



PHYS 119
Introduction to Python Computer Programming
for the Physical Sciences

COURSE SYLLABUS: Fall 2024

INSTRUCTOR INFORMATION

Instructor: Dr. Heungman Park
Office Location: Science Building room 240
Office Hours: Mon, Wed: 9:30 AM - 12:00 PM, or by appointment
Office Phone: 903-886-8654
Fax: 903-886-5480 (Department of Physics and Astronomy)
University Email Address: heungman.park@tamuc.edu
Preferred Form of Communication: email
Communication Response Time: within 48 hours

COURSE INFORMATION

This course requires face-to-face physical classroom attendance. However, this requirement is subject to change.

Materials – Textbooks, Readings, Supplementary Readings

Textbook(s) Required: none

Software Required: Anaconda Python package (free of charge from <https://www.anaconda.com/>)

Optional Texts and/or Materials: none

Course Description

Physics 119 is an introduction to Python programming for students in the physical sciences. Students will learn how to write Python scripts for data analysis, visualization, and simulation in areas like physics, chemistry, biology, and also engineering majors. Key topics include variables, control structures, functions, and libraries like NumPy, and Matplotlib. By the end of the course, students will be able to apply Python for scientific problems and data analysis. Prior programming experience is not required.

Student Learning Outcomes

Each student will be able to

- Understand and use basic Python syntax, including variables, data types, and simple operations.
- Write and run simple Python scripts to perform basic calculations and operations.
- Utilize loops and conditional statements to automate repetitive tasks.
- Create and manipulate lists to store and process data in Python.
- Use NumPy and Matplotlib packages.
- Use basic Python functions to organize and reuse code effectively.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

None

Instructional Methods

This class is taught in a self-paced format with one-on-one instructor assistance. Each student will follow weekly topics and submit assignments.

Student Responsibilities or Tips for Success in the Course

Students are expected to understand basic logic in computer programming. The best way to learn a programming language is by typing code, not just reading it. Experimenting by changing parts of the code and predicting the outcome is also crucial. Each assignment must begin with an empty code file. Copying and pasting code is not an effective way to learn programming.

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

Grading Procedure

- Attendance: 10%, Homework: 40%
- Midterm exams: 25%, Comprehensive final exam: 25%

* The scales can be adjusted by the instructor. The final grading policy will be announced before the final exam.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement

The instruction will respond within 24 hours by email. Each graded assignment and test will be returned within a week.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

General Classroom

Students are expected to be on time and present for all class meetings. If an emergency results in an absence, the student should contact the instructor as soon as possible informing the instructor of the emergency and inquiring about ways to make up for the missed class. The instructor will make a judgment on how to handle the situation. Possible reasons for excused absence are listed in the “Student’s Guidebook” under class attendance policy. Attendance and tardy records will be maintained and both may result in deductions from your overall grade. Five unexcused absences will automatically result in a failing grade.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx).
<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:

<https://www.britannica.com/topic/netiquette>

TAMUC Attendance

For more information about the attendance policy please visit the [Attendance](http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx) webpage and [Procedure 13.99.99.R0.01](http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx).
<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Gee Library- Room 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: studentdisabilityservices@tamuc.edu

Website: [Office of Student Disability Resources and Services](#)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and

A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

Artificial Intelligence Software Usage Policy

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course. Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

13.99.99.R0.03 Undergraduate Academic Dishonesty

13.99.99.R0.10 Graduate Student Academic Dishonesty

COURSE OUTLINE / CALENDAR

*The schedule is subject to change. All changes will be announced in class.

				Schedule
Week 1	8/26/2024	-	8/30/2024	Basic Python
Week 2	9/2/2024	-	9/6/2024	Variables and data types
Week 3	9/9/2024	-	9/13/2024	Operators
Week 4	9/16/2024	-	9/20/2024	Conditional statements
Week 5	9/23/2024	-	9/27/2024	List variables
Week 6	9/30/2024	-	10/4/2024	For loop
Week 7	10/7/2024	-	10/11/2024	While loop
Week 8	10/14/2024	-	10/18/2024	Midterm Exam
Week 9	10/21/2024	-	10/25/2024	Numpy 1

Week 10	10/28/2024	-	11/1/2024	Numpy 2
Week 11	11/4/2024	-	11/8/2024	Numpy 3
Week 12	11/11/2024	-	11/15/2024	Matplotlib Graphics 1
Week 13	11/18/2024	-	11/22/2024	Matplotlib Graphics 2
Week 14	11/25/2024	-	11/29/2024	Matplotlib Graphics 3 - Thanksgiving break
Week 15	12/2/2024	-	12/6/2024	Review
Week 16	12/9/2024	-	12/13/2024	Final week