**AMS Short Course Agenda Outline**

**Data Visualization in Python: Leveraging Community Tools for Earth System Science Across Scales**

**Pre-work:** Participants should review Project Pythia Foundations if they are not already familiar with Python, Jupyter, and core scientific Python packages such as Matplotlib, Cartopy, and Xarray.

| **Activity/Method** | **Content Description** | **Support Materials** | **Estimated Time** |
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| Introductions | Introductions from instructors and a brief overview of the course and expectations (includes launching the tutorial environment) | Schedule | 20 min |
| Lecture | Fundamentals of data visualization for Earth System science and an overview of relevant packages in the scientific Python ecosystem | Slides | 30 min |
| Hands-on exercise | Dive into visualization tools and resources through interactive notebooks and exercises exploring options for customization, specialty plots, interactivity, and more | Jupyter Notebooks | 60 min |
| Break | | | 10 min |
| Lecture | Introduction to unstructured grids (flexible meshes) in Python and tools for visualization | Slides | 20 min |
| Hands-on exercise | Interactive notebooks and exercises exploring visualization of Earth System science data on unstructured grids | Jupyter Notebooks | 50 min |
| Break | | | 10 min |

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| Discussion / Q&A | Discussion on common challenges and pain points | | 20 min |
| Lecture / Demonstration | Community resources for data analysis and visualization | Slides | 10 min |
| Wrap-up | Review key concepts, resources, and ways to engage with community efforts | Slides<br><br>Handout with resources and links to additional information | 10 min |