

# Joint FACETS/BCCN Python Workshop

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## Abstract

This course is intended for students in the Natural Sciences with a special interest in Computational Neuroscience. The focus is on using the Python programming language for data analysis and plotting, where Matlab is used traditionally. The first two days will consist of introductory lectures and exercises. Python will be explained, starting with simple toy examples going to advanced techniques for data analysis and visualization. The next two days will provide in-depth tutorials for modeling spiking neural networks in PyNN (<http://www.neuralensemble.org/trac/PyNN>) and Brian (<http://brian.di.ens.fr>). The course will finish with a small project by the students.

## 1 Introduction

The participants learn how to use Python as a substitute for Matlab. They will learn the basics of Python (modules, functions, classes, ...), how to use the numpy and matplotlib packages, and how to build models of neural systems. Additional material for the course can be found on the web at <http://neuralensemble.org/cookbook> under the topic FACETSPythonCourse2008.

## 2 Day one

09:15 - 09:30	Welcome and organizational matter
09:30 - 11:00	Introduction to Python
11:00 - 11:30	Coffee break
11:30 - 12:15	Introduction to Python (cont'd)
12:30 - 13:30	Lunch
13:30 - 18:00	Exercises

## 3 Day two

09:15 - 11:00	Scientific computing with Python
11:00 - 11:30	Coffee break
11:30 - 12:15	Scientific computing with Python (cont'd)
12:30 - 13:30	Lunch
13:30 - 18:00	Exercises

## 4 Day three

09:15 - 11:00	Biological modeling
11:00 - 11:30	Coffee break
11:30 - 12:15	Introduction to NeuroTools
12:30 - 13:30	Lunch
13:30 - 17:00	Brian: Introduction and tutorial
18:00	Workshop BBQ

## 5 Day four

09:15 - 11:00	Modeling neural systems with PyNN
11:00 - 11:30	Coffee break
11:30 - 12:15	Modeling neural systems with PyNN (cont'd)
12:30 - 13:30	Lunch
13:30 - 17:00	Exercises
17:00 - 18:00	Short project presentations

## 6 Day five

09:15 - 11:00	Work on the project
11:00 - 11:30	Coffee break
11:30 - 12:15	Work on the project
12:30 - 13:30	Lunch
13:30 - 18:00	Working on the project