

Introduction to Programming ATS Short Course

Objectives: Provide a general overview of programming concepts, and specific introduction to Matlab, IDL and FORTRAN.

Scheduling: meet once per week (Tuesday afternoon) from 3-5pm (ATS 101)

Instructors: a series of TAs from ATS

Syllabus

WEEK	DATE	TOPIC
INTRODUCTORY CONCEPTS: Matt Masarik		
1	Jan 20	Introduction to the shell environment, UNIX (ssh, tunneling, setting up environmental variables, file manipulation)
2	Jan 27	Introduction to the concepts of programming, algorithm design (loops, statements, procedures, functions)
3	Feb 3	Introduction to data types (variables, arrays, pointers)
4	Feb 10	Introduction to data handling and data formats (reading/writing files, common formats: netcdf, hdf, ascii)
FORTRAN: Kate Thayer-Calder		
5	Feb 17	general program layout, syntax
6	Feb 24	Subroutines, functions, arithmetic functions
7	Mar 3	Arrays, pointers
8	Mar 10	reading/writing data, debugging
IDL: Rachel McCrary		
9	Mar 24	general program layout, syntax
10	Mar 31	calling functions, reading/writing data
11	Apr 7	plotting (line plots, bar plots, maps)
12	Apr 14	data manipulation (regression, calculation of moments, eigenvectors, matrix vs vector manipulation)
Matlab: Kate Musgrave		
13	Apr 21	general program layout, syntax
14	Apr 28	calling functions, reading/writing data
15	May 5	plotting (line plots, bar plots, maps)
16	May 12	data manipulation (regression, calculation of moments, eigenvectors, matrix vs vector manipulation)