Analytical Workflows
IB 516

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Dept. of Integrative Biology
Oregon State University

Overview

Analytical
Workflows

Philosophy

Course
Outline
Website &
Schedule
Syllabus
Accountabilibuddies

Accounts &
Apps
Required

Project
Proposals

Our hope

1 Philosophy

2 Course Outline
   - Website & Schedule
   - Syllabus
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3 Accounts & Apps
   - Required

4 Project Proposals

5 Our hope

Overview

Course Principles

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'.

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[1]See Allesina & Wilmes 2019

Course Principles

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.

[1]See Allesina & Wilmes 2019

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https://github.com/analyticalworkflows

Accountabilibuddies

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

Overview

What you'll need
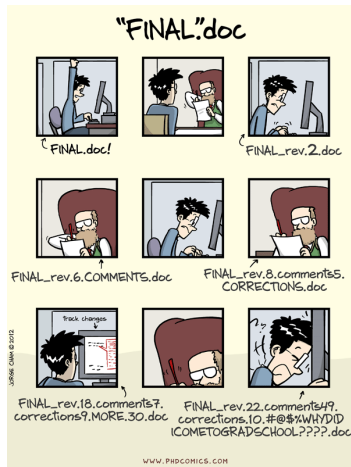
Software

- `Git`
- LaTeX

Accounts

- GitHub[1]

LaTeX editor

- Stand-alone *(TeXstudio, Atom,...)*
- Online *(OverLeaf,...)*

`Git` GUI

- Sourcetree
- GitHub Desktop

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[1]Please send me your username.

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Project Proposals

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

Overview

We're all learning...

- Be kind to yourself
- Support each other