

# Some Course on Something

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## 1 Tests

This is a test. And this is a reference to some code: Listing 1.

```
1 import numpy as np
2 import numpy.typing as npt
3
4
5 # Axes
6 X_, Y_, Z_ = np.ones(3)
7
8 # NumPy types
9 NDArrayFloat = npt.NDArray[np.float_]
10
11
12 # Functions
13 def normalize(vec: NDArrayFloat) -> NDArrayFloat:
14     L: float = np.linalg.norm(vec)
15     assert L != 0., "Can't normalize the zero vector."
16     return vec / L
17
18
19 def scale(vec: NDArrayFloat, a: float) -> NDArrayFloat:
20     return normalize(vec) * a
```

Listing 1: I am some code.

And this is a TikZ drawing: Figure 1.

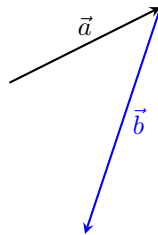


Figure 1: A figure.

## **2 Introduction**

### **2.1 Why are Simulations Used?**

### **2.2 Python**

### **2.3 A Bit About Git**

### **2.4 Some Mathematical Background**

## **3 Simulating Simple Mechanics**

### **3.1 Forward Euler Method**

### **3.2 Backward Euler Method**

### **3.3 Verlet Integration**

### **3.4 Runge-Kutta Method**

## **4 Thermodynamics**

## **5 Waves**

## **6 Molecular Dynamics**