Welcome to the Workshop!

Workshop Website
https://uw-madison-aci.github.io/2018-01-10-uwmadison-swc/
Make sure you've completed the Setup!!

Etherpad (for collaborative notes)
http://pad.software-carpentry.org/2018-01-10-uwmadison-swc

Pre-Workshop Survey (1/2 of your entry fee!)
https://www.surveymonkey.com/r/swc_pre_workshop_v1

Check your setup!

Open Terminal or GitBash (Windows), and type the following:

`python --version`
Raise your hand if you DON'T have version **3.5.x** (where x can vary).

`python -c "import pandas"`
Raise your hand if you get an error.

`git --version`
Raise your hand if you get an error.

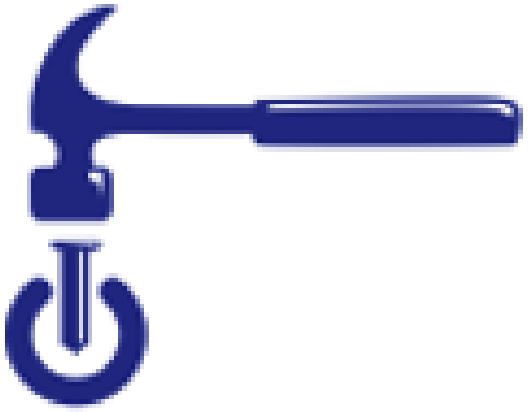
`nano --version`
Raise your hand if you get an error.

Workshop Logistics: Where Stuff Is

Restrooms
Across the hall

Beverages
Drinking fountain: across the hall
Coffee/tea: front left corner of room, all day

Lunch
On your own.
Need a fridge? Let us know.



Welcome to Software Carpentry!
January 10-11, 2018

<u>Instructors:</u>
Carolyn Voter
Christina Koch
Patrick Shriwise
Sarah Stevens

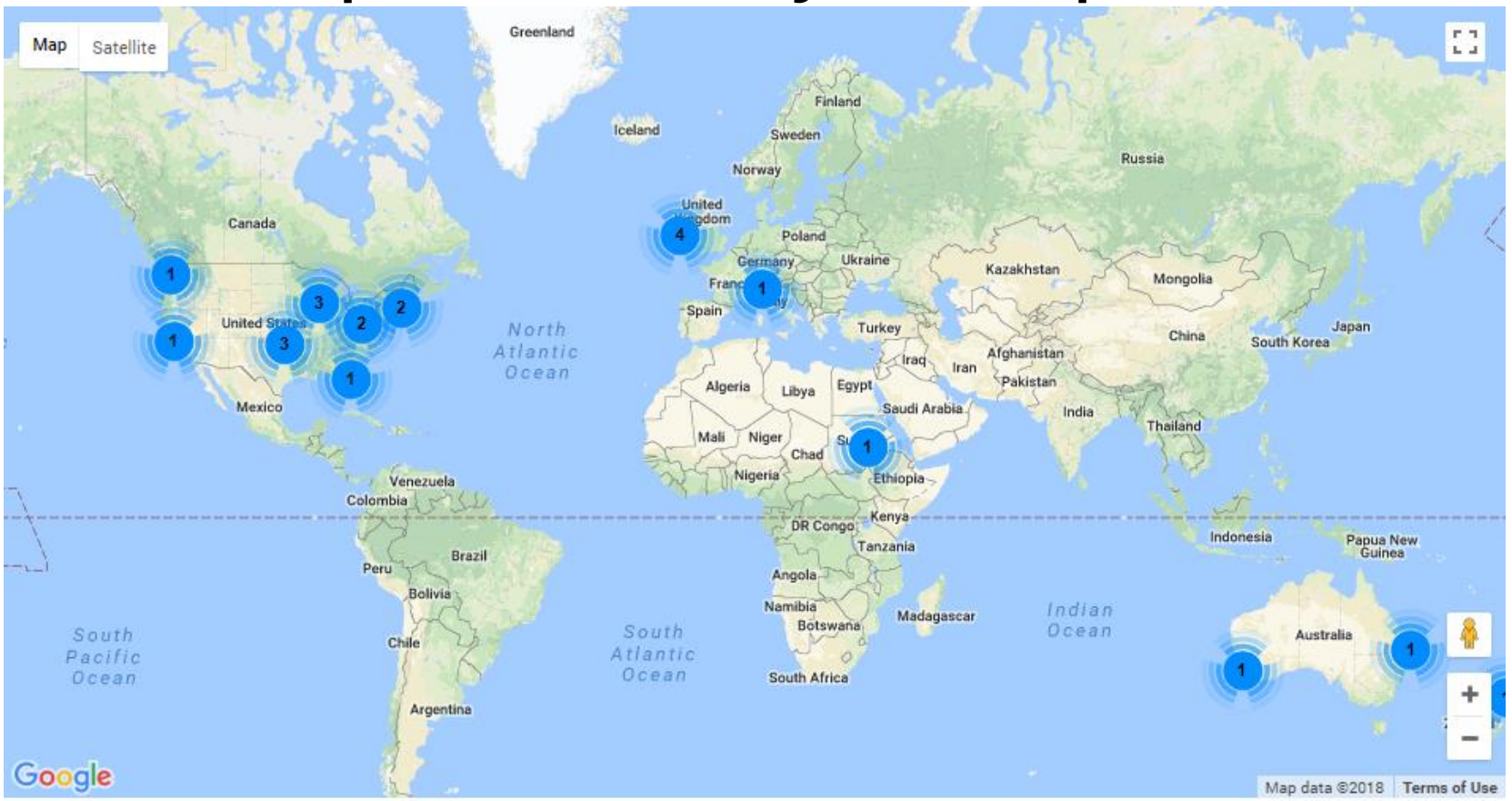
<u>Host:</u>
Advanced Computing Initiative

Briefly….

- What is Software Carpentry? What are our goals?
- Expectations
  - What you should expect from us
  - What we expect from you
  - What you should expect from yourselves

What is ‘Software Carpentry’??

- Non-profit, international organization
- Workshops = our way to help scientists



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- Non-profit, international organization
- Workshops = our way to help scientists
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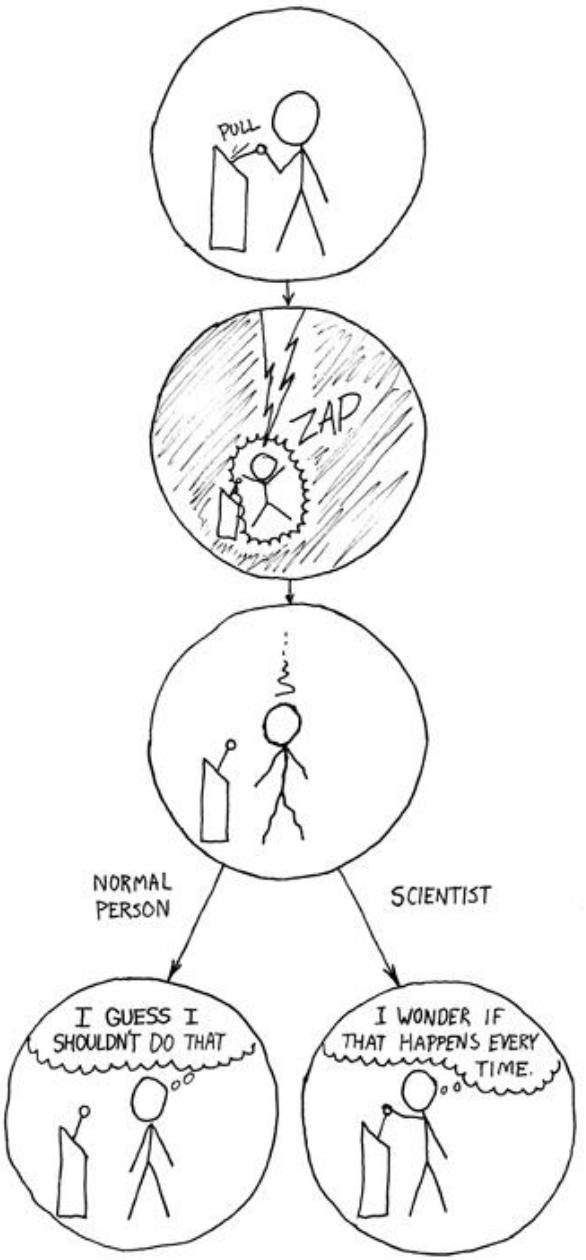
- Instructors are all volunteers
- Materials developed by open science community

If you can't reproduce it, is it still science?



https://xkcd.com/242/

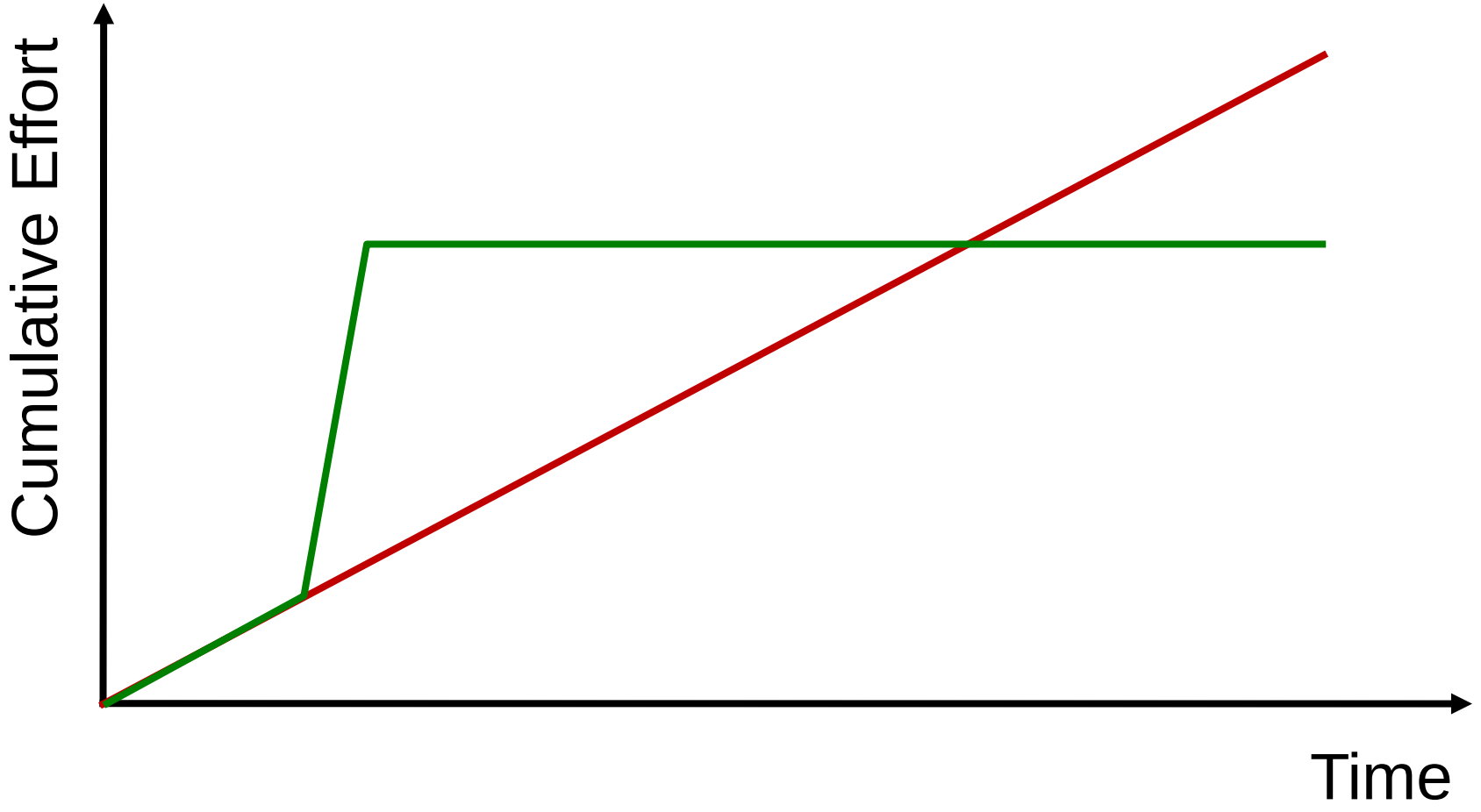
Reality of Research Computing

- Many scientists spend most of their time developing, maintaining, or running software
  - Most don’t consider themselves software engineers
  - Few have ever been taught how

So what?

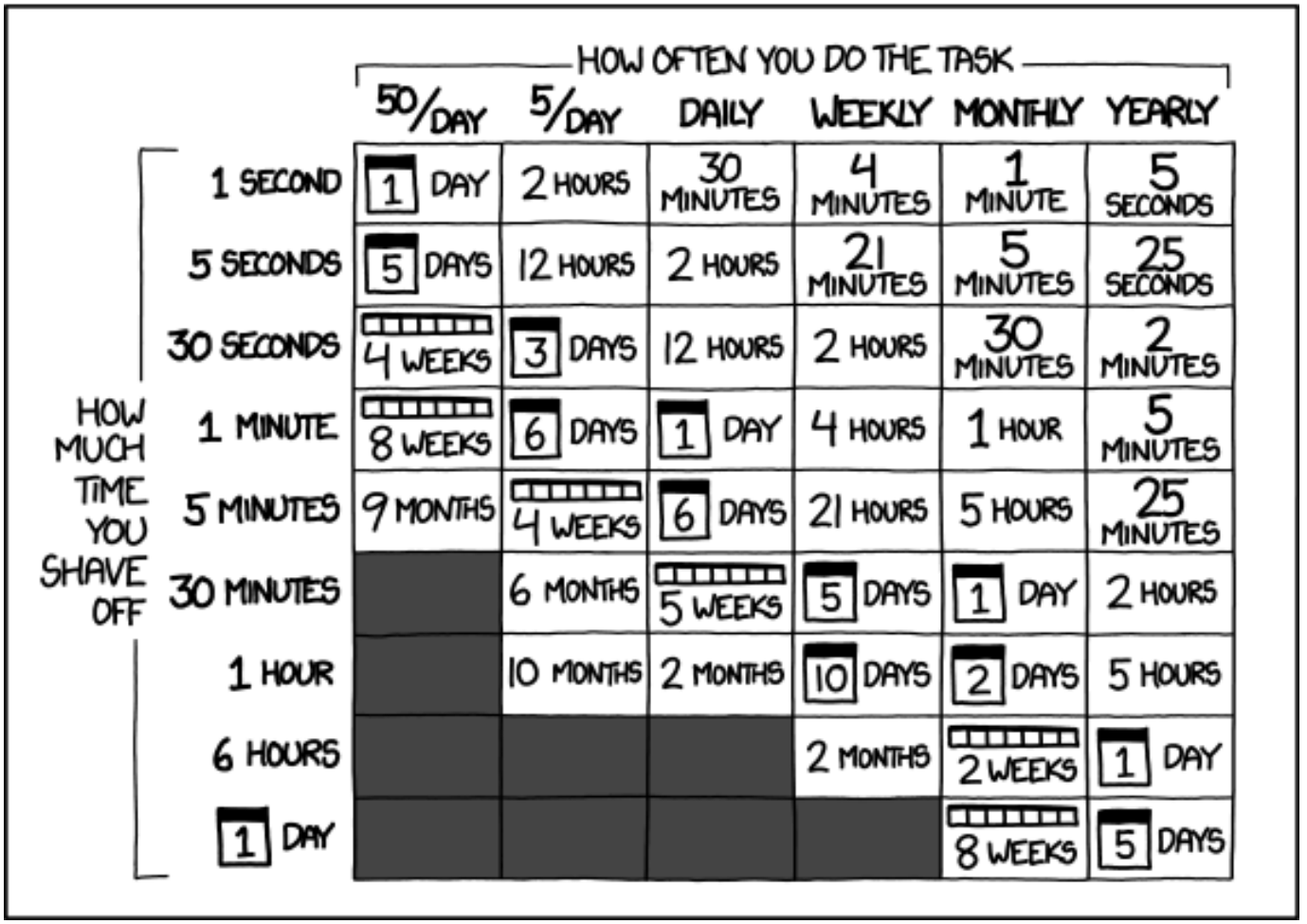
- Most results take longer to produce than they need to
- Difficult to assess quality

Thoughts on Productivity and Automation



Thoughts on Productivity and Automation

HOW LONG CAN YOU WORK ON MAKING A ROUTINE TASK MORE EFFICIENT BEFORE YOU'RE SPENDING MORE TIME THAN YOU SAVE?
(ACROSS FIVE YEARS)



https://xkcd.com/1205/

Karen Cranston
@kcranstn

Follow

@mtholder motivating git: You mostly collaborate with yourself, and me-from-two-months-ago never responds to email. @swcarpentry

RETWEETS 25 LIKES 15

7:23 AM - 23 Aug 2013

25 15 •••

http://bit.ly/motivate_git)

Software Carpentry to the Rescue!

SWC Best Practices

- Write software for people, not computers
- Automate repetitive tasks
- Use the computer to record history
- Make incremental changes
- Use version control
- Don’t repeat yourself
- Plan for mistakes
- First make it correct, then make it fast
- Document design & purpose, not just mechanics
- Conduct code reviews

Wilson et al. (2014) Best practices for scientific computing. PLoS Biology 12: e1001745

What you can expect from us

- We'll go at your pace (code-along)
- We're here to help
  - Nametags (green = done; red = not done/help!)
  - Helpers
  - Etherpad (chat/notes)

    http://pad.software-carpentry.org/2018-01-10-uwmadison
- We'll incorporate feedback from you at the end of each section
  - Post-its (green = good thing; red = could be better)
- We might not get to everything

What we expect from you

- Active participants
  - Code-along, respond to questions
  - Ask for help when needed
  - Help your neighbors if you can

What we expect from you

- Active participants
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- Code of Conduct http://software-carpentry.org/conduct/
  - Harassment includes offensive verbal comments related to gender, sexual orientation, disability, physical appearance, body size, race, religion, sexual images in public spaces, deliberate intimidation, stalking, following, harassing photography or recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome sexual attention.
  - All communication should be appropriate for a professional audience including people of many different backgrounds. Sexual language and imagery is not appropriate for any event.
  - Be kind to others. Do not insult or put down other attendees.
  - Behave professionally. Remember that harassment and sexist, racist, or exclusionary jokes are not appropriate.

What you should expect of yourself

- You don’t need to absorb & implement everything at once
- Choose **one** practice
  - Implement it in your work
  - Share it with your lab group
  - Allow it to sink in
  - Repeat

Where to Start?

- Depends on the nature of your work.
- Consider the purpose:
  - Improve productivity
  - Improve quality
- Need help after the workshop?
  - Post-workshop follow-up sessions
  - Email our local Software Carpentry Community! swc-dc-help@lists.wisc.edu