PYTHON – a tool for every scientist

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PYTHON (www.python.org) is a multi-purpose, free scripting language providing easy creation and run of applications, as well as integration of multilanguage software. PYTHON has found its unique place among scripting languages in scientific applications – numerical methods, bioinformatics, natural language processing, data visualisation, etc.

The course target is Phd candidates and scientists who during their daily work need to count something, process text or binary data, draw graphs or automate measurements. The lectures are to teach you not only the language itself but also how to use it in solving specific problems or tasks in scientific practice.

The course has a form of lectures with exercises. Therefore it is advised to have your own notebook with any (!) operating system. No knowledge or experience in programming is needed!

Main topics:

- An introduction to PYTHON (language, syntax, tools, libraries)
- iPython – an interactive console
- Applications:
  - computational and scientific,
  - visualisation and graphs,
  - data collecting and processing,
  - file conversion and processing,
  - integration with scientific software.

Literature:

1. P. Barry, D. Griffiths, Head First Programming, O'Reilly Media, 2009.
2. A. Downey, Think Python. How to Think Like a Computer Scientist, Green Tea Press, 2008.
3. H. P. Langtangen, Python Scripting for Computational Science, Springer, 2009.
4. M. Lutz, Learning Python, O'Reilly Media, 2009.
5. W. McKinney, Python for Data Analysis, O'Reilly, 2012.

Course website: http://us4us.eu/wydarzenia/kursy

The total number of lecture hours: 25, laboratory exercises: 5 hours, self-teaching: 30, direct tutoring and consultations: 15 hours.

ECTS Points: 3