrupting me – unless another student has arrived first. If you come to office hours with a problem on the assignment, you should come prepared to answer questions, as well as ask them. If you have questions regarding code, you also should come prepared with access to an electronic version of your work.

Academic Integrity
Honesty and integrity are qualities we value in ourselves and in others. You are expected to be fully aware of your responsibility to maintain the highest degree of integrity in all of your work. It is accepted that you have read and understood the standards for academic integrity outlined on page 41 of the Coe College Catalog (online at: http://www.coe.edu/academics/dean/academicintegrity), and will abide by these standards for this course.

I believe that you can learn a lot from your peers, both in the class and in the broader community. Therefore, I *strongly encourage* collaboration with both. However, do not mistake this as a license to cheat. It is one thing to *learn* from and with your peers; it is another to pass their work off as your own. With respect to writing code for this class:

- You are expected to document any collaboration that takes place.
- Absolutely no electronic transfer of code or written work between students is permitted.
- Any code that you "find" on the Internet must be cited, with an active link to that code.
- While you are encouraged to engage in conversations in online forums, under no circumstances are you permitted to solicit other individuals to complete your work for you.

Ultimately, YOU are responsible for all aspects of your submissions. Failure to adhere to these guidelines or the inability to explain and defend your submission to my satisfaction will be treated as a violation of academic integrity.

Students with Disabilities
Coe College will make reasonable accommodations for persons with documented disabilities. If you have a disability which may have some impact on your work in this course, please contact the Learning Commons' Student Disability and Academic Services Coordinator. All arrangements for accommodations must be handled through the Learning Commons; I am not able to offer individual accommodations without documentation from the Student Disability and Academic Services Coordinator.