Carpentries and Research Computing

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About me

- Research Software Engineer
- Part of the Research Computing Service in IT Services
- Certified Carpentries Instructor
- Involved in organising Carpentries workshops at St Andrews
- Contact:
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  - research-computing@st-andrews.ac.uk
  - carpentries@st-andrews.ac.uk

The Carpentries

https://carpentries.org

Vision

Our vision is to be the leading inclusive community teaching data and coding skills.

Ref: https://carpentries.org/about/

Mission

- Builds capacity in data and computational skills for efficient, open, reproducible research
- Trains and fosters an active, inclusive and diverse community of learners and instructors
- Collaboratively develops openly-available lessons and delivers them using evidence-based teaching practices

History

- Started as Software Carpentry in 1998
- Now also includes Data Carpentry and Library Carpentry
- There have been workshops on all 7 continents
- Over 2000 certified instructors listed online

Workshops

- Lessons typically delivered as 2-day workshops
- Learners work on their own computers where possible
- Live coding - instructors enter code in real time and learners follow along
- Ideally:
  - 20 learners
  - 2 instructors
  - 4 helpers

The Carpentries at St Andrews

https://carpentries.wp.st-andrews.ac.uk

Context

- A Research Data Management survey sent to all researchers in 2016 included a few questions on software.
  - 60% of respondents wrote code as part of their research
  - They were across all Schools
  - Fewer than 30% of those who wrote code used version control

Getting started

Our workshops

- 2-day workshop
- 1 day of Programming
  - Usually Python, sometimes R
- ½ day of the Unix Shell
- ½ day of Version Control with Git

Building capacity

- To begin with, we needed to bring in instructors from outside to support Olexandr.
- In November 2017 I got certified as a Carpentries Instructor.
- We now have six certified instructors at the University, and run other workshops besides those done with OSDS.

Challenges

- Half of our Instructors are PhD students, who don't necessarily expect to be at the University long-term.
- Others have teaching commitments that can make it hard to plan workshops in advance of timetables being confirmed.
- Recruiting helpers can be difficult.

Getting involved

Helpers

- Helpers are crucial to Carpentries workshops.
- They provide one-to one support to learners when they encounter issues e.g.
  - Problems installing software
  - Understanding a line of code
  - Interpreting an error message

- Helpers need some knowledge of the subjects being taught, but don't need to be experts.
- They do need to be:
  - Inclusive, respectful, mindful and welcoming
  - Willing to admit the limits of their knowledge
  - Willing to work with learners to guide and encourage them to solutions
  - Aware of their language, taking care not to demotivate or be dismissive

- Helpers may well learn something themselves.
- They get an opportunity to meet others engaged in computational research
- If you're interested, please contact carpentries@st-andrews.ac.uk

Instructors

- Become a Carpentries Instructor to:
  - Improve the working environment
  - Build a reputation
  - Practice teaching
  - Expand/acquire technical and transferable skills
  - Join a vibrant community
  - Have fun

- Becoming an Instructor involves attending a 2 day training event (in-person or online) and completing three short checkout tasks.
- If you're interested, please contact carpentries@st-andrews.ac.uk

Research Computing

https://researchcomputing.wp.st-andrews.ac.uk

Software solutions

- We work with researchers to provide the software they need for their projects.
- Across all disciplines.
- Solutions include:
  - Websites
  - Document/image repositories
  - Databases
  - Mobile applications

Software solutions

- Priority is given to funded work
- Ideally:
  - We would be involved in writing the funding application
  - One of our Research Software Engineers would be named in the application

Examples

- A range of projects with MASTS (Marine Alliance for Science and Technology for Scotland) e.g. SIFIDS
- St Andrews Encyclopaedia of Theology: https://www.saet.ac.uk
- Analytical Database of Arabic Poetry: https://www.arabicpoetry.ac.uk
- Early English Laws: https://www.earlyenglishlaws.ac.uk
- Lepidoptera Hyperspectral Database: https://arts.st-andrews.ac.uk/lepidoptera/

Support for Researchers

- We also provide support to researchers working with code
- Please contact research-computing@st-andrews.ac.uk with queries

Thank-you

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