

# Python for Astronomy

## 6-Week Course Schedule (June 13 – July 20, 2025)

Week	Day	Date	Session #	Topic	Notes / Assignments
1	Fri	June 13	0	Orientation	Course overview, tools setup
1	Sat	June 14	1	Python Basics: variables, loops, functions, NumPy, Matplotlib, Pandas	Basic Python for astronomy examples
1	Sun	June 15	2	<b>Git &amp; GitHub for Astronomy Projects</b>	Version control, Git commands, GitHub setup. <b>Assignment:</b> Submit a Python script on GitHub
2	Fri	June 20	3	FITS Image Handling with Astropy	Reading and plotting FITS files
2	Sat	June 21	4	Astropy: Units, Coordinates, Time	Handling astronomical units and coordinates
2	Sun	June 22	5	Introduction to GALAMO (Galaxy Analysis & Modeling)	Galaxy morphology basics
3	Fri	June 27	6	Statistics & Simulation: mean, median, std dev, distributions, Monte Carlo simulations	Simulating $\pi$ and star clusters
3	Sat	June 28	7	Bayesian Statistics: Estimating stellar distances	Bayesian inference basics
3	Sun	June 29	8	SQL with Astroquery: Accessing astronomical databases	Querying data using Astroquery and SQL
4	Fri	July 4	9	Spectroscopy Basics: redshift, spectral fitting, emission/absorption	Spectrum analysis
4	Sat	July 5	10	Introduction to Active Galactic Nuclei (AGNs)	AGN physics and properties
4	Sun	July 6	11	BPT Diagram for AGN classification (SDSS data)	Using real data to classify galaxies
5	Fri	July 11	12	Advanced Data Analysis Problems (Topic 1)	Hands-on problem solving
5	Sat	July 12	13	Advanced Data Analysis Problems (Topic 2)	Continued hands-on
5	Sun	July 13	14	Advanced Data Analysis Problems (Topic 3)	Continued hands-on
6	Fri	July 18	15	Final Project Briefing & Topic Reveal	Project instructions and expectations
6	Sat	July 19	16	Final Project Q&A & Mentorship	Individual check-ins
6	Sun	July 20	17	Final Project Q&A & Mentorship	Continued support
<b>Final Project Work Period:</b>				July 21 – August 4, 2025	15 days to complete and submit project

**Notes:**

- GitHub will be used for all assignments and project submissions.
- PDF notes and supplementary materials will be shared every Friday.
- Live sessions are 2 hours each, including Q&A.
- Final project submission deadline: August 4, 2025.
- Time table is subject to changes.