

**MAT/PHY 131 Introduction to Computer Programming Syllabus**  
**Agnes Scott College, Spring 2023, MW 3:10-4:25 in Campbell G15**  
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Office hours: Mon 1:45-2:45, 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, ASC131ASpring2023, 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

#### 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 lecturing; your primary source for new information will be 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, Canvas discussions) 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.

The Agnes Scott College honor code embodies an ideal of character, conduct, and citizenship, and is an important part of the College's mission and core identity. This applies especially to academic honesty and integrity. Passing off someone else's work as your own represents intellectual fraud and theft, and violates the core values of our academic community. To be honorable, you should understand not only what counts as academic dishonesty, but also how to avoid engaging in these practices. You should:

- review each course syllabus for the professor's expectations regarding course work and class attendance.
  - attribute all ideas taken from other sources; this shows respect for other scholars. Plagiarism can include portraying another's work or ideas as your own, buying a paper online and turning it in as if it were your own work, or not citing or improperly citing references on a reference page or within the text of a paper.
  - not falsify or create data and resources or alter a graded work without the prior consent of your professor. This includes making up a reference for a works cited page or making up statistics or facts for academic work.
  - not allow another party to do your work/exam, or submit the same or similar work in more than one course without permission from the course instructors. Cheating also includes taking an exam for another person, looking on another person's exam for answers, using exams from previous classes without permission, or bringing and using unauthorized notes or resources (i.e., electronic, written, or otherwise) during an exam.
  - not facilitate cheating, which can happen when you help another student complete a take home exam, give answers to an exam, talk about an exam with a student who has not taken it, or collaborate with others on work that is supposed to be completed independently.
  - be truthful about the submission of work, which includes the time of submission and the place of submission (e.g., e-mail, online, in a mailbox, to an office, etc.).
- Because of the centrality of the Honor Code to our campus life, penalties result from dishonest conduct. In academic courses, these penalties can range from failure of the assignment to expulsion from the college. You should speak with your professors if you need clarification about any of these policies.

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: March 22.

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](mailto: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 March 22 (in class), and the final will be self-scheduled.

Date	Project	Reading and Practice (complete before class)	What we'll do in class
Wed 1/11	A Preview of the End Goal	none	Setting up Runestone Your first program
Mon 1/16	<b>MLK Day - no classes</b>		
Wed 1/18	Driving the Turtle	Chapter 1 - General Introduction	Project work
Mon 1/23	How Many Handshakes?	Chapter 2 - Variables, Statements and Expressions Chapter 3 - Debugging	Project work
Wed 1/25	(continued)		
Mon 1/30	Drawing a Circle with Turtle	Chapter 4 - Python Modules Chapter 5 - Python Turtle	Project work
Wed 2/1	(continued)		Project work
Mon 2/6	Generating a Password XKCD Style	Chapter 6 - Sequences Article 1 - How to Think Like a Programmer	Project work
Wed 2/8	(continued)		Project work

Date	Project	Reading and Practice (complete before class)	What we'll do in class
Mon 2/13	Computing Statistics with Kiva Data	Chapter 7 (7.1-7.7) - Iteration Chapter 12 - Functions	Project work
Wed 2/15	(continued)		Project work
Mon 2/20	Graphing Kiva Data with Altair	Chapter 8 - Conditionals	Project work
Wed 2/22	(continued)		Project work
Mon 2/27	Substitution Cipher	Chapter 9 - Transforming Sequences Article 2 - Why Programmers Work with Rubber Ducks	Project work
Wed 3/1	(continued)		Project work
3/4-3/19	<b>Spring break/Journeys/Peak Week</b>		
Mon 3/20	Review		Review
Wed 3/22	<b>Midterm exam</b>		Take test
Mon 3/27	For-loops and functions	Review 7.1-7.7, 12	
Wed 3/29	Image Processing	Chapter 7.8 - 7.13 - Nested Iteration	Project work
Mon 4/3	(continued)		Project work
Wed 4/5	(continued)	Chapter 14 - More about Iterations	Project work
Mon 4/10	Exploring Common Words and SETI	Chapter 10 - Files	Project work
Wed 4/12	(continued)		Project work
Mon 4/17	Monte Carlo Simulation	Chapter 10 - Files (Exercises)	Project work
Wed 4/19	(continued)		Project work
Mon 4/24	(continued)	Article 3 - AI and Machine Learning	Project work
Wed 4/26	Converting Roman Numerals	Chapter 11 - Dictionaries	Project work
Mon 5/1	(continued)		Project work
Wed 5/3	Summary/review		Review