CS 160
CS Orientation

Programming w/ Turtle: Functions
Chap. 5 and 6.2
Pre-defined Functions

• May need to import a library
• Use the function from library/object
• Example:
  ```python
  import math
  math.sqrt(4);
  ```
What is the purpose of a function?

• Perform some task!
  – May take input (arguments)
  – May produce output (print)
  – May return a value (return statement)
  – May alter input (change argument values if mutable)

• Example: \( y = f(x) = 3 \times x; \)
Python Function Syntax

def func_to_define(possible_parameters):
    print("hello");
    possible_parameter = 3;
    return "possible_str";

a=2;
Name = func_to_define(a);
Turtle in Python

```python
import turtle  # bring in the turtle library

window = turtle.Screen();  # create a variable for the window
my_turtle = turtle.Turtle();  # create a variable for your turtle

my_turtle.shape("turtle");
my_turtle.color("blue");

# Draw a square

window.mainloop();  # wait for the user to close the window
```

"tur.py" 11L, 307C written
Draw a Square with Turtle

```python
import turtle  # bring in the turtle library

window = turtle.Screen();  # create a variable for the window
my_turtle = turtle.Turtle();  # create a variable for your turtle

my_turtle.shape("turtle");
my_turtle.color("blue");

# Draw a square
for i in range(4):
    my_turtle.forward(100);
    my_turtle.left(90);

window.mainloop();  # wait for the user to close the window
```

"tur.py" 14L, 376C written 13,0-1 All
Quiz #5 - Writing Functions

• Get into a group of 4-5.
• Write a function called draw_square.
• Draw the square each time the user clicks the turtle. **Hmmm, If you don't know, look at the documentation.**
• How will you use this idea in Assignment #5?
Mouse Click and Functions

```python
import turtle  # bring in the turtle library

window = turtle.Screen();  # create a variable for the window
my_turtle = turtle.Turtle();  # create a variable for your turtle

my_turtle.shape("turtle");
my_turtle.color("blue");

# Draw a square
def DrawSquare(x, y):
    my_turtle.clear();
    for i in range(4):
        my_turtle.forward(100);
        my_turtle.left(90);

# Call DrawSquare when user clicks turtle
my_turtle.onclick(DrawSquare);

window.mainloop();  # wait for the user to close the window
```

"tur_fun.py" 19L, 497C written

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