

## Lecture 2: October 1, 2019

**Reading:** §2, 3.7

**Assignments:** Homework 1, due on October 10 at 11:59pm

1. Variables
  - (a) What they are
  - (b) Variable names
  - (c) Variable types (int, float, string)
  - (d) Function type ()
  - (e) Python keywords
2. Variables
  - (a) Legal names
  - (b) Keywords
  - (c) How to pick variable names
3. Simple assignment: `variable = expression`
4. Expressions
  - (a) Operators `+`, `-`, `*`, `/`, `//`, `%`, `**`
  - (b) Precedence
    - i. Parentheses for grouping `(, )`
    - ii. Exponentiation `**`; associates right to left
    - iii. Positive, negative (unary `+`, `-`)
    - iv. Multiplication, division, integer division, remainder `*`, `/`, `//`, `%`
    - v. Addition, subtraction (binary `+`, `-`)
    - vi. In general, operators of equal precedence are evaluated from the left to the right (associativity); exception noted above
5. Example
  - (a) Compute the hypotenuse of a right triangle [*hypotmoex.py*]
6. The difference between strings and integers [*twoplustwo.py*]
  - (a) Difference between `'2 + 2'`, `2 + 2`
7. Type converter functions `int`, `float`, `str`
8. String operators
  - (a) Operator `+`: string concatenation
  - (b) Operator `*`: repetition
9. Input: input statement
  - (a) `input (prompt)` prints prompt, waits for user
  - (b) When user hits enter, it returns what was typed as a string
10. Exceptions
  - (a) Division by zero [*divby0.py*]
  - (b) Typing letters when a number is expected [*hypotex.py*]