

# A Carpenter's Approach to Teaching Python

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<https://etherpad.wikimedia.org/p/flpycon2017>

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Who is in the room?



 > Current Issue > vol. 114 no. 37 > David F. Feldon, 9854–9858, doi: 10.1073/pnas.1705783114



# Null effects of boot camps and short-format training for PhD students in life sciences

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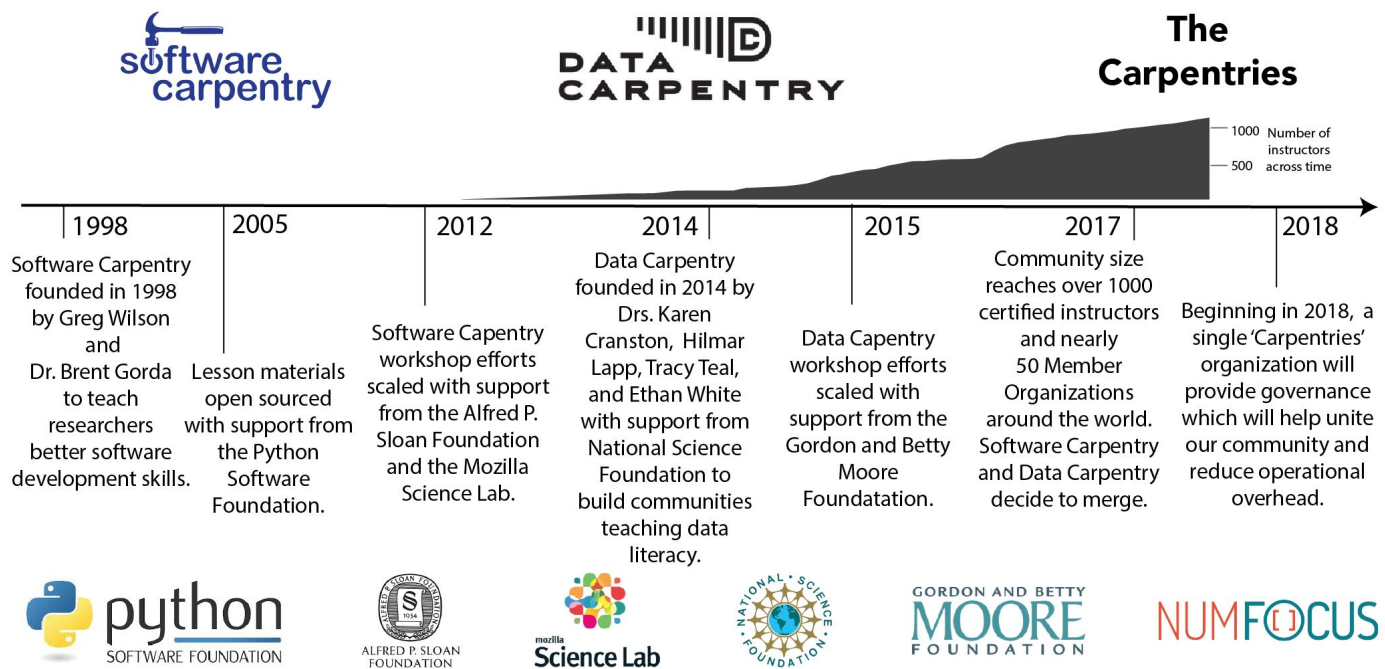
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## Significance

To increase the effectiveness of graduate research training, many universities have introduced boot camps and bridge programs lasting several days to several weeks. National Science Foundation and National Institutes of Health currently support such interventions with nearly \$28 million in active awards. Previous evidence for the efficacy of this format exists primarily in the form of anecdotes and end-of-course surveys. Here we show that participation in such short-format interventions is not associated with observable benefits related to skill development, scholarly productivity, or socialization into the academic community. Analyzing data from 294 PhD students in life sciences from 53 US institutions, we found no evidence of effectiveness across 115 variables. We conclude that boot camps and other short formats may not durably impact student outcomes.
















# Software & Data Carpentry



# Software Carpentry Lessons

Lesson	Site	Repository	Reference	Maintainer(s)
The Unix Shell				<a href="#">Gabriel Devenyi</a> , <a href="#">Ashwin Srinath</a>
Version Control with Git				<a href="#">Ivan Gonzalez</a> , <a href="#">Daisie Huang</a>
Version Control with Mercurial				<a href="#">Doug Latornell</a>
Using Databases and SQL				<a href="#">Abigail Cabunoc Mayes</a> , <a href="#">Sheldon McKay</a>
Programming with Python				<a href="#">Trevor Bekolay</a> , <a href="#">Valentina Staneva</a>
Programming with R				<a href="#">Daniel Chen</a> , <a href="#">Harriet Dashnow</a>
R for Reproducible Scientific Analysis				<a href="#">Thomas Wright</a> , <a href="#">Naupaka Zimmerman</a>
Programming with MATLAB				<a href="#">Isabell Kiral-Kornek</a> , <a href="#">Ashwin Srinath</a>
Automation and Make				<a href="#">Gerard Capes</a>

# Data Carpentry Lessons

Lesson	Site	Repository	Instructor Guide	Maintainer(s)
Data Organization in Spreadsheets				Christie Bahlai, Tracy Teal
Data Cleaning with OpenRefine				Deborah Paul, Cam Macdonell
Data Management with SQL				Paula Andrea Martinez, Timothée Poisot
Data Analysis and Visualization in R				François Michonneau, Auriel Fournier
Data Analysis and Visualization in Python				April Wright, Phillip Doehle

Lesson	Site	Repository	Maintainer(s)
Project organization and management			Manny Corpas, Roselyn Lemus, Yujuan Gui, Mateusz Kuzak
Introduction to cloud computing for genomics			Bob Freeman, Darya Vanichkina, Kevin Buckley, Amanda Charbonneau
Introduction to the command line			Shichen Wang, Anita Schürch, Bastian Greshak, Sue McClatchy
Data wrangling and processing			Josh Herr, Ming Tang, Lex Nederbragt, Fotis Psomopoulos
Data analysis and visualization in R			Naupaka Zimmerman, Ahmed Moustafa, Krzysztof Poterlowicz, Jason Williams

# Carpentries Teaching Practices

Sticky notes (as status flags)

Minute cards

One up/one down

Collaborative note taking (Etherpad)

**Live coding**

Going slowly

Instructor notes

Formative assessment

Code of Conduct

Concept maps

Pre/Post surveys

**Modeling life-long learning**

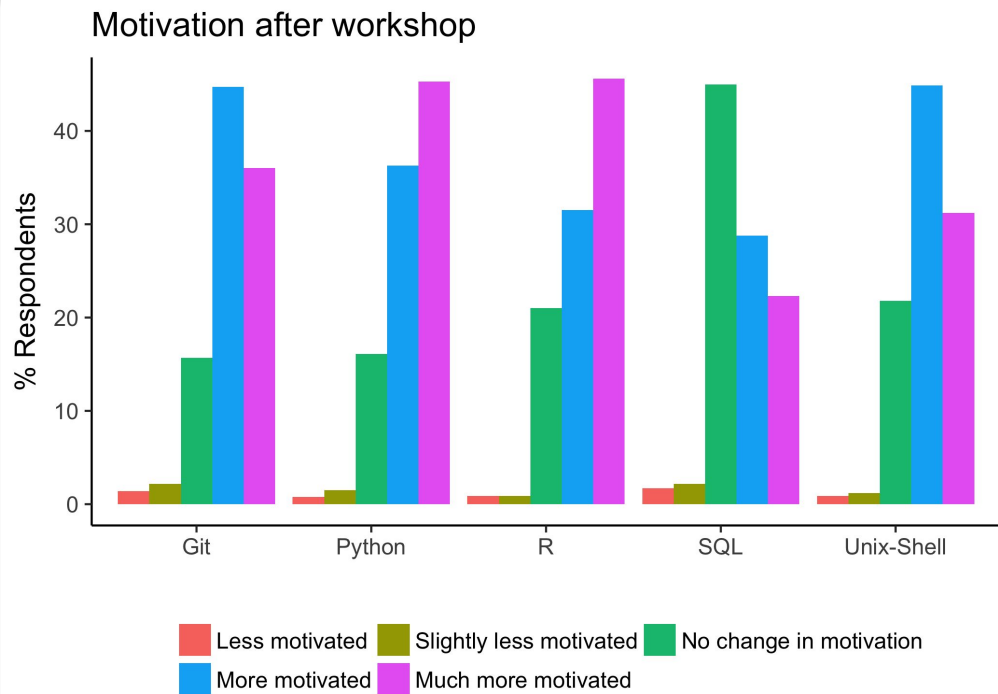


# Community Matters



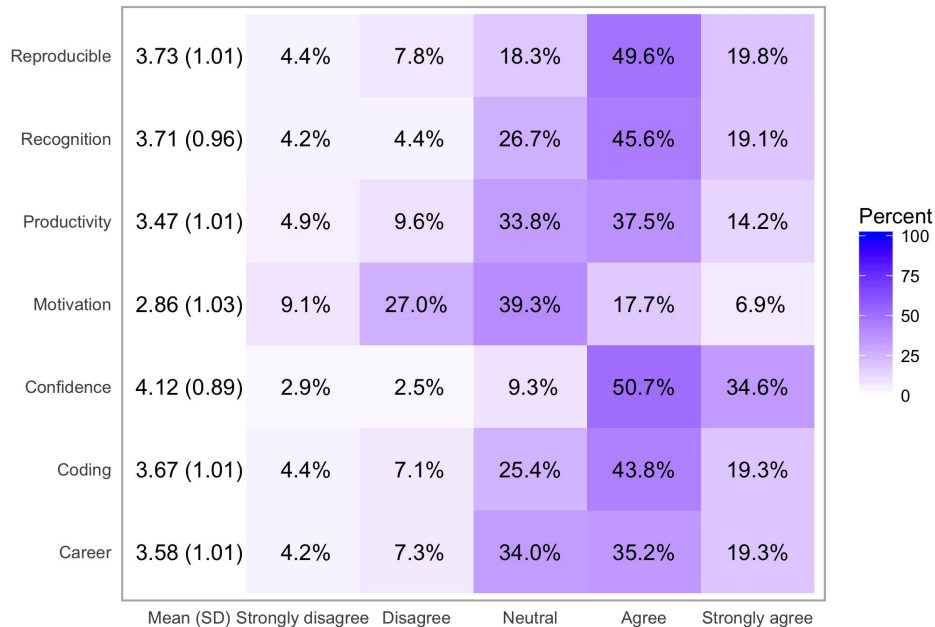
# Short Term Results

Full report: <https://goo.gl/Gkrt2P>



# Long Term Results

Perception of Workshop Impact



Full report:

<https://goo.gl/aSb34b>

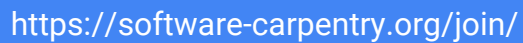
A close-up photograph of a person's hands working on a wooden surface. The hands are positioned as if they are about to use a pencil, which is visible in the lower left. The background is blurred, showing some indistinct shapes and colors. The overall tone is warm and focused.

# Takeaways

Workshops are helping learners improve their efficiency with managing and analyzing data.

Learners are taking advantage of online resources to improve their skills.

Learners see value in becoming involved longer term with our community.





# Exercise 4

Live Coding



# Feedback



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