MAT/PHY 131 Introduction to Computer Programming Syllabus
Agnes Scott College, Fall 2021, MW 3:10-4:25 in Campbell G-15
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Office hours: Mon 2:00-2:30, Tues 2:00-3:00, and by appointment.

Textbook: We're using a free online textbook called Fundamentals of Python Programming. It is available at https://runestone.academy/ . You must go to the website and register for the class; use our class name, ASC131Fall21, when you register. Always use this account for this class!

Course Philosophy
In this course, you will be using Python as a way to begin to understand computer science. Computer science, like many liberal arts disciplines, is a way to approach problem solving. During the semester, you will be learning the specifics of the Python programming language, but more broadly you will be learning to think about and solve problems that are amenable to computer science solutions.

Goals for the Course
- To address the question: "What is Computer Science?"
- To get you excited about programming. You can do this!
- To develop your problem solving skills.
- To widen your view of the range of disciplines to which computer science is important.
- To help you to learn the Python programming language.
- To help you to program as a way of expressing solutions to problems.

Objectives and Specific Skills
- To successfully use fundamental programming constructs and data structures
- To understand that debugging is an essential part of programming, maybe even the main part of programming
- To master fundamental programming patterns for problem solving
- To learn to cope with complexity
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Homework and Class Preparation
In this class you will have daily assignments, including reading assignments from the online textbook. The online textbook will provide a flipped classroom style of learning, meaning that I will not be spending a lot of time lecturin;, your primary source for new information will come from the book. The reading assignments are active assignments; you cannot just passively read the material you must interact with it. I will be able to gauge your level of interaction with the material from the online system.

Tips for success
- Programming can be notoriously time consuming. Budget your time and start early to avoid frustration. Your program is almost never going to work right the first time, so you need to

accept that and be comfortable with it taking several tries to get right.

- Start Small. A small program that is partially working is worth more than a large messy program that crashes.

- Always always feel free to ask questions!

- The materials in this class all build on each other. Therefore it is really important to keep up. You can't ignore one topic and hope it will go away as once we have introduced a new idea we will continue to use it throughout the course. If you do get behind let's talk so we can devise a strategy to get you caught up.

- It is almost inevitable that technical problems will arise. When they do, don't panic. I will not punish someone with a bad grade due to a technical glitch.

- In Class – We will be using computers in class every day, so be wary of distractions. It is very tempting to check Facebook, email, twitter, or whatever when the computer is in front of you. Don't do it!! It not only distracts you but everyone around you.

- Grading
  Your grade in the course will be determined using the following percentages. Participation will include attendance and activity/participation in class.

  Reading Assignments (including inline questions) 30%
  Participation (Attendance, In Class Activity) 10%
  In-Class Exercises and Projects 30%
  Exams (midterm and final, 15% each) 30%
  Total 100%

Autograded Work

- Much of the homework will be automatically graded, you will get immediate feedback as you run and test your work. You are encouraged to keep working and to get as many of the automatic tests to pass as you can. You WILL NOT be penalized for making lots of tries.

- The history slider on the programming problems in the book is there to encourage you to explore and try new things. Every new version of your program is saved, but you can always go back to a previous version if something you try doesn't work.

Honor code and group work: All students are expected to follow the honor code throughout the semester; all exams and assignments should be pledged.
I strongly encourage you to work on the homework in groups. I suggest that you work on the problems by yourself first, making a note of anything giving you trouble; then meet with your group and work through the remaining problems together; and finally submit the solutions by yourself. Every group member must submit her own solutions independently; just copying the group's answers is plagiarism and is unacceptable.

Getting help: Chances are that sooner or later you'll get stuck on something, so don't get frustrated. Think hard, and if you're still stuck, do something else for a while. (It's amazing how often that works.)
My office hours are above - these are times when I'm guaranteed to be in my office waiting to talk to someone. If you want to see me at other times, please let me know and we'll find a time.

Student learning assistants in the Math Learning Center will be able to provide help throughout the week. More details, including the schedule, will be posted on Canvas. You are encouraged to use this service, and should think of it as part of your weekly mathematics regimen. Finally, I can't emphasize enough that your classmates are your best source of help.

Late work: Late work won't be accepted, and you won't be allowed to make up missed exams, except under very exceptional circumstances (e.g., the sasquatch attacks - and even then you should get a note from the sasquatch). In the case of a conflict that you absolutely can't resolve (for example, a religious holiday), you may arrange to take a midterm exam early.

Attendance and participation: I expect you to be at every class meeting on time, unless you've talked to me about having to be absent for technological or other reasons. However, tardiness or absence will have no (direct) effect on your grade, unless of course you miss a midterm.

Dates and deadlines:
Midterm: October 20.
Final exam: self-scheduled.

Course evaluation: Your feedback on the course is extremely valuable to me, the math department, and the administration. In particular, I take your comments very seriously and use them to improve the course the next time I teach it. You are responsible for completing an evaluation of the course at the end of the semester.

Title IX: Agnes Scott is here to help you if you have experienced any form of sexual harassment or violence, dating or domestic violence, or stalking. Please talk to any faculty or staff member with whom you feel comfortable. Faculty and staff members want to support you and have been trained to help. They will also inform the Title IX office so that you learn about options available to you. If you do not want college administrators to know what you have experienced, you may talk to the chaplain, as well as nurses or counselors in the Wellness Center with complete confidentiality. They will not tell anyone what you share with them unless you give your express permission. You may contact the Title IX Coordinator directly at T9Coordinator@agnesscott.edu.

Inclusion: This course adheres to the principles of diversity and inclusion integral to the Agnes Scott community. We respect people from all backgrounds and affirm people's decisions about gender expression and identity. Please let me know your preferred name or gender pronoun if different from the class roster.

ADA: Agnes Scott College seeks to provide equal access to its programs, services and activities for people with various abilities. If you will need accommodations in this class, please contact the Office of Academic Advising and Accessible Education (404-471-6150) to complete the registration process. Once registered, please contact me so we can discuss the specific accommodations needed for this course.

Schedule
The following course schedule is subject to change! The class will be organized around Projects, and the Chapters/Readings that support those projects. The Projects will take between 1 and 3 classes (in general). The reading assignments and exercises will usually be due at 2:00 before class.
Exam I will be given on October 20 (in class), and the final will be given self-scheduled.

Date	Project	Reading and Practice (complete before class)	What we'll do in class
Mon 8/23	A Preview of the End Goal	none	Setting up Runestone Your first program
Wed 8/25	Driving the Turtle	Chapter 1 - General Introduction	Project work
Mon 8/30	How Many Handshakes?	Chapter 2 - Variables, Statements and Expressions Chapter 3 - Debugging	Project work
Wed 9/1	Drawing a Circle with Turtle	Chapter 4 - Python Modules Chapter 5 - Python Turtle	Project work
Mon 9/6	**Labor Day - no classes**		
Wed 9/8	(continued)		Project work
Mon 9/13	Generating a Password XKCD Style	Chapter 6 - Sequences Article 1 - How to Think Like a Programmer	Project work
Wed 9/15	(continued)		Project work
Mon 9/20	Computing Statistics with Kiva Data	Chapter 7 (7.1-7.7) - Iteration Chapter 12 - Functions	Project work
Wed 9/22	(continued)		Project work
Mon 9/27	Graphing Kiva Data with Altair	Chapter 8 - Conditionals	Project work
Wed 9/29	(continued)		Project work
Mon 10/4	Substitution Cipher	Chapter 9 - Transforming Sequences Article 2 - Why Programmers Work with Rubber Ducks	Project work
Wed 10/6	(continued)		Project work
10/11-10/15	**Fall break**		
Mon 10/18	Review		Review
Wed 10/20	**Midterm exam**		Take test
Mon 10/25	Image Processing	Chapter 7.8 - 7.13 - Nested Iteration	Project work
Wed 10/27	(continued)		Project work
Mon 11/1	(continued)	Chapter 14 - More about Iterations	Project work
Wed 11/3	(continued)		Project work

Date	Project	Reading and Practice (complete before class)	What we'll do in class
Mon 11/8	Exploring Common Words and SETI	Chapter 10 - Files	Project work
Wed 11/10	(continued)		Project work
Mon 11/15	Monte Carlo Simulation	Chapter 10 - Files (Exercises)	Project work
Wed 11/17	(continued)		Project work
Mon 11/22	(continued)	Article 3 - AI and Machine Learning	Project work
11/24-11/26	**Thanksgiving break**		
Mon 11/29	Converting Roman Numerals	Chapter 11 - Dictionaries	Project work
Wed 12/1	(continued)		Project work
Mon 12/6	Summary/review		Review