Big Data in Biology Summer School, 2015
Center for Computational Biology and Bioinformatics
University of Texas at Austin

Introduction to Python
Day One Cheatsheet

Mathematical Operators

Symbol	What it does	Example
+	Addition	`5 + 2`
-	Subtraction	`5 - 2`
*	Multiplication	`5 * 2`
/	Division	`5 / 2`
%	Modulus (remainder)	`5 % 2` (results in 3)
**	Exponent	`5 ** 2` (results in 25)

Variable Types

Type	Abbreviation	Example(s)
Integer	int	`5 ; -6; 0`
Float	float	`45.55 ; -9.21 ; 1.0`
List	list	`[1,2,3] ; ["hi", "bye", 6]`
String	str	`"word" ; "several words" ; "55"`
Dictionary	dict	`{"a": 1, "b": 2, "c": 6}`

Common List Methods

Each example below uses this list: `my_list = [2, 3, 4, 5]`

Method	Description	Example(s)
.append()	Add item to end of list	`my_list.append(7)` `[2, 3, 4, 5, 7]`
.index()	Return first index of a value	`my_list.index(3)` `1`
.pop()	Remove a given index from a list	`my_list.pop(2)` `[2, 3, 5]`

Common String Methods

Each example below uses this string: `my_str = "I love Python"`

Method	Description	Example(s)
.upper()	Convert a string to all uppercase	`my_str.upper()` `I LOVE PYTHON`
.lower()	Convert a string to all lowercase	`my_str.lower()` `i love python`
.count()	Count occurrences of a character (case-sensitive!)	`my_str.count("o")` `2`
.split()	Convert a string to a list, splitting on the given character	`my_str.split(" ")` `["I", "love", "Python"]`

COMMON DICTIONARY METHODS

Each example below uses this dictionary:

```
my_dict = {"alpha": "a", "beta": "b", "delta": "d"}
```

Method	Description	Example(s)
.keys()	Return the dictionary keys as a list	my_str.keys() ["alpha", "delta", "beta"]
.values()	Return the dictionary values as a list	my_str.values() ["a", "d", "b"]

INDEXING

General paradigm [x:y:z]

- x: inclusive first index (default: 0)
- y: exclusive final index (default: last index)
- z: step/increment (default: 1)

```
a = [90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100]
Indices:  0  1  2  3  4  5  6  7  8  9  10

          a[0]     = 90
          a[5]     = 95
          a[:3]    = [90, 91, 92]
          a[6:]    = [96, 97, 98, 99]
          a[3:6]   = [92, 93, 94, 95]
          a[1:8:2] = [91, 93, 95, 97]
          a[-1]    = 100
```