

SIO 233: Fall 2017  
**Introduction to SIO Computing**

**Times and locations**

Lectures                      M, W, F                      1:00–1:50                      IGPP Munk Conference Room

**Instructor**

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**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 Fortran90. 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. Fortran90
  - (a) source code, compiling and running
  - (b) variable types and declarations
  - (c) intrinsic functions
  - (d) do loops and if statements
  - (e) user defined functions and subroutines
  - (f) arrays
  - (g) character strings
  - (h) I/O with files
  - (i) complex numbers

- (j) how to write fast code
  - (k) structures
  - (l) allocatable arrays
6. Fun programs
- (a) tic-tac-toe
  - (b) fractals