Advanced stats and Open Science

BIO8940

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class: inverse, center, middle

Structure of the course

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Topics

- Intro to github with exercises
- Intro to Open science
- Intro to rmarkdown and to workflowr
- Mixed models
  - Intro, why, when and how
  - Non gaussian, non-linear ?
  - multivariate ?
- p-values and their limits

Structure of the course

Teaching style

- Minimum slides from myself
- flipped classroom or learning by problems
- Session = mixed of lecture, discussion and exercises

Structure of the course

Schedule

- to
- be
- decided

Assessment

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In class (50%)

- participation to discussion (20%)
- presentation on a given topic in small teams (30%)

Project (50%)

- analysis of data using techniques from courses or beyond
- Report written using Rmarkdown
- posted on Github classroom

Software and accounts

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Softwares

- R (version 4.0 or higher)
- Text editor: Rstudio or VSCode
- R packages (up to date)
  - open science: rmarkdown, tinytex
  - mixed models: lme4, gremlin, glmmTMB, MCMCglmm
  - latex: full version or tinytex

Accounts

- github (https://github.com/)
- Open Science Framework (OSF, https://osf.io/)

What is expected from you

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Weekly Reading

In class participation