

# MODULES - INTRODUCTION

**module** - single Python file

**submodule** - a functional part of a module

**package** - directory of Python modules

External modules can expose classes, functions and global variables.

## 1: IMPORTING MODULES

[https://docs.python.org/3/reference/simple\\_stmts.html#import](https://docs.python.org/3/reference/simple_stmts.html#import)

```
import foo                # foo imported and bound locally
import foo.bar.baz       # foo.bar.baz imported, foo bound locally
import foo.bar.baz as fbb # foo.bar.baz imported and bound as fbb
from foo.bar import baz  # foo.bar.baz imported and bound as baz
from foo import attr     # foo imported and foo.attr bound as attr
from foo import *        # all public names defined in the module
```

## 2: STANDARD MODULES + EXAMPLES

<https://docs.python.org/3/library/> - list of standard modules

**math** - access to the mathematical functions

<https://pymotw.com/2/math/>

<https://docs.python.org/3/library/math.html>

```
import math
```

```
circle_radius = 15
print(math.pi * math.pow(circle_radius, 2))
```

**random** - pseudo-random number generators

<https://docs.python.org/3/library/random.html>

```
random.random() # Random float x, 0.0 <= x < 1.0
# 0.37444887175646646
```

```
random.uniform(1, 10) # Random float x, 1.0 <= x < 10.0
# 1.1800146073117523
```

```
random.randrange(10) # Integer from 0 to 9
# 7
```

```
random.randrange(0, 101, 2) # Even integer from 0 to 100
```

```
# 26
```

```
random.choice('abcdefghij') # Single random element
```

**csv** - implements classes to read and write tabular data in CSV format

<https://docs.python.org/3/library/csv.html>

```
import csv
with open('passwd', newline='') as f:
    reader = csv.reader(f, delimiter=':', quoting=csv.QUOTE_NONE)
    for row in reader:
        print(row)
```

**urllib** - retrieves a resource via URL

<https://docs.python.org/3/howto/urllib2.html>

```
import urllib.request
with urllib.request.urlopen('http://python.org/') as response:
    html = response.read()
```

**webbrowser** - high-level interface to allow displaying Web-based documents to users

[https://docs.python.org/3/library/webbrowser.html#webbrowser.open\\_new](https://docs.python.org/3/library/webbrowser.html#webbrowser.open_new)

```
controller.open(url, new=0, autoraise=True)
```

Display url using the browser handled by this controller. If new is 1, a new browser window is opened if possible. If new is 2, a new browser page (“tab”) is opened if possible.

```
controller.open_new(url)
```

Open url in a new window of the browser handled by this controller, if possible, otherwise, open url in the only browser window. Alias [open\\_new\(\)](#).

```
controller.open_new_tab(url)
```

Open url in a new page (“tab”) of the browser handled by this controller, if possible, otherwise equivalent to [open\\_new\(\)](#).