Quick IT Tips for Computational Research Projects

Use GitHub or GitLab.oit.duke.edu (Duke platform) to setup your code/project.
Need help with technical skills? Take a Roots course: https://colab.duke.edu/roots/track?id=6

Data Storage

- Box – 50GB (use Toolkits to create a group owned repository that doesn't count against your quotas)
- Student home directories (CIFS, 5GB but expandable): https://oit.duke.edu/what-we-do/applications/cifs
- Ask your faculty advisor to create a 200GB Data Commons storage space (through rtoolkits) that can be mounted (instructions: https://oit.duke.edu/help/articles/kb0026376) to Duke machines

Data Acquisition, Exploratory Analysis, Model Development, Visualization

- OIT Virtual Computing Labs – Get a VM or RStudio/Jupyter Notebook: https://vcm.duke.edu
    - Your faculty advisor can request increases in storage space, or special/dedicated VM builds
    - Specialty software can be acquired at software.duke.edu
- Special note on web scraping: follow any published guidelines from the source, do not automate to the point of creating a denial of service attack, and do not perform from the DCC
- Visit https://library.duke.edu/data/ for visualization advice, consultation and specialized software tools
- Visit https://ssri.duke.edu/data-and-it-services/data-management for additional datasets, collection advice, consultation and specialized software tools

Data Processing, Model Training, Etc

- If you computational needs go beyond computing labs and you need parallel computing, DCC access is provided by your faculty advisor

General Duke IT Resources - oit.duke.edu (search names as below)

Duke virtual and physical computing labs are available to all Duke faculty, students, and staff. Virtual resources have renewable semester long reservations.

Software is available to download from a library of more than 100 software packages for free or at a steep discount.

Websites can be self-published using WordPress. Note: fee-based services are also available for advanced site design and support.

Collaboration and Communication are offered to support the Duke community: surveys using Qualtrics (or REDCap, file sharing and storage using Box, and conferencing through Zoom and Webex.

Innovation Co-Lab offers technical training through the Roots program and studio space for digital modeling and fabrication on West Campus and at the Ruby.

Researcher quick tips for using general IT resources:

- Use **Toolkits** to create and define online groups for use of IT resources for groups or projects (avoids personally 'owning' the resource)
- Request a **Sponsored Account** for external collaborators that may need access to some of your Duke resources

Research Computing Services - oit.duke.edu (search Research Computing), rescomputing@duke.edu

Virtual Machines for Research, called RAPID VMs, are provided to Duke faculty (or designees) automatically with an allocation of 4 CPU cores, 40GB of RAM, and 200GB of storage. VMs are self-service and managed through a web interface.

Duke Compute Cluster is a high throughput, high performance LINUX cluster for research support. At present, there are over 20,000 CPU cores, and 350 GPUs. Access is provided by the University for common use and researchers can purchase dedicated nodes for their research. Storage is provided for data under analysis.

Data Commons storage can be used in conjunction with Research Computing services or stand-alone as archival storage of research data. It is $80 per TB per year.

The Research Computing team provides support and consultation including: training, grant support, and partners with researchers to develop new tools.

Research with Sensitive Data - security.duke.edu (security@duke.edu) and campusirb.duke.edu (campusirb@duke.edu)

Review Duke security policies and data security standards. Engage Campus IRB for protocol review and approval for human subject research.

Duke's Protected Data Network is a resource for analysis and storage of sensitive research data. Fees may apply, consulting can be engaged through your school and/or SSRI to create appropriate data protection plans for research.

Researcher quick tips for data security:

- Know your data classification: https://security.duke.edu/policies/data-classification-standard
- Know which Duke tools support restricted or sensitive data: https://security.duke.edu/policies/duke-services-and-data-classification
- For campus based researchers, get help from: https://ssri.duke.edu/research-data-security
- For Duke patient data, get help from: https://pace.ori.duke.edu