

EBIO 5460

Data Science for Biological Research

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Pronouns: he, him, his

Today

- Introductions
- How are we going to do this class?

Introductions

- Name
- Masters or PhD (what year)?
- Advisor
- Department
- What fascinates you (your research)?
- Hopes for the course

Data Science

- You will be confident to use a range of skills and concepts to:
- plan for, acquire, manage, analyze, infer or predict from, and report about datasets of any size in your area of biological research
- Focus: workflows and algorithms to learn from data

Algorithms and models

- Understand the broad classes
- Frequentist, Bayesian, likelihood, information theory, predictionist
- Emphasize multi-level linear models
- We'll start by
 - 1) learning how to program algorithms
 - 2) considering a simple linear relationship between y and x from each perspective above

Learning format

- **Flipped**, mostly. Short video lectures. Sometimes short live lectures.
- **Collaborative learning**. Work in small groups or share in small groups.
- **Slack**: collaboratively discuss the preclass work. Such collaborative learning is not only allowed but **encouraged** in this class!

Git & GitHub

- Class Github organization
- Bookmark this:
- <https://github.com/EBIO5460Fall2022>
- Organization, syllabus, timetable

Texts

- All on Google Drive or open source
- I'll provide all materials.
- This one is worth buying:
- McElreath, R (2020). *Statistical Rethinking: A Bayesian Course with Examples in R and Stan*. 2nd Ed.

Grading

- GitHub portfolio
- 50% continuous Github code commits
- 50% individual assignment

Homework

- Posted to GitHub
 - “preclass4wed”
- Update R & R studio
- Set up GitHub
- Intro to programming