

Course Introduction

Introduction to Programming

Introduction to Python

Hello World

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**Video:** Hello, World!  
2 min
- ✓

**Video:** Getting Information from the User  
2 min
- ✓

**Video:** Python Can Be Your Calculator  
2 min
- 📖

**Reading:** Study Guide: First Programming Concepts  
10 min
- 📝

**Practice Quiz:** Practice Quiz: Hello World  
5 questions

Module Review

# Study Guide: First Programming Concepts

This study guide provides a quick-reference summary of what you learned in this lesson and serves as a guide for the upcoming practice quiz.

## Functions

A function is a piece of code that performs a unit of work. In the examples you've seen so far, you have only encountered the **print()** function, which outputs a message to the screen. You will use this function frequently in this course to check the results of your code. The syntax of the print() function is modeled in the example below.

```
1 # Syntax for printing a string of text. Click Run to check the result.
2
3 print("Hello world!")
```

Run

Reset

## Keywords

A keyword is a reserved word in a programming language that performs a specific purpose. In your first Python example, you briefly encountered the keywords **for** and **in**. Note that keywords will often appear in **bold** in this course.

In the next few weeks, you will also learn the following keywords:

- Values: **True, False, None**
- Conditions: **if, elif, else**
- Logical operators: **and, or, not**
- Loops: **for, in, while, break, continue**
- Functions: **def, return**

You don't need to learn this whole list now. We'll dive into each keyword as we encounter them. There are additional reserved keywords in Python. If you would like to read about them, please visit the linked “Python Keywords” article in the Resources section at the end of this study guide.

## Arithmetic operators

Python can calculate numbers using common mathematical operators, along with some special operators, too:

- x + y**      Addition + operator returns the sum of x plus y
- x - y**      Subtraction - operator returns the difference of x minus y
- x \* y**      Multiplication \* operator returns the product of x times y
- x / y**      Division / operator returns the quotient of x divided by y
- x\*\*e**      Exponent \*\* operator returns the result of raising x to the power of e
- x\*\*2**      Square expression returns x squared
- x\*\*3**      Cube expression returns x cubed
- x\*\*(1/2)**      Square root (½) or (0.5) fractional exponent operator returns the square root of x
- x // y**      Floor division operator returns the integer part of the integer division of x by y
- x % y**      Modulo operator returns the remainder part of the integer division of x by y

### Order of operations

The order of operations are to be calculated from left to right in the following order:

1. **P**arentheses **(, {, [**
2. **E**xponents **x<sup>e</sup> (x\*\*e)**
3. **M**ultiplication **\*** and **D**ivision **/**
4. **A**ddition **+** and **S**ubtraction **-**

You might find the **PEMDAS** mnemonic device to be helpful in remembering the order.

## Resources for more information

For more information about the concepts covered in this reading, please visit:

- [Built-in Functions](#) - Lists and summarizes Python’s built-in functions.
- [Python Keywords](#) - Lists Python’s reserved keywords and a brief description of what each keyword does.
- [Different Arithmetic operators in Python](#) - Provides more examples of the proper syntax for using arithmetic operators in Python.

For additional Python practice, the following links will take you to several popular online interpreters and codepads:

- [Welcome to Python](#)
- [Online Python Interpreter](#)
- [Create a new Repl](#)
- [Online Python-3 Compiler \(Interpreter\)](#)

