A DIFFERENT KIND OF CARPENTRY

*Software Carpentry, Data Carpentry*, and giving researchers the skills they need to tackle large data and computing challenges

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What are Software and Data Carpentry?

Two formal organizations* + international community of volunteers that develop lessons, train instructors + organize workshops in data management and software development best practices for and by researchers across disciplines.

* soon to be restructured into a combined organization

Christina Koch, UW Madison
August 4, 2017
ACI-REF Virtual Residency
Filling the Gaps

• Identified needs
  • Researchers writing programs without any training in useful “industry-standard” best practices
  • Researchers struggling with quantity of data and how to organize, analyze, and otherwise manage it

• Solution
  • 2-day, peer-led workshops
  • collaboratively developed lesson modules
  • leveraging the volunteer efforts of community members
  • emphasis on best practices
Carpentries Philosophy: Content

• Software and Data Carpentry teach **skills**:  
  • version control, basic programming, command line  
  • data organization, cleaning, analysis and visualization

• Founded on **best practices**  
  • building modular code, using data structures, reproducibility

• For a **research** audience  
  • Emphasis is not advanced, enterprise workflows or tools, but basic “toolbox” skills for everyday use
Carpentries: “Broader Impacts”

- Build local community around computing and data skills
- Promote open, reproducible, research
- Provide researchers with transferable skills in programming, data analysis, and teaching
- Discover job opportunities
- Meet others in similar roles
- Adapt lesson materials for courses or trainings; jump start course creation
- Build local community of well-trained instructors
- Make oneself more attractive job (faculty) candidate

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The Current Carpentries

• International community with many ways to engage
  • Hosting workshops, teaching, helping, developing lessons, mentoring others, sharing expertise
• Two major lesson stacks + more coming
• Instructor training on how to teach more effectively
• Can get help organizing or self-organize workshops
• In the past 5 years, more than 1,100 workshops of 28,000+ learners in over 40 countries
HOW COULD “THE CARPENTRIES” HELP YOU AT YOUR INSTITUTION?
Next Steps: Learn More

Look at lessons
https://software-carpentry.org/lessons
http://www.datacarpentry.org/lessons/

Follow
https://twitter.com/swcarpentry
https://software-carpentry.org/blog/
https://twitter.com/datacarpentry
http://www.datacarpentry.org/blog/

Join email lists
http://eepurl.com/cfODMH
http://lists.software-carpentry.org/listinfo/discuss
Next Steps: Get Involved

Host a workshop
https://software-carpentry.org/workshops/request/
http://www.datacarpentry.org/workshops-host/

Become an instructor
http://swcarpentry.github.io/instructor-training/
https://amy.software-carpentry.org/forms/request_training/

Become a partner
https://software-carpentry.org/membership/
http://www.datacarpentry.org/partnerships/
Next Steps: HPCarpentry?

• What about large-scale computing? Can “Carpentry” principles be applied to create lessons in using high throughput / high performance / large memory systems?

• Unique challenges for this lesson: how to handle a variety of systems, schedulers, and use cases

• Lots of interest and initial outlines here:
  • https://github.com/swcarpentry/hpc-novice/

• If interested, join mailing list:
  • https://groups.google.com/a/carpentries.org/forum/#!forum/hpc-discuss
QUESTIONS?

For further inquiries, email ckoch5 (at) wisc (dot) edu
Slides available at https://speakerdeck.com/christinalk/
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