

SIO 233: Fall 2023
Introduction to SIO Computing

Times and locations

Lectures	M, W, F	2:00–2:50	IGPP Munk Conference Room
----------	---------	-----------	---------------------------

Instructor

Peter Shearer	pshearer@ucsd.edu	858-534-2260
---------------	-------------------	--------------

Reading

Class notes are posted online.

Summary

This course is intended to help incoming SIO students get up to speed on the various computing tools that will help them with their research and classes. The perspective is largely that of the Geophysics program at SIO but the material is general enough to be useful for other students as well. The first part of the course is an introduction to UNIX, including basic commands and writing scripts. There are brief sections on GMT and Latex, but the bulk of the course is a tutorial on Python. Many short assignments provide programming experience. Students build upon their accumulating skills to write a program to play tic-tac-toe as their final assignment. There are no exams.

Outline

1. Introduction
2. UNIX
 - (a) basic commands
 - (b) text editing
 - (c) file transfer and compression
 - (d) UNIX scripts
 - (e) Advanced UNIX
3. GMT (Generic Mapping Tools)
4. Latex
5. Python
 - (a) getting started, variable types
 - (b) for loops and formats
 - (c) while and if statements
 - (d) functions
 - (e) input from keyboard
 - (f) arrays
 - (g) character strings
 - (h) I/O with files
 - (i) graphics
 - (j) objects and object-oriented programming
6. Fun programs
 - (a) tic-tac-toe
 - (b) fractals
 - (c) spectra
 - (d) Game of Life
 - (e) Wordle