

Analytical Workflows

IB 516

Developed by Mark Novak and Ben Dalziel

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

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- Required

4 Project Proposals

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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'.

¹See Allesina & Wilmes 2019

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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.

¹See Allesina & Wilmes 2019

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<https://github.com/analyticalworkflows>

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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
- L^AT_EX

Accounts

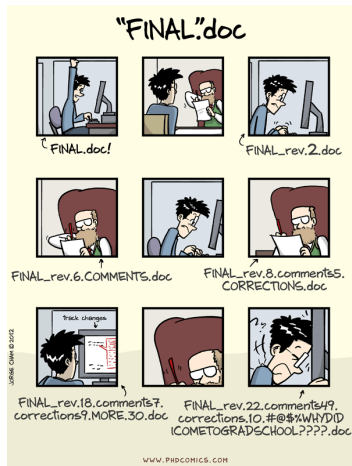
- GitHub¹

L^AT_EX editor

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

Git GUI

- Sourcetree
- GitHub Desktop



¹Please send me your username.

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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...

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- Be kind to yourself
- Support each other