#### Analytical Workflows

Philosophy

Outline

Website & Schedul

Accountabilibuddies

Accountabilibuddies

Accounts

Project Proposals

Our hope

# Analytical Workflows IB 516

Developed by Mark Novak and Ben Dalziel

Dept. of Integrative Biology Oregon State University

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# Course Principles

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#### Automation

Doing science involves repetition at multiple levels. Automation is more efficient and reduces mistakes.

### Reproducibility

Science should be reproducible, by others and you.

Your work must be readable, organized, and self-contained.

#### Correctness

Science's limitations are human.

We must work in ways that protect against 'bugs'.



<sup>&</sup>lt;sup>1</sup>See Allesina & Wilmes 2019

# Course Principles

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# Simplicity

Analyses should be coded as simply as possible. Clever and readable are often at odds.

**Openness** 

Science is a worldwide endeavor.

It, and access to it, should be free and equitable.

Science as Software Development

Science is a *process* - no final product, just versions and updates.

Software developers have tools to help.

<sup>1</sup>See Allesina & Wilmes 2019



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# Website & Schedule

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https://github.com/analyticalworkflows

# Accountabilibuddies

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- Weekly check-in
  - goals/deadlines, accomplishments, sticking-points
  - final 10 min. of Thursday class
  - Randomized pairing
    - re-randomized week 6

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# What you'll need

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#### Software

- Git
- ATEX

#### Accounts

GitHub<sup>1</sup>

### LATEX editor

- Stand-alone (TeXstudio, Visual Studio Code,...)
- Online (OverLeaf,...)

#### Git GUI

- Sourcetree
- GitHub Desktop

<sup>&</sup>quot;FINAL".doc FINAL\_rev.6.COMMENTS.doc FINAL\_rev.8.comments5. CORRECTIONS.doc FINAL\_rev.18.comments7. FINAL\_rev.22.comments49 corrections9.MORE.30.doc corrections 10 #@\$%WHYDIT ICOMETOGRADISCHOOL 2222 doc WWW.PHPCOMICS.COM

<sup>&</sup>lt;sup>1</sup>Please send me your username.

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# **Project Proposals**

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### Primary Goal

To develop more effective research skills.

### Secondary Goal

To make significant progress on your thesis.

### Our belief

We can achieve both in this course!

Let's get started!

.../TeachingMaterials/classes/ProjectProposal

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# We're all learning...

#### Analytical Workflows

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- Be kind to yourself
- Support each other