

Python as a second language

Introduction to Python

Thank You

- Geert Jan Bex
 - <https://github.com/gjbex/training-material/tree/master/Python>
 - <https://creativecommons.org/licenses/by/4.0/deed.ast#>
- Slides + demo-files
 - https://franklbvp.github.io/python_intro/

What will be covered in this session?

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Scope

- **Teach programming in Python**

- prerequisite: you should know how to program in some other language, if not consider first completing
 - CodeAcademy
<http://www.codecademy.com/tracks/python>
 - LearnPython
<http://www.learnpython.org/>
- *Taken from GJ Bex*

These sessions won't teach you how to program,
how to find algorithms, that's beyond the scope

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Running Python / Basic Python programming

- Running Python from the command line
 - goals: run Python scripts in a shell
 - prerequisites: none
- Interactive Python
 - goals: using Python for explorative programming using iPython & Jupyter notebooks
 - prerequisites: none
- Core Python programming
 - goals: Python syntax & semantics, control flow, data types, functions
 - prerequisites: experience in some programming language

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Content

- Environment
 - User environment
 - Command line
 - Spyder
 - Notebook
 - *Slides: Python_intro-userEnvironments*

Content

- Basic syntax
 - *Slides: Python_intro-programming-syntax*
- Variables
- Operators
 - *Slides: Python_intro-programming-variables_operators*
- Built-in atomic Data types
 - *Slides: Python_intro-programming-builtin_datatypes*
- Data structures
 - Lists
 - Tuples
 - Sets
 - Dictionaries
 - *Slides: Python_intro-programming-datastructures*

Content

- Flow control
 - Basic flow control commands
 - *Slides: Python_intro-programming-control_flow*
 - Functions
 - *Slides: Python_intro-programming-functions*
- IO
 - *Slides: Python_intro-programming-io*

Using the demo files

- Using the demo notebooks
- Download the zip file
- Unzip the file a local disk (Windows ex. in c:\Temp)
- Notebook
 - Start Anaconda powershell
 - 'cd' to the folder with ipynb files
 - `jupyter notebook`
- `py` source files
 - 'cd' to the folder with py files
 - Start editor / IDE
 - Run from command line

What else will be covered?

More in other courses

- Check <https://github.com/gibex/training-material/tree/master/Python>
- Object oriented programming
 - goals: creating Python classes, inheritance
- Functional programming
 - goals: creating Python classes, inheritance
- Code organization
 - goals: organizing code of a non-trivial software project
- Documentation
 - goals: how to document Python code?

More in other courses

- Testing
 - goals: tests are integral part of software development
- Error handling
 - goals: catch & handle runtime errors
- Debugging
 - goals: using the Python debugger
- Profiling
 - goals: using the Python profiler to identify optimization opportunities

More in other courses

- Command line arguments & configuration files
 - goals: handling options, flags specified on command line, reading configuration files
- Logging
 - goals: writing application events to log files, using log levels
- Interacting with the operating system
 - goals: file system operations, executing external commands
- Web applications
 - goals: basic concepts of web application development

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More in other courses

- Text-based formats
 - goals: reading & writing text-based file formats
- Scientific file formats
 - goals: reading & writing HDF5
- Linear algebra, numerical analysis
 - goals: various numerical analysis algorithms
- Scientific visualization
 - goals: creating 2D and 3D plots from Python

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