Learn Coding Fundamentals

Have you ever found yourself working on a repetitive task and thinking:

"I feel like a machine right now"
"There has to be a better way of doing this"
“I can now relate to Peter Gibbons in “Office Space” a little too well...”

If so, then learning to write some basic code can help you tremendously. With a little bit of introduction and experience you can write code to perform tasks from the mundane to the super cool! We'll work in Python to develop a fundamental understanding of code writing/scripting basics.

Course Date(s)/Time: Tuesdays 6:30 PM-8:00 PM 09/13 - 10/04 in 346 JH

The goal will be for every student to have an elementary understanding of how to write code to and implement basic scripts - with the hope of creating a simple tool in ArcGIS using Python by the end of the course.

Variable Types and Functions

Learn the basic variable types and why/when to use them, as well as the limitations of each.

Create functions that wrap processes into nice packages that allow you to handle errors and repeat tasks easily

```
var_int = 1
var_float = 1.23
var_string = 'This is a string'
var_List = ['This','is','a','list']
var_tuple = ('this','is','a','tuple')
var_dict = {'entry':'this is a dictionary entry'}
```

```
#This function takes a word selected by the user and
#repeats it the number of times defined by the number
#input by the user

def echo(word,x):
    return x * word
```

Loops and Conditional Statements

Loops are great! You can loop over a list varible, or define the number of times you want a loop to run.

Combine loops with functions and conditional statements to keep a process running reptetively until a desired result is achieved.

```
if 'this' == 'that':
    print('these are the same')
else:
    print('these are different')

for i in range(10):
    print(i)
```

Leveraging Python in ArcGIS to Work for You.

Yep! That’s right! You can use Python in ArcGIS to help you carry out tasks and geoprocessing or keep data managed.

You’ll be able to create your own custom tools in ArcGIS!

```
#This function deletes all data within
#a specified list
def deleteData(ls):
    if len(ls) > 0:
        for d in ls:
            arcpy.Delete_management(d)
```

Dr. Connerly asked me to include this link (Watch Iowa City Grow) as an example of what doors learning to write code can open. I processed the data using Python in ArcGIS, then used JavaScript and the D3 library to create in interactive animated web visualization.