

Computational Resources at UW-Madison

Computation in Biology

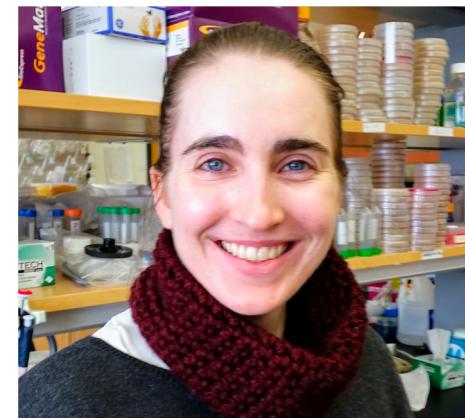
- Biology is often very data heavy
- Most biologists aren't trained in computation/programming (yet)
- But most of you will need some of these skills
- Your PI/labmates might not be able to help you but...
- You don't have to struggle through this alone!

ComBEE

- Computational Biology, Ecology, and Evolution Group
- Student organized group
- Monthly Meetings about Computational Biology or Theoretical Ecology/Evolution
 - Social gathering Sept. 7th @ 4pm in 6201 MSB
- Bi-weekly R/python study groups
- <https://combee-uw-madison.github.io>
 - Sign up for our listserv to get updates!



Elizabeth McDaniel
MDTP Student
McMahon Lab



Kirsten Gotting
Genetics Student
Currie Lab

ComBEE R/Python Study Groups

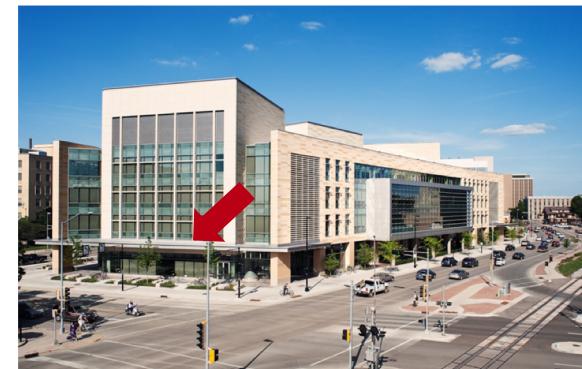
- These groups meet on opposite weeks
- Generally informal discussion of topics
- Topics vary decided on based on group interests
- Meet on Thursdays at 2pm in MSB 5503
 - Subject to change, sign up for listserv if you are interested in joining
- [Python Study Group website](#)
- [R Study Group website](#)
- Sign up for their individual listservs if you are interested

Data Science Hub

- What is Data Science?
 - **Data Science: the study, development, or application of methods that reveal new insights from data. [working definition, the field is evolving]**
 - You may apply data science methods in your research
- <http://datascience.wisc.edu/>
- First-stop for data science questions
 - If we can't help you, we will find someone who can
- Hosts data Science training workshops
- Building community and facilitating collaborations



Sarah Stevens
Data Science Facilitator
MDTP



Discovery Building

What are Software and Data Carpentry?



software carpentry



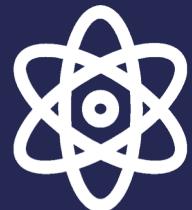
One Organization
with an
international
community of
volunteers



that develop
lessons, train
instructors +
organize
workshops



in **data**
management and
software
development
best practices



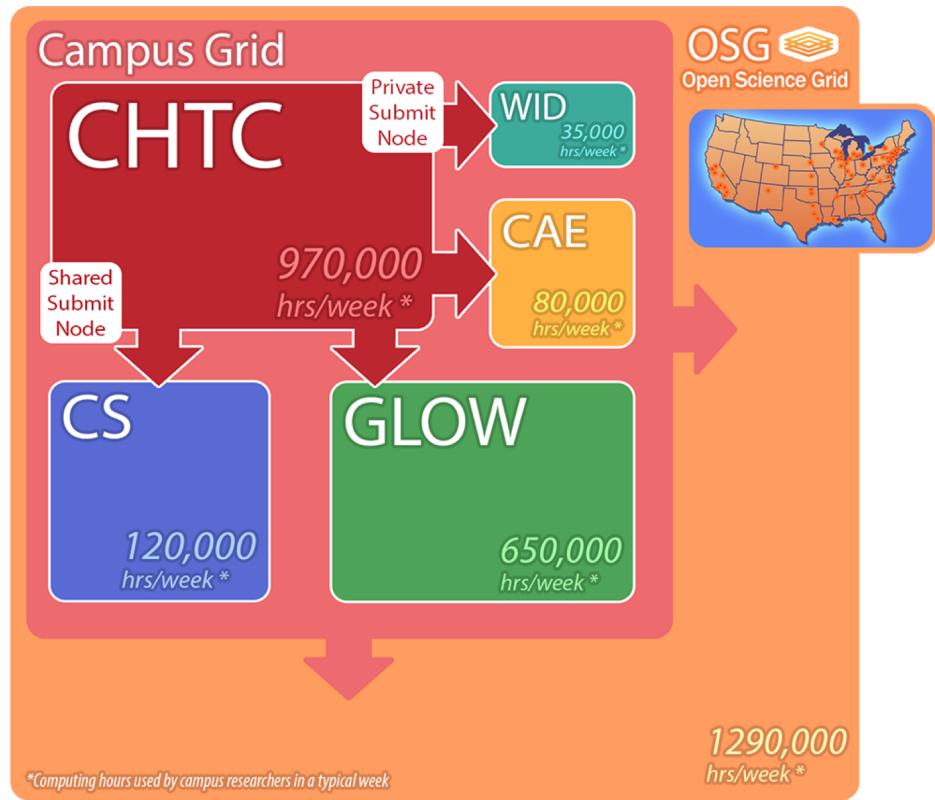
For and by
researchers
across disciplines

Carpentries on Campus

- 2 free workshops hosted at beginning of each semester
 - Next workshops January 2019
 - SWC: Unix shell, python (or R), and version control (git)
 - DC: excel, openRefine, SQL, R
- Large local community of instructors
- If interested you can help out or instruct these workshops
 - Professional Development/Teaching opportunity
- For updates about registration (and other computation/data science events on campus) sign up for Data Science Hub listserv
 - Send email to join-dshubcommunity@lists.wisc.edu

Center for High Throughput Computing (CHTC)

- Campus resource
- Scale up your computational work
- Can run more analyses (and bigger jobs) using their resources
- Facilitators who can help you get started



Quantitate Biology Initiative

- Initiative to bring together quantitative biology on campus
 - <https://qbi.wisc.edu/>
- Minor in Quant Bio
 - <https://qbi.wisc.edu/education/phd-minor/>
- Weekly Seminar Series
 - <https://wid.wisc.edu/seminars/qbio/>

MADISON



Hub

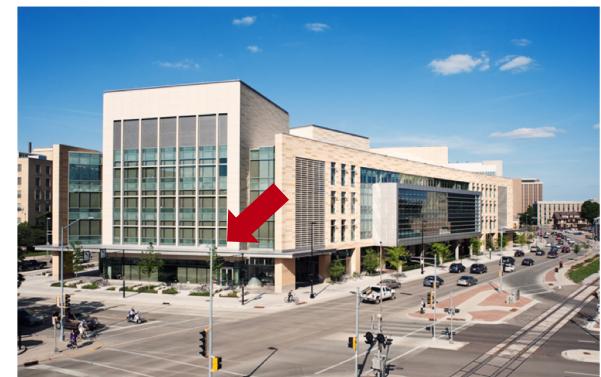


Services

- Experimental design
- Technical consultation
- Data analysis
- Coordinating collaborative research
- Data management
- Conducting outreach activities
- Developing workshops, teaching modules, seminar series and conferences

**Sailendharan Sudakaran
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UNIVERSITY OF WISCONSIN-MADISON

Biotechnology Center



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INSTITUTE FOR DISCOVERY

WID.WISC.EDU

Other courses

- MICROBIO 657: Bioinformatics for Microbiologists
 - Garret Suen, Spring 2019
- STATS 679: Computing Tools for Data Analytics
 - Cecile Ane, Fall 2018
- BMI 541 - Introduction to Biostatistics
- BMI 576 - Introduction to Bioinformatics
- BMI 776 - Advanced Bioinformatics
- CS301 - Introduction to Data Programming

Biotech Center

- Biotech Center on campus also offers Bioinformatics workshops (cost \$\$)
- Workshops include:
 - Linux Basics for NGS Data Analysis
 - Intro to NGS Data Analysis
 - Microbiota Processing in mothur
 - Microbiota Analysis in R
 - mRNAseq Analysis
 - Advanced mRNAseq differential gene expression
 - Single-cell RNA-seq
 - ChIPseq Workshop
- <http://www.biotech.wisc.edu/services/brc/workshop>

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