Introduction to Computing at UConn Statistics
for New and Returning Graduate Students

Jun Yan

Department of Statistics
University of Connecticut

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University of Connecticut
Outline

1. Departmental Resources
2. University Resources
3. Daily Computing
4. Suggestions
Labs in Austin

- **Research lab (AUST 339, upgrade in progress)**
  - 10 Windows computers
  - 5 Linux computers
  - Login with NETID

- **Teaching lab (AUST 340)**
  - 20 Thin-clients: stateless desktop devices that have no hard drive, accessing the UConn vPC pool.
  - Login with NETID

- Lab names suggest their purposes.
Lab Policies

- Keep the door locked.
- No unplugging any power cable (someone might be remotely accessing the computers).
- No unauthorized people (e.g., friends or students).
- No food or drinks.
- No installation of unauthorized software.
- No locking Windows computers.
- Web browsing record is not private information.
- Research lab computers print to a printer in the main office (AUST 323).
Beowulf Cluster (Remote from Physics)

- High performance cluster that allows you to run several hundred jobs at the same time. Perfect for simulation studies. 
  - 32 x 8 old nodes supported by an NSF SCREMS grant in 2008
  - 7 x 24 new nodes thank to faculty contribution in 2014
  - 7 x 24 new nodes supported by CLAS in 2015

- Only graduates students doing research supervised by their advisor. may have an account on the cluster.

- Security measure: Only accessible in uconn domain or through vpn.

- Open-source software: R, OpenBUGS. Currently maintained by Jun Yan and Yan Li.
Using the Cluster with Condor

- Designed usage: many smaller jobs. Need to learn how to submit and manage jobs with condor.
  - Overly long jobs may never get finished if you use the vanilla universe (which is the case if you use R).
  - Overly long jobs may be killed and may penalize your future access.
  - Split long jobs and control their sequence with condor DAG. (examples of running OpenBUGS available)
- Introduction to the cluster by Cheng Tu on Monday, Sep. 9, 4:40 pm, AUST 344, for beginners.
University Labs/Software

- Computer Lab in Homer Babbidge Library: 106 PCs and 31 Macs available to all students [https://lib.uconn.edu/location/homer-babbidge-library/technology-services/](https://lib.uconn.edu/location/homer-babbidge-library/technology-services/)

- Available software (commercial and open-source; statistics and others): [https://software.uconn.edu/](https://software.uconn.edu/)

- Remote access through UConn AnyWare [https://software.uconn.edu/uconn-software-online/](https://software.uconn.edu/uconn-software-online/)
UConn High Performance Computing (HPC)

- Focuses on tightly-coupled computational problems capable of scaling from a single computer to hundreds of compute nodes.
- Supports a lot of statistical software, including big data tools such as Hadoop, Hive, Spark, etc.
- All students can get access (provided an advisor’s NETID)
- More details at https://hpc.uconn.edu/storrs/.
- UConn HPC Cluster wiki:
  https://wiki.hpc.uconn.edu/index.php/Main_Page
Use professional tools for professional works

- R
- Python
- SAS
- SPSS, MatLab, Mathematica, Maple
Publishing (Word Processing)

- Professional publishing with \LaTeX, BibTeX
- Free distributions: MikTeX, TeXnic.
- Combination with R packages bookdown, blogdown, rmarkdown or knitr for reproducible research or homework.
- Use it in your daily life: notes, letters, teaching materials, project report, manuscript, thesis ...
- Local \LaTeX from my webpage: UConn Thesis, UConn Stat Letter Head.
Suggestions for Improving Computing Skills

- Students with good computing skills are in high demand.
- Learn by doing. No need to take a course to learn any computing skills.
- Read the error message and read it carefully.
- Google the error message.
- Let the professionals do their job — Git, Linux, Emacs, \LaTeX, BibTeX, R, Shiny, SAS, Python...
- Have some styles: Spend time learning the right way and enjoy the elegance, or do it the clumsy way again and again for the rest of your life.
- Help your peers.