Section 1

MANE 3351

Subsection 1

Lecture 2

Classroom Management

Agenda

- Questions
- Review 1st day
- Introduction to Python
- Discuss lab today
- Call roll

Subsection 2

Resources

Handouts

- Lecture 2 Slides
- Lecture 2 Marked Slides

Assignments

- Create free GitHub account

Git

Figure 1: git

Source

GitHub

GitHub

Article Talk

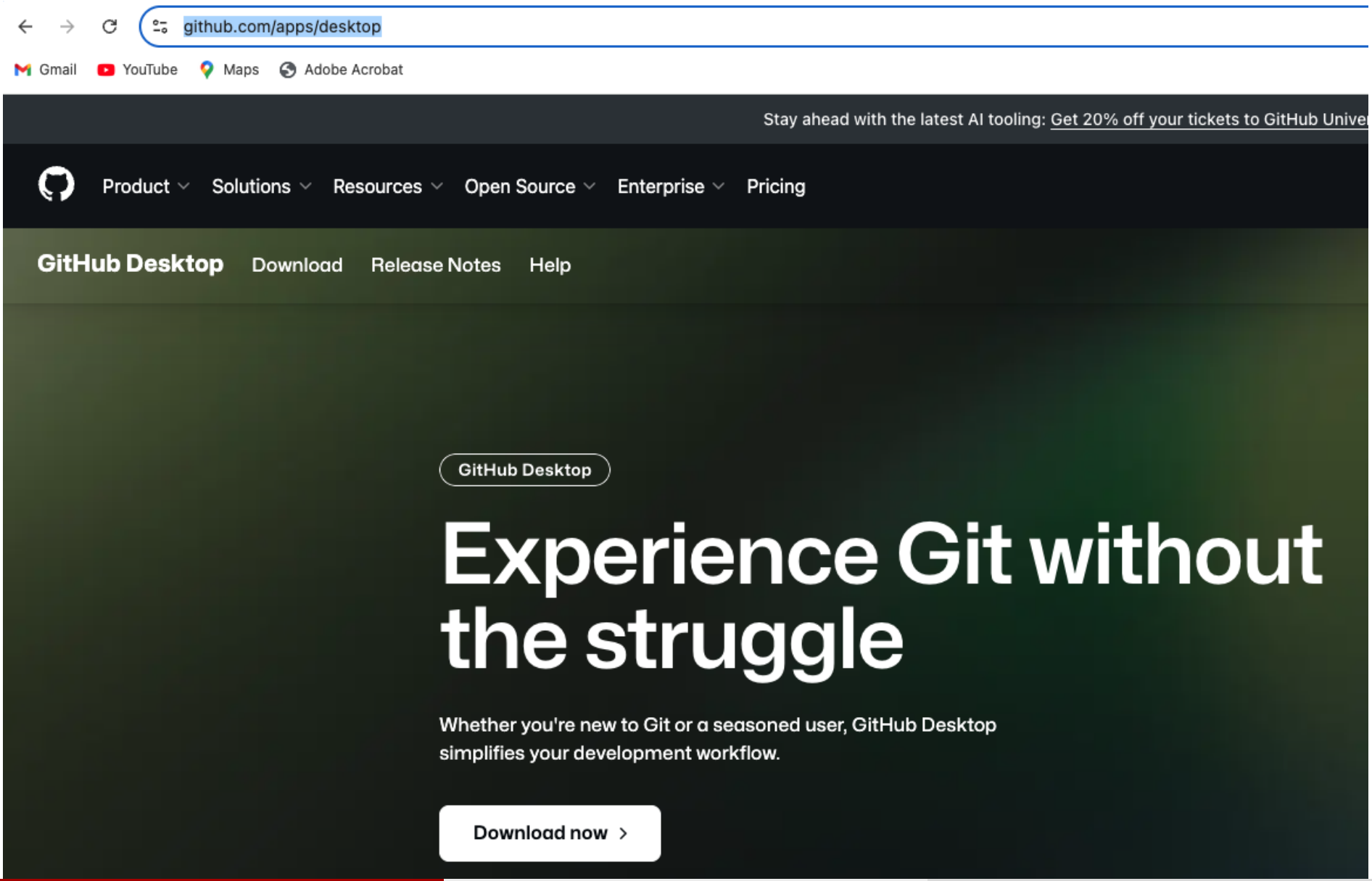
From Wikipedia, the free encyclopedia

Not to be confused with Git or GitLab.

GitHub (/ˈgɪthʌb/) is a developer platform that allows developers to create, store, manage and share their code. It uses Git software, providing the distributed version control of Git plus access control, bug tracking, software feature requests, task management, continuous integration, and wikis for every project.[6] Headquartered in California, it has been a subsidiary of Microsoft since 2018.[7]

It is commonly used to host open source software development projects.[8] As of January 2023, GitHub reported having over 100 million developers[9] and more than 420 million repositories,[10] including at least 28 million public repositories.[11] It is the world's largest source code host as of June 2023.

GitHub Desktop



Python with Jupyter Notebook

- Standard Normal Case 1

```
import matplotlib.pyplot as plt
import numpy as np
import scipy.stats as sct
import math

a=0.5

x=np.linspace(-4,4,500)
y=sct.norm.pdf(x,0,1)
y2=0.0*x
maske =(x<a)

plt.plot(x,y,'b')
plt.fill_between(x,y,color='#666666',where=maske)
plt.plot(x,y2,'b')
plt.show()
```

First 4 Lines

- Imports allow external packages to be used
- Most standard packages are included in the Anaconda installation
  - **Matplotlib** "is a Python 2D plotting library which produces publication quality figures in a variety of hardcopy formats and interactive environments across platforms. Matplotlib can be used in Python scripts, the Python and IPython shells, the Jupyter notebook, web application servers, and four graphical user interface toolkits"
  - **NumPy** "is the fundamental package for scientific computering with Python. It contains amont other things: 1). a powerfull N-dimensional array object, 2). sophisticated (broadcasting) functions, 3. tools for integrating C/C++ and Fortran code, and 4). usefull linear algebra, Fourier transform, and random number capabilities."
  - **SciPy** "is a Python-based ecosystem of open-source software for mathematics, science, and engineering. In particular, these are some of the core packages: NumPy, SciPy library, Matplotlib, IPython, Sympy, and pandas."
  - **Math** "provides access to the mathematical functions defined by the C standard."

Python Libraries

Numpy Linspace

NumPy User Guide API reference Building from source Development Release notes Learn More

- numpy.rec.fromrecords
- numpy.rec.fromstring
- numpy.rec.fromfile
- numpy.char.array
- numpy.char.asarray
- numpy.arange
- numpy.linspace
- numpy.logspace
- numpy.geomspace
- numpy.meshgrid
- numpy.mgrid
- numpy.ogrid
- numpy.diag
- numpy.diagflat
- numpy.tri
- numpy.tril
- numpy.triu
- numpy.vander
- numpy.bmat

Array manipulation routines

Bit-wise operations

NumPy reference > ··· > Array creation routines > numpy.linspace

numpy.linspace

numpy.linspace(*start*, *stop*, *num=50*, *endpoint=True*, *retstep=False*, *dtype=None*, *axis=0*, *, *device=None*) [source]

Return evenly spaced numbers over a specified interval.

Returns *num* evenly spaced samples, calculated over the interval [*start*, *stop*].

The endpoint of the interval can optionally be excluded.

Changed in version 1.16.0: Non-scalar *start* and *stop* are now supported.

Changed in version 1.20.0: Values are rounded towards `-inf` instead of `0` when an integer `dtype` is specified. The old behavior can still be obtained with `np.linspace(start, stop, num).astype(int)`

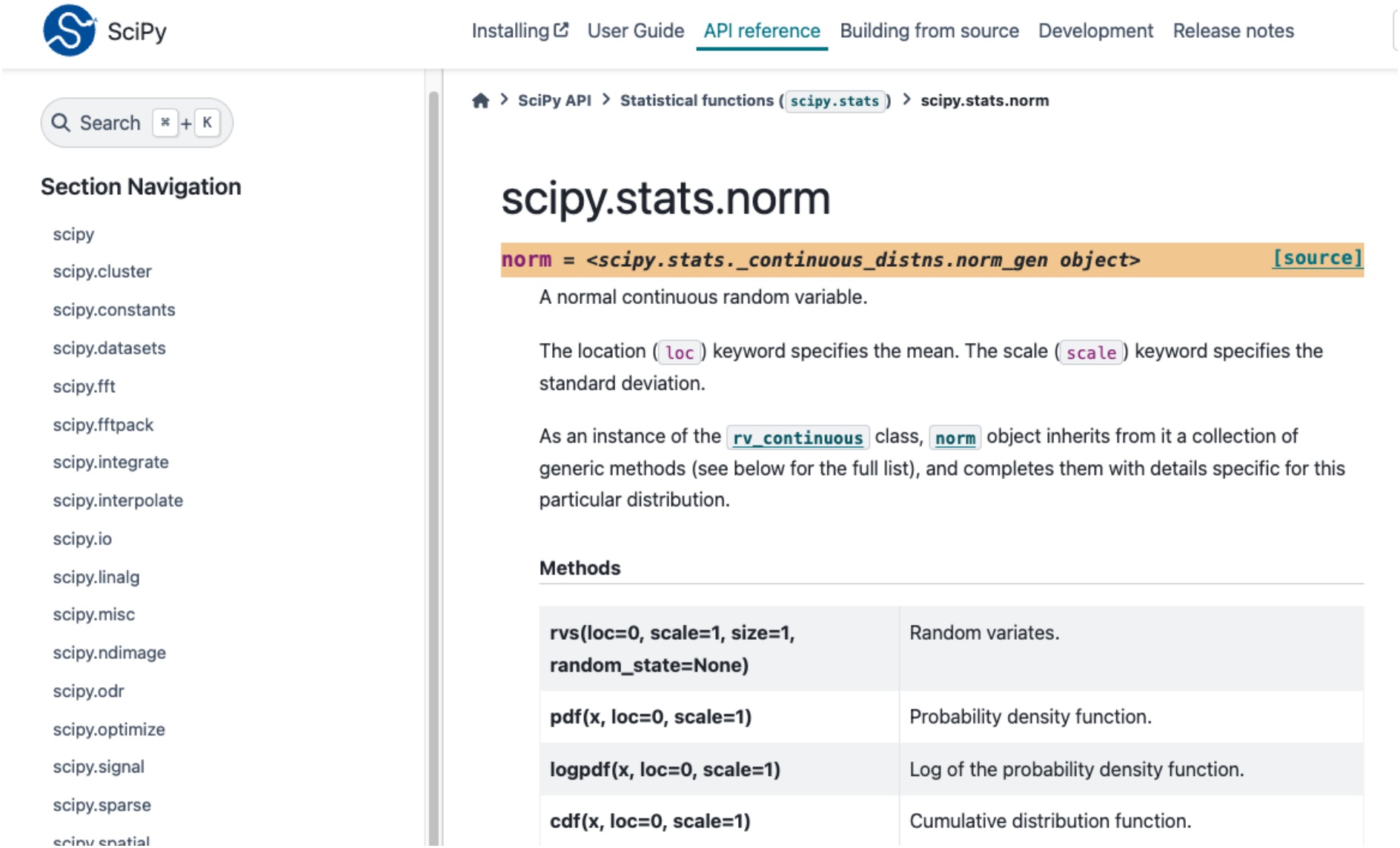
Parameters:

start : *array_like*

The starting value of the sequence.

stop : *array_like*

scipy.stats.norm



SciPy

Installing | User Guide | API reference | Building from source | Development | Release notes

Search ⌘+K

Section Navigation

- scipy
- scipy.cluster
- scipy.constants
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- scipy.fft
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- scipy.io
- scipy.linalg
- scipy.misc
- scipy.ndimage
- scipy.odr
- scipy.optimize
- scipy.signal
- scipy.sparse
- scipy.spatial

SciPy API > Statistical functions (`scipy.stats`) > scipy.stats.norm

scipy.stats.norm

`norm = <scipy.stats._continuous_distns.norm_gen object>` [source]

A normal continuous random variable.

The location (`loc`) keyword specifies the mean. The scale (`scale`) keyword specifies the standard deviation.

As an instance of the `rv_continuous` class, `norm` object inherits from it a collection of generic methods (see below for the full list), and completes them with details specific for this particular distribution.

Methods

rvs(loc=0, scale=1, size=1, random_state=None)	Random variates.
pdf(x, loc=0, scale=1)	Probability density function.
logpdf(x, loc=0, scale=1)	Log of the probability density function.
cdf(x, loc=0, scale=1)	Cumulative distribution function.

Matplotlib

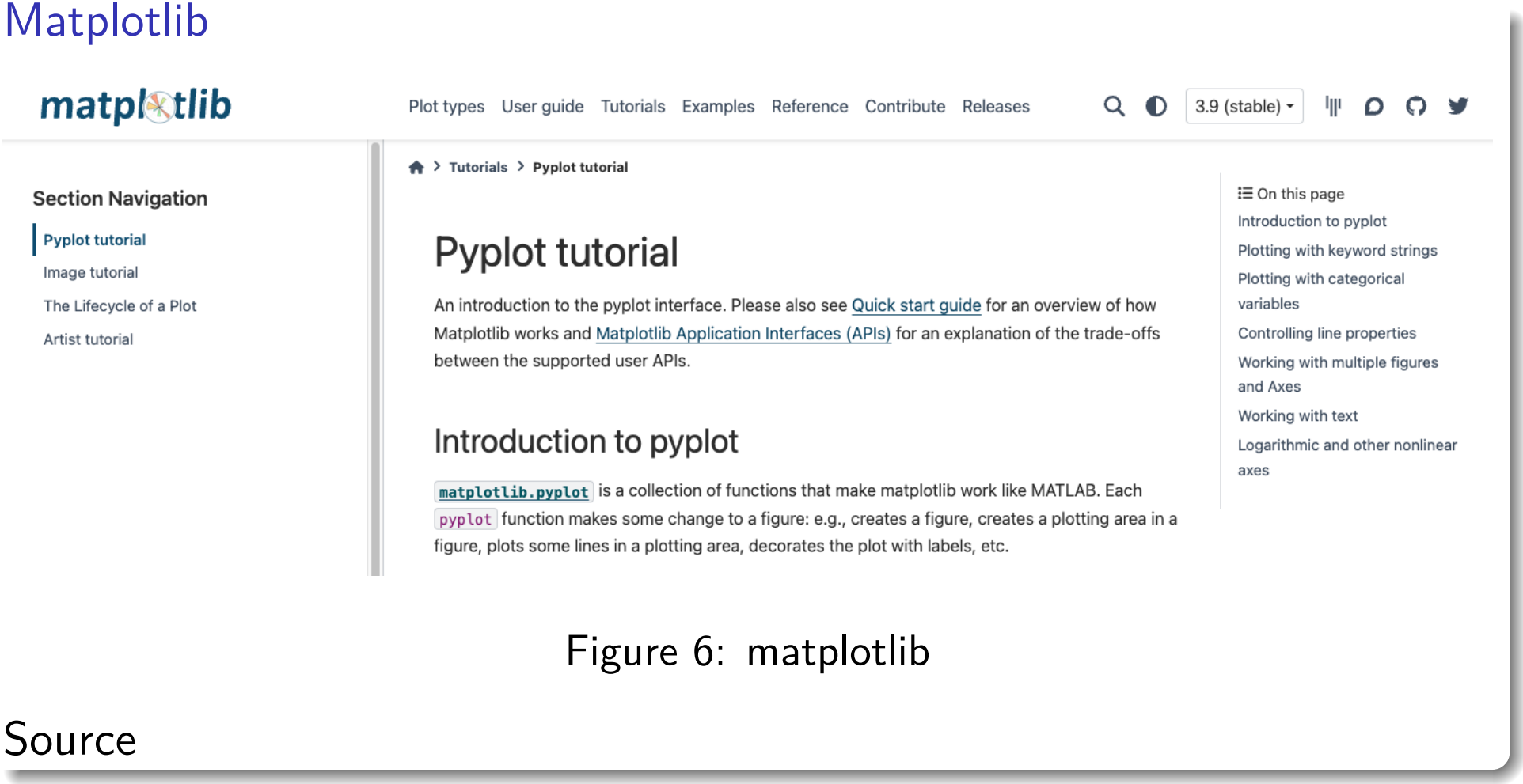

Figure 6: matplotlib

Source