Part A – Python Basics

Introduction (10 minutes)

How we use Python (15 minutes)

Mike

Social Water, using text messages

Parsing pest output

Joe

Input data processing

Making figures

Chris

pyflow

Mike -- Getting Started (30 minutes)

Versions

Distributions

Recommend using 2.7

Available resources

Visual Studio

Official documentation

Stack Overflow

How to figure out how to do things

Command line

Modules

Example that does something cool

Import (import as, import \*)

Scripts

syntax

Example with Ipython, hello world

Chris -- Data Structures (20 minutes)

Strings -- Working with Text

Integers/float

Mutable versus immutable

Tuples

Lists

Dictionaries

Arrays

Zip

Joe -- Process flow (10 minutes)

While, continue,

Iterators: for,

By element or range, xrange

Enumerate

break, …

Break (15 mins)

Mike -- File IO (40 mins)

Example 1. Data conversion

Read goofy file

Find and convert data (have goofy structure)

Write some modflow file

Chris -- Numpy description (40 mins)

Example 2. Working with arrays

Joe -- Matplotlib description (40 mins)

Example 3. Plotting

Plot(x,y)

savefig

histograms

imshow

Animation with matplotlib

Joe -- Advanced Topic (Functions)

Example 4. Using a function to …

Take one of the previous examples, and break a part of it into a function

Mike -- Advanced Topic (Accessing the web)

Example 5. Using data from the web to … (plot or build a input file)

Chris -- Advanced Topic (Object oriented programming)

Example 6.

Classes

Gotchas

Pointer concept

Zero indexing

Indexing does not include the to (in the from to to)

Array major ordering