Syllabus

ASTR 302: Python for Astronomy (Spring '24)

TTh, 10:00-11:20, PAA 210

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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***
Apr 1	Getting Started: Why Python for Astronomers?	
Apr 3	Basic Python Refresher	
Apr 8	Basic Python Refresher	
Apr 10	How to be organized and collaborative: git and github	
Apr 15	git and github, part 2	hw1 due
Apr 17	git and github, part 3	
Apr 22	Interactive Data Analysis: Jupyter	
Apr 25	Agile software development	
Apr 29	Pitch day	hw2 due
May 1	project work	
May 6	project work	
May 8	project work	
May 13	project work	Milestone #1
May 15	project work	

May 20	project work	
May 22	project work	
May 27	project work	Milestone #2
May 29	project work	
June 3	project work	
June 5	Demo Day!	*Final Project Due*