Introduction to Computer Programming
CSCI-UA 2

Functions
Encapsulating Logic
Functions

Groups of statements that can be run more than once in a program

Reusable chunks of code

Take input, provide output

Can be reused in a variety of contexts

Maximize code reuse, minimize code redundancy

Encapsulate logic, splitting complex systems into manageable parts
Calling Functions

type(3.7)

Function name
Arguments passed into function
Return Value

() tells Python to execute the function

Even if a function takes no input, the brackets are still required

Some functions do not return a value
Defining Functions

Just like writing a Python program but with some extra syntax

Function header:

- Begins with `def`
- Followed by name of function
- Function parameter list
- Ends with a `:`
**Documentation String**

*Doc String*

Optionally follows function header

Explains what function will do

May include example(s)

Almost always good to include for clarity and as a reminder
Function Body

All the code that follows the header

Simply an indented block of code with necessary statements

This code can use the variables from the function header

Function should return a value with the keyword return

After return, Python jumps out of the function and back to the program
Function Syntax

def name(parameters):
    statements

A return value is not required

return None

Anything besides return are called "side effects"

A print() statement is an example of a side effect