

CSAAPT Spring 2023 Semi-Virtual Meeting



Chesapeake Section of the
American Association of Physics Teachers
Spring 2023 Semi-Virtual Meeting
April 1, 2023 @ **JAMES MADISON UNIVERSITY**

Contribution ID: 8

Type: **talk (15-minute)**

Intro to Python for Scientists and Engineers: A bootcamp for data science.

Saturday, April 1, 2023 10:15 AM (15 minutes)

I will describe a new course offered in the Physics Department at the University of Virginia. It satisfies the basic computing requirement for physics and astrophysics (as well as several other major/minor requirements at the university). However, it is a general-education course, and as such, it does not focus on examples from the physical sciences. Instead, it focuses on the foundation of coding skills and statistics background that are required to employ the powerful data-science tools available in Python. The class covers Linux, Python, batch jobs, statistical methods and probability distributions, visualizing and analyzing data with Matplotlib, and concludes with a few lectures and assignments working with classification tools in Scikit-learn (neural networks for example). The goal is for students to develop general skills that are valid in most research and industrial environments. This is accomplished via a flipped classroom pedagogy employing a mini-lecture followed by extensive practice each day in class.

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Session Classification: Morning Session 2B