

# Training Workshop on Python scripting in BioNumerics

## WORKSHOP PROGRAM

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### **Brief introduction to Python**

Short introduction to syntax, comparison with other languages, advantages of Python, libraries,...

### **Python in BioNumerics**

Working with the multiple-document script editor, functions, shortcuts,...

### **The Debugger window**

Introduction to the interface, debugging strategies, system path,...

### **Writing script applications**

Using various examples, applications such as import, export, UI and reporting, data manipulation, and automated analysis will be covered.

- **Import**

- Information fields
- Character data
- Sequence data
- Fingerprint data (curves + peak tables)
- Import from sources on the internet (ftp, http)

- **Export**

- Information fields
- Character data
- Sequence data
- Fingerprint data (e.g. elementary band statistics)

- **UI & Reporting**

- Create custom dialog boxes & input forms
- Plot windows: show custom graphical plots in software, export & print
- Table windows: create custom tables

- **Automated data manipulation**

- Information fields (conversion, content check, ...)
- Character data (e.g. applying a conversion)
- Character sets (new characters, colors, mapping, active status, ...)
- Changing entry field layout
- Users and user groups

- **Analysis**

- Custom database queries (e.g. sequence content, character values)
- Automating tasks in fingerprint pre-processing
- Automating tasks in the Sequence Assembler
- Automated creation of comparison + specific view & analysis

- **Comparisons**

- Reporting & exporting
- Manipulating comparison groups
- Automating tasks in a band matching

## **Exercises**

With the help of experts from Applied Maths, you will be able to develop your own scripts.