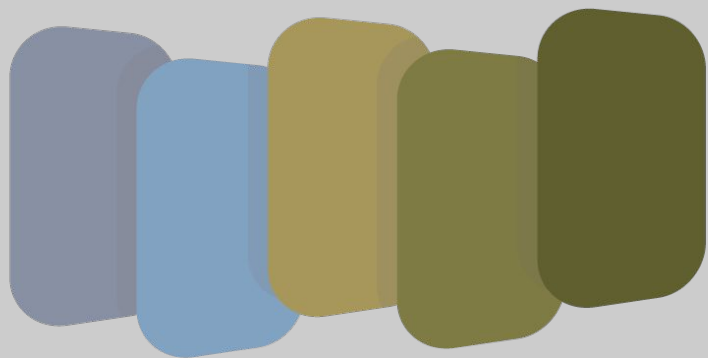


LEVEL UP!

YOUR SCIENTIFIC CODING

Level 2: Unit Testing



CSDMS

community surface
dynamics modeling system

Mark Piper

`mark.piper@colorado.edu`
`@mdpiper`

Benjamin Campforts

`benjamin.campforts@colorado.edu`
`@bcampforts`

PURPOSE

What's our goal here?

It's worth it for you, a busy scientist, to take the time to learn, and use, unit testing.

You'll save time and energy in the long run.

AGENDA

Here's what we're showing
you in the next 30 minutes.

- What?
 - Why?
 - grad student
 - postdoc
 - researcher
 - professor
 - Where?
 - our favorite online resources
 - How?
 - a short demo of unit testing with pytest
-

WHAT?

What is unit testing?

- When you write code, write tests that check that the code produces expected results
- Keys: isolate, cover, automate, reproduce

WHY?

Why should I use unit
testing if I'm a grad
student?

- Test data analysis code for your thesis
- Job skill

WHY?

Why should I use unit
testing if I'm a postdoc?

- Test code for journal articles
- Model development
- Productivity tool

WHY?

Why should I use unit testing if I'm a research scientist?

- Confidence that changes don't break existing code
 - Stop bugs before they happen!
 - Safety in a collaborative project
-

WHY?

Why should I use unit
testing if I'm a professor?

- Metrics for funding agencies
- Teamwork

WHERE?

Here are some of our
favorite resources for
learning how to use git and
GitHub effectively.

- *Code Complete*
wikipedia.org/wiki/Code_Complete
- Ministry of Testing
ministryoftesting.com
- pytest documentation
docs.pytest.org
- Clune and Rood (2011)
([included in level-up repo](#))

HOW?

A live demonstration of
using git and GitHub.

github.com/csdms/level-up

THANK YOU!

Thanks for watching this
webinar. We hope you enjoyed
it!

- You'll get a reminder when webinar recording is posted
- Example repository
github.com/csdms/level-up
- Next webinar:
object-oriented programming!
csdms.colorado.edu/wiki/Webinars