

Navigation

- [index](#)
- [next](#) |
- [Python4Astronomers 1.1 documentation](#) »

[Table Of Contents](#)

- [Practical Python for Astronomers](#)
 - [Sample Workshop Schedule](#)
 - [About the Workshops](#)
 - [About the Format](#)
 - [License](#)

Next topic

[Introduction and Motivation](#)

This Page

- [Show Source](#)

Practical Python for Astronomers¶

Practical Python for Astronomers is a series of hands-on workshops to explore the Python language and the powerful analysis tools it provides. *The emphasis is on using Python to solve real-world problems that astronomers are likely to encounter in research.*

- The workshops immediately make use of the full suite of plotting, analysis, and file reading tools.
- Along the way elements of the Python language such as data types, control structures, functions, and objects are introduced.
- This is an interactive experience using tutorial examples run by participants on their laptops.

Workshop topics

- [Introduction and Motivation](#)
- [Python Installation and Understanding Packages](#)
- [Core packages for analysis: IPython, NumPy, and SciPy](#)
- [CONTEST: Make a fun bouncing balls demo](#)
- [Plotting and Images](#)
- [Reading and Writing files](#)
- [Fitting and Modeling 1-D and 2-D Data](#)
- [Online Astronomy and the virtual observatory](#)

Sample Workshop Schedule¶

The workshop schedule is as follows. Except for the first introductory session all workshops are hands-on and participants should bring a laptop.

Date	Topic	Location and time	Presenter
TBD	Introduction to Python for Astronomers	TBD	TBD
TBD	Installation and Understanding Packages	TBD	TBD
TBD	Core packages - NumPy, iPython, SciPy	TBD	TBD
TBD	Plotting and Images	TBD	TBD
TBD	Reading and Writing Files	TBD	TBD
TBD	Fitting and Modeling 1-d and 2-d data	TBD	TBD
TBD	VO and Online astronomy	TBD	TBD

About the Workshops¶

The content presented here is suitable for self-study by those wishing to learn Python for astronomy or other scientific research applications.

A greater goal is for those knowledgeable in Python to teach the workshop series at their local institutions, adapting the content as desired. To that end we have developed the content in [Sphinx](#) RestructuredText and hosted the source on github at <https://github.com/python4astronomers/>. Anyone interested can clone the repository or download a tarball and make modifications needed to present the material locally.

We would also welcome comments, fixes, or suggestions for improvement. This can be done as a Github issue or pull request, or by sending email to aldcroft@head.cfa.harvard.edu.

The workshop material here was presented in the Spring of 2011 at the Harvard / Smithsonian Center for Astrophysics. A range of about 25 to 50 people participated in the different workshops, which were 1.5 hours in duration. Based on our experience a 2 hour slot would have been more reasonable to allow time for the exercises and discussion.

About the Format¶

The workshop presentations are formatted as Sphinx web documents instead of the more traditional slide presentation. This was a natural choice for the authors who all use [Sphinx](#) for Python documentation. Further inspiration was drawn from [Dumping PowerPoint in Favor of Web Sites](#). This site highlights by discussion and examples the advantages in using a web-based study guide. In particular we found the non-linear format (e.g. jumping to different sections or web sites) and ability to show longer examples were quite valuable.

Having full prose text results in a document which is far more useful as a standalone study guide than presentation slides. Ironically it also reduces the temptation to read from the screen.

License¶

The Practical Python for Astronomers workshop content is made available under the terms of the [Creative Commons Attribution 3.0 License](#) ([legal code](#)). You may distribute, remix, tweak, and build upon this work, even commercially, as long as you credit the authors and the Smithsonian Astrophysical Observatory for the original creation.



Authors: Tom Aldcroft, Tom Robitaille, Brian Refsdal, Gus Muench
Copyright: 2011 Smithsonian Astrophysical Observatory

Navigation

- [index](#)
- [next](#) |
- [Python4Astronomers 1.1 documentation](#) »

Copyright: Smithsonian Astrophysical Observatory under terms of [CC Attribution 3.0](#)

