Physics 165: Introduction to Programming in the Physical Sciences

Fall 2018
TuTh 9:30am – 10:45am, PHY 1219

Instructor
>Prof. Greg Sullivan
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>Office: Physical Sciences Complex 2208D
>Office hours: TuTh: 1:30-2:30 PM, drop-ins encouraged.

TA - Grader

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Course Goals
>Introduction to programming using examples in the physical sciences. This course will use the programming language Python.

Class Schedule
>Room: PHYS 1219 Toll Physics Building
>Hours: TuTh: 9:30am – 10:45am
>3 Credits

Prerequisites
>Pre-requisite: PHYS171, PHYS141, or PHYS161

Computer Requirement
>You are expected to have a computer for this coding class. You will be using your laptop on a daily basis in class, for homework, labs and the final project. You will need to load the Python language on your computer, which we will be doing in the first week of class. We will probably be using the "Anaconda" environment/distribution, which is available for Mac/Windows/Linux.

Required Text
>Computational Physics, 4th Edition, by Mark Newman. ISBN-13: 978-1480145511.
>
>Not required, but you will find useful: A Student's Guide to PYTHON for Physical Modeling, Updated Edition. Jesse M Kindler & Philip Nelson. ISBN (pbk.) 978-0-691-18057-1

Course Website

I will use ELMS to communicate with the class. All homework assignments will be assigned and   submitted through the ELMS course page. You may also contact me directly through my email address listed above.

Homework

Assignments will be posted on ELMS approximately weekly, with the due date posted with the assignment. Homework will generally be turned in through the ELMS page. Collaboration is encouraged, but copying is not, and will not help you learn. Your lowest homework grade will be dropped.

Quizes

Quiz: there will be quizzes, which are generally very short and generally unannounced. The lowest grade will be dropped, so there will be no make-ups.

Group Labs

There will be a number of group labs performed in class with groups of 4-5 people. You will each hand in a copy individually though the ELMS website.

Final Project

There will be a final project due at the end of the semester. No Final Exam. I will be making announcements about the projects throughout the semester at various points. Stay tuned in.

Grades

Homework: 25 %
Quizzes: 15%
Group Labs: 25%
Final Project: 35%

Lectures and Course Content:

The course will be taught using a combined lecture/laboratory approach. The class will be divided into three parts: lectures by me, lectures given by predetermined groups and lab work within groups. My lectures will focus mainly on the physics that we will tackle using computational methods and some of the overarching programming themes used to accomplish this. Lectures given by groups will focus on the details of programming in Python. The in-class lab work will allow you to practice the various programming techniques we learn in class.

Tips for Doing Well

Read the book

Do the homework - feel free to work with classmates, but do work the problems yourself (relying on answers from the Web will do yourself a disservice).

Ask questions - if you do not understand it, chances are some of your classmates do not as well.

Come to lectures - much of the material is not going to be in the book, or will be presented in a different way.

Academic Dishonesty

The University of Maryland has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. You are responsible for upholding these standards. Failure to do so can result in a "XF" grade denoting "failure due to academic dishonesty."