Syllabus

ASTR 302: Python for Astronomy (Winter '24)

M-W, 2:30-3:50, PAA 216
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ASTR 302, "Python for Astronomy", is a course designed to teach how to effectively use Python for research and astronomical data analysis. We begin with a gentle introduction to key tools and libraries used in astronomy, use these to analyze data (from kilobytes to tens of gigabytes!), visualize (sometimes large) datasets, automate analyses, and apply what we've learned to reproduce results of some key astronomy papers.

This course assumes you know Python and related astronomy libraries at the ASTR 300 level. It will give you the broad foundation needed to proceed to "ASTR 324: Introduction to Astrostatistics and Machine Learning in Astronomy", or ASTR 497 "Big Data in Astronomy: Hands-on with Large Surveys", or independent research projects.

Grading: Homeworks (30%) and a Final Project (70%).

When	***Topic***	***Notes***
Jan 3	Getting Started: Why Python for Astronomers?	
Jan 8	Basic Python Refresher	
Jan 10	Basic Python Refresher	
Jan 15	*-- no class --*	holiday
Jan 17	How to be organized and collaborative: git and github	hw1 due
Jan 22	git and github, part 2	
Jan 24	Interactive Data Analysis: Jupyter	
Jan 29	Agile software development	
Jan 31	Pitch day	hw2 due
Feb 5		
Feb 7		
Feb 12		
Feb 14		
Feb 19	*-- no class --*	holiday

Feb 21		hw4 due
Feb 26		
Feb 28		hw5 due
Mar 4		
Mar 6		
Mar 15	Demo Day	*Final Project Due*