

SIO 233: Winter 2022
Introduction to SIO Computing

Times and locations

Lectures M, W, F 12:00–12:50 IGPP Munk Conference Room

Instructor

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

Reading

Class notes are posted online.

Class Website:

Assignments, notes and other information will be posted at:

<http://igpphome.ucsd.edu/~shearer/COMP233/>

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. The students build upon their accumulating skills to write a program to play tic-tac-toe.

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
 - (b) variable types
 - (c) for loops and if statements
 - (d) functions
 - (e) numpy
 - (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