

# MODULES - DATA ANALYSES

## 1: NUMPY

<https://docs.scipy.org/doc/numpy-dev/user/quickstart.html>

NumPy's main object is the homogeneous multidimensional array. It is a table of elements (usually numbers), all of the same type, indexed by a tuple of positive integers. In Numpy dimensions are called axes. The number of axes is rank.

```
import numpy as np

a = np.array([1, 2])
b = np.array([3, 4])

c = np.array([a,b])

print(np.average(c))
```

## 2. SCIPY

<http://docs.scipy.org/doc/scipy/reference/>

SciPy is a collection of mathematical algorithms and convenience functions built on the Numpy extension of Python. It adds significant power to the interactive Python session by providing the user with high-level commands and classes for manipulating and visualizing data. With SciPy an interactive Python session becomes a data-processing and system-prototyping environment rivaling systems such as MATLAB, IDL, Octave, R-Lab, and SciLab.

```
interpolation
statistics
transformation
optimization
image processing
spatial algorithms
...
```

## 3, PANDAS

<http://pandas.pydata.org/>

pandas is an open source, BSD-licensed library providing high-performance, easy-to-use data structures and data analysis tools for the [Python](#) programming language.

```
df = pd.DataFrame(randn(3, 2), columns=[' Column A ', ' Column B '], index=range(3))
```

