

Printout

Wednesday, August 28, 2024 9:36 AM

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

Linux



git --fast-version-control

Search entire site...

Git is a **free and open source** distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is **easy to learn** and has a **tiny footprint with lightning fast performance**. It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like **cheap local branching**, **convenient staging areas**, and **multiple workflows**.



Figure 1: git

Source

GitHub

Article [Talk](#)

From Wikipedia, the free encyclopedia

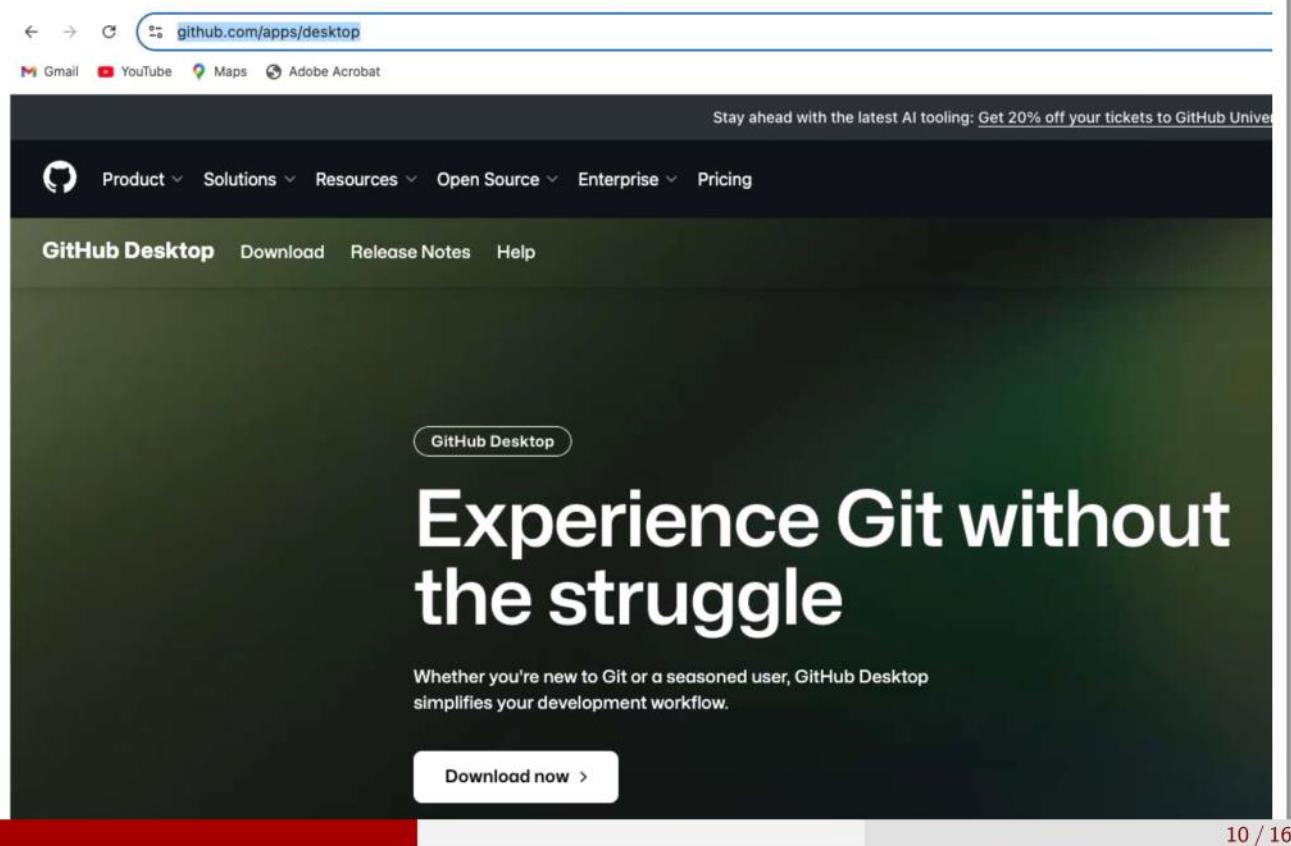
Not to be confused with [Git](#) or [GitLab](#).

free

GitHub (/gɪt̬hʌb/) 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



The screenshot shows a web browser displaying the GitHub Desktop landing page. The URL in the address bar is github.com/apps/desktop. The page features a dark green background with the GitHub logo and the text "Experience Git without the struggle". A "Download now" button is visible at the bottom. The top navigation bar includes links for Product, Solutions, Resources, Open Source, Enterprise, and Pricing. A promotional banner at the top right offers a 20% discount on GitHub Universe tickets.

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 computing with Python. It contains among other things: 1). a powerful N-dimensional array object, 2). sophisticated (broadcasting) functions, 3. tools for integrating C/C++ and Fortran code, and 4). useful 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



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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

Home > 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

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- scipy
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- scipy.io
- scipy.linalg
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- scipy.optimize
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- scipy.sparse
- scipy.stats

[Home](#) > [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.

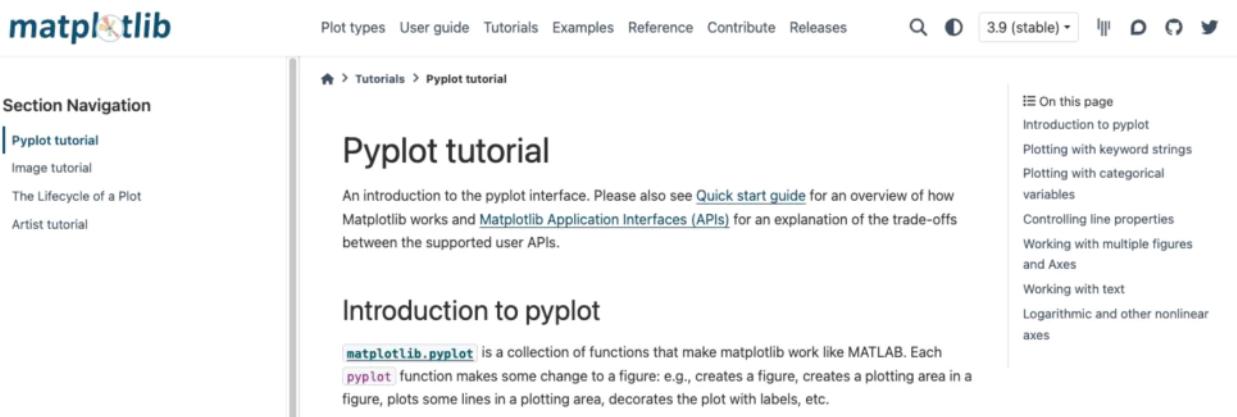
The location (`loc`) keyword specifies the mean. The scale (`scale`) keyword specifies the standard deviation.

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

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

Matplotlib



The screenshot shows the Matplotlib website with the following details:

- Header:** The Matplotlib logo, navigation links for Plot types, User guide, Tutorials, Examples, Reference, Contribute, and Releases, a search bar, and a version dropdown set to 3.9 (stable).
- Breadcrumbs:** Home > Tutorials > Pyplot tutorial
- Section Navigation:** Pyplot tutorial, Image tutorial, The Lifecycle of a Plot, and Artist tutorial.
- Content:** The Pyplot tutorial page. It includes an introduction, a note about the pyplot interface, and a detailed description of the pyplot module.
- Right sidebar:** A list of topics under "On this page" including: Introduction to pyplot, Plotting with keyword strings, Plotting with categorical variables, Controlling line properties, Working with multiple figures and Axes, Working with text, and Logarithmic and other nonlinear axes.

Figure 6: matplotlib

Source