**FALL 2020**

**MINI-COURSES AND WORKSHOPS**

researchcomputing.princeton.edu/workshops

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**USING THE RESEARCH COMPUTING CLUSTERS**

- Intro to the Linux Command Line
- Getting Started with the Research Computing Clusters
- Data Transfer Basics and Best Practices
- Leveraging the Advanced Capabilities of the Traverse Supercomputer

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**HIGH-PERFORMANCE COMPUTING (HPC)**

- Performance & Vectorization
- High-Performance Python: CPUs
- A Primer on GPU Programming
- High-Performance Python: GPUs
- Parallel Programming Workshop (by Intel)

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**RESEARCH SOFTWARE ENGINEERING**

- Good Practices for Research Software Engineering
- Floating-Point Arithmetic is Not Real
- Intro to Code Debugging
- MATLAB Profiling and Optimization

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**IMPROVING YOUR COMPUTING WORKFLOW**

- Command Line Power Tools
- Removing the Tedium from Your Research Workflow
- Improving Analysis Workflows with Snakemake
- Intro to Version Control Using Git

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**MACHINE LEARNING**

- Machine Learning for Your Research
- Azure Machine Learning
- Intro to the Machine Learning Libraries

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**USING THE CLOUD**

- Learn to Speak Cloud
- Follow the Money: Best Practices for Cloud Optimization
- Azure Fundamentals

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**R**

- Intro to Data Analysis Using R
- Intro to R Graphics Package: ggplot2
- Using R on the Princeton HPC Clusters

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**PYTHON**

- Intro to Programming Using Python
- Intro to Data Analysis Using Python
- Python Programming Techniques
- Intro to Numpy
- Mixing Python and Compiled Code

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**VISUALIZATION**

- How to Make Effective Plots (using R)
- How to Make Effective Plots (using Python)
- Scientific Visualization

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**GEOGRAPHIC INFORMATION SYSTEMS (GIS)**

Workshops on QGIS and ArcGIS Pro, including:

- How to Create and Collect Geographic Data
- Select and Analyze Geographic Features and Data
- Making Maps and Presentations, and more.

See https://library.princeton.edu/collections/pumagic/workshops

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Organized by Princeton Research Computing, a consortium of campus groups led by the Princeton Institute for Computational Science & Engineering (PICSciE) and OIT Research Computing.

Participating Departments: Center for Statistics and Machine Learning, Data & Statistical Services, IRIS-HEP Software Institute, Lewis-Sigler Institute for Integrative Genomics, Molecular Biology, Princeton Neuroscience Institute, Politics, Population Research, Princeton Plasma Physics Laboratory, University Library and Sociology

To register, and for more information, visit: researchcomputing.princeton.edu/workshops