

Université Toulouse Paul Sabatier

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Available at

**[https://homepages.laas.fr/gsaurel/teach/
2024-2025/3A_SRI/4-tests.pdf](https://homepages.laas.fr/gsaurel/teach/2024-2025/3A_SRI/4-tests.pdf)**

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Source

**<https://gitlab.laas.fr/gsaurel/teach> :
2024-2025/3A_SRI/4-tests.md**

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Tests unitaires

```
import unittest

class TestAddition(unittest.TestCase):
    def test_addition(self):
        self.assertEqual(1 + 1, 2)

if __name__ == '__main__':
    unittest.main()
```

```
import unittest

from my_lib import my_add

class TestMyAddition(unittest.TestCase):
    def test_my_addition(self):
        self.assertEqual(my_add(1, 1), 2)

if __name__ == '__main__':
    unittest.main()
```

```
$ python -m unittest -v
test_addition (test_add.TestAddition.test_addition) \
    ... ok
test_my_addition (test_my_add.TestMyAddition \
    .test_my_addition) ... ok
```

```
-----
Ran 2 tests in 0.000s
```

OK

Tests des exemples

```
def my_add(a: int, b: int) -> int:
    """Performs addition on integers.
    >>> my_add(3, 4)
    7
    """
    return a + b
```

```
$ python -m doctest my_lib.py -v
```

```
Trying:
```

```
    my_add(3, 4)
```

```
Expecting:
```

```
    7
```

```
ok
```

```
1 items had no tests:
```

```
    my_lib
```

```
1 items passed all tests:
```

```
    1 tests in my_lib.my_add
```

```
1 tests in 2 items.
```

```
1 passed and 0 failed.
```

```
Test passed.
```

Tests intégratifs

```
import unittest

from my_robot import QuadrupedRobot

class TestMove(unittest.TestCase):
    def test_move(self):
        robot = QuadrupedRobot()
        robot.set_speed(1) # m/s
        robot.simulate(10) # s
        self.assertGreater(robot.get_z(), 0.1)
        self.assertGreater(robot.get_x(), 9)

if __name__ == '__main__':
    unittest.main()
```

Tierces parties

- pytest
- tox
- nose

- Boost unit test framework
- catch2
- Gtest

Intégration continue

.github/workflows/test.yml:

name: run unittests & doctests

on: ["push"]

jobs:

test:

runs-on: "ubuntu-latest"

steps:

- **uses:** actions/checkout@v4
- **uses:** actions/setup-python@v4
- with:**
 - python-version:** 3.12
- **run:** python -m unittest
- **run:** python -m doctest my_lib.py

.gitlab-ci.yml:

test:

image: ubuntu:22.04

script:

- apt update && apt install -qy python3**
- python -m unittest**
- python -m doctest my_lib.py**