

# The Carpentries

*Empowering African Researchers: Building Data and Coding Skills with The Carpentries*

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# Summary

- Overview of The Carpentries
- Starting your Data and Coding Skills Journey
- Get Involved with The Carpentries
- Questions





- **Non-profit** project
- **Global** volunteer community of learners, lesson developers, trainers, instructors, etc.
- Teaches **foundational coding, and data science skills** to researchers worldwide (i.e. R, Python, Spreadsheets, OpenRefine, Git)
  - Creative commons licensing
- Builds **community and local capacity** for teaching and learning



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# Workshops

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# The Carpentries Workshops

Volunteer Instructors, alongside helpers, use Carpentries lessons to teach the foundational skills and perspectives for working with software and data.



# What you might learn at a workshop

## Software Development Practices

- **Automating repetitive** tasks
- Transforming step-by-step **workflows** into scripts or functions
- Using **version control**

## Data Analysis & Research Practices

- **Repeat an analyses**
- Developing a **data management and analysis plan**
- Improving **data management and project organisation**
- Using a programming language (like **R** or **Python**)
- **Reusing code**



# What you might learn at a workshop



**OpenRefine**



**And more ..**



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# The Carpentries in Africa

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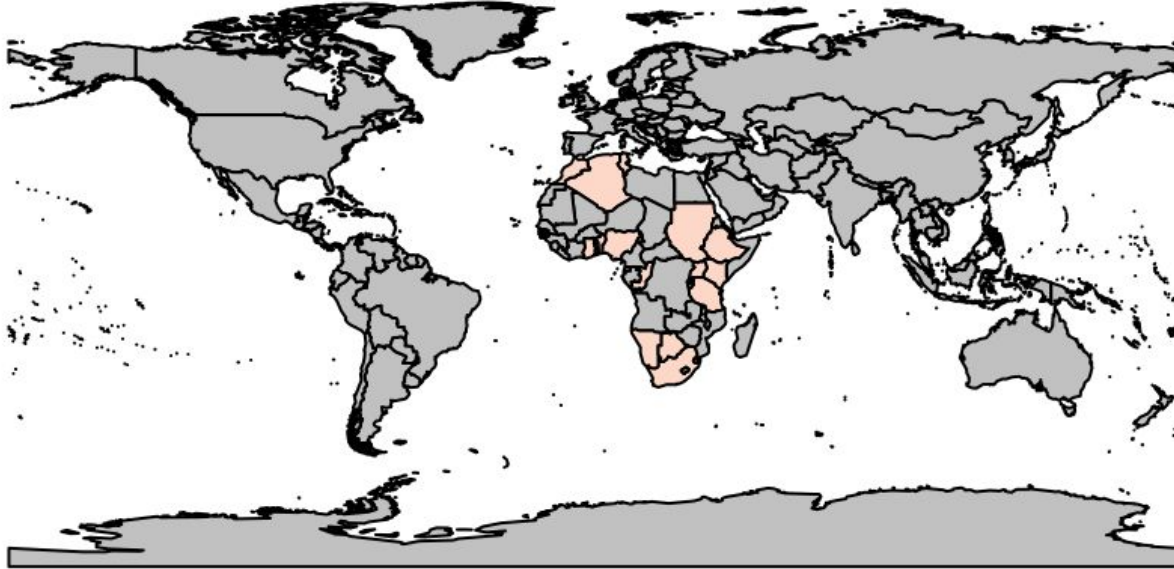


# What have we achieved from 2014 - until now?

- **169** Instructors trained
- **205** workshops hosted
- **3** Member organisations from South Africa and Namibia
- **8 Active** Trainers (Ethiopia, South Africa)
- **7** African languages in **Glosario** (Afrikaans, Setswana, isiXhosa, isiZulu, Amharic, Kiswahili, Southern Sotho)
  - Funded by Andrew Mellon Foundation



# Instructors in Africa



# What do we do?

- African Carpentries Meetup
  - Every **4th Thursday** of the month
  - **Topic of the month**
- **Mentoring** for Instructors and Helpers before a workshop
- Support in how to **self-organise your Carpentries Workshop**
- More information:

<https://codimd.carpentries.org/69NZJLzLSKCZakTPsWpo7Q>



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# Starting your Data and Coding Skills Journey

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# Carpentries Core Curricula



- Ecology
- Genomics
- Geospatial
- Social Sciences
- **R, Python, Spreadsheets, OpenRefine, SQL**

- This workshop is intended for people working in libraries and the information sciences. It introduces terms, phrases, and concepts in software development and data science, how to best work with data structures, and use regular expressions in searches
- **Unix Shell, OpenRefine and Git**

- Plotting and Programming in **Python**
- Programming with **Python**
- Programming with **R**
- **R for Reproducible Scientific Analysis**



# Carpentries Incubator

## About The Carpentries Incubator

The Carpentries Incubator is a place for collaborative development of new lessons. It provides a space for [The Carpentries](#) community to create, test, and improve lessons, supported by systems, process, and training to foster collaboration and promote better lesson design.

The screenshot displays the Carpentries Incubator interface. At the top, there is a search bar with the placeholder text "Find a repository..." and three filter buttons: "Type", "Language", and "Sort". A "New" button is located in the top right corner. Below the search bar, three repository listings are shown, each with a title, description, tags, and a small green line graph representing activity over time.

- high-dimensional-stats-r**: High-Dimensional Statistics. Tags: r, statistics, english, lesson, pre-alpha, carpentries-incubator. Updated 9 hours ago.
- data-management-pipelines-engineering**: Data management and analytic pipelines for engineers. Tags: python, engineering, english, lesson, pre-alpha, carpentries-incubator. Updated 14 hours ago.
- machine-learning-novice-sklearn**: A Carpentry style lesson on machine learning with Python and scikit-learn. Tags: python, machine-learning, sklearn, english, lesson, alpha, carpentries-incubator. Updated 16 hours ago.

On the right side, there are three panels:

- Top languages**: A list of languages with colored dots indicating their usage: Python (blue), HTML (orange), Jupyter Notebook (red), TeX (green), and Vim Snippet (grey).
- Most used topics**: A list of topics with colored dots: lesson (blue), carpentries-incubator (orange), english (green), pre-alpha (red), and python (purple). A "Manage" link is visible.
- People**: A grid of 12 circular profile pictures of community members, with a "124 >" link indicating more people.

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# Get Involved

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# Ways to get involved

- Check out **lessons** on your own time
- Sign up for a **workshop**
- **Help** at a workshop (no need to be an Instructor)
- Attend **African Carpentries Monthly** meetup (4th Thursday of the month)
- Become an **Instructor**
- **Teach** a workshop
- Lesson **Maintenance**
- Lesson **Contributions** - Incubator
- Contribution to **Glosario**
- **Train** Instructors



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# Instructor Training

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# The Carpentries Instructor Training

Trainers teach the basics of educational psychology, evidence-based classroom practices, and how to apply both to teaching.



# Instructor Training

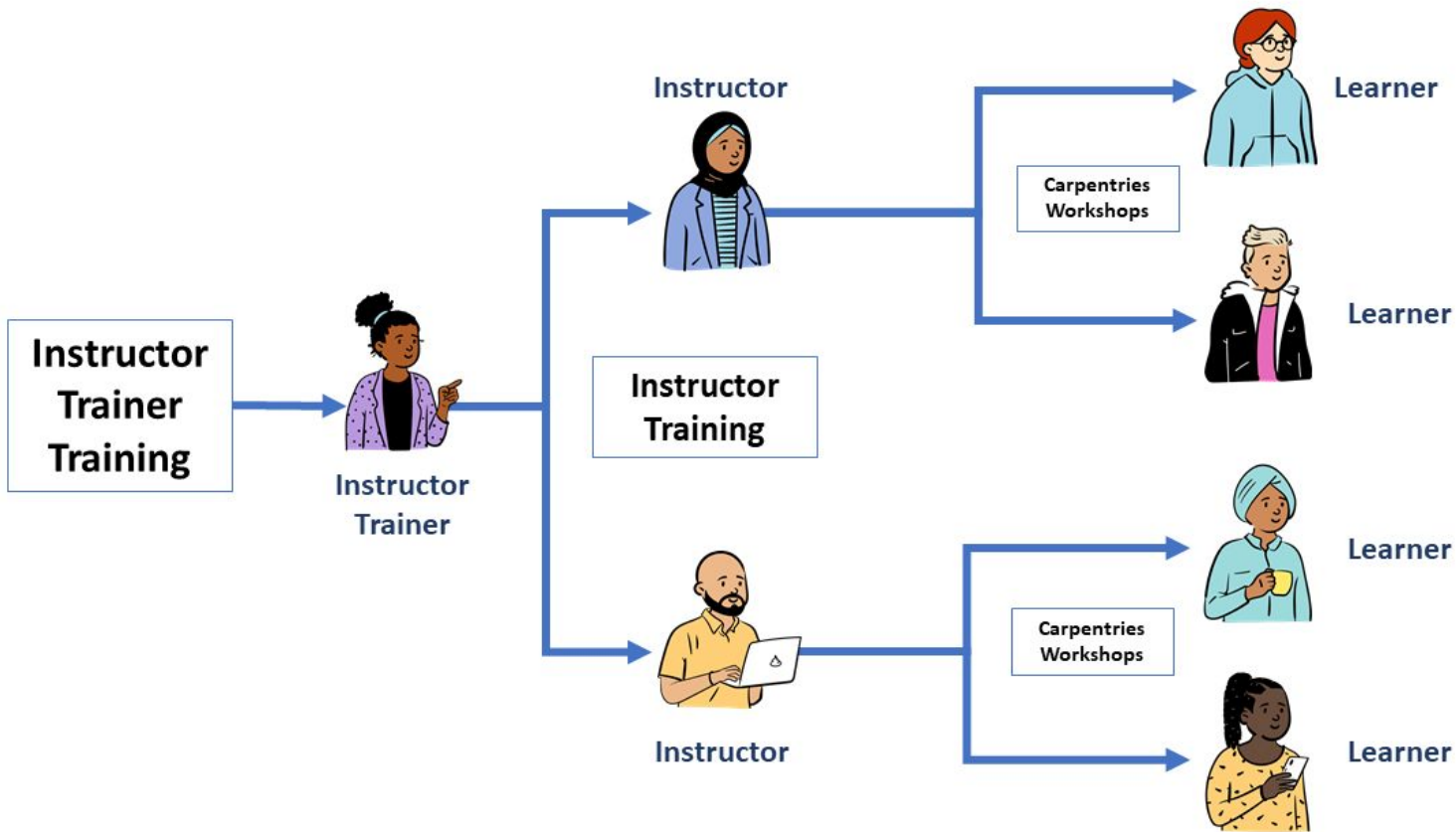
## Program Details

- Online (most often) or in-person
- 2 full days or 4 half days
- **3 checkout steps** to become a certified Instructor
  - Community Discussion
  - Lesson Contribution
  - 5-minute Teaching Demonstration



## Outcomes

- How do people **learn**?
- How can we help novices become **competent practitioners**?
- What is **cognitive load** and how does it affect learning?
- How can we create a **motivating environment** for learners?
- How do you **run** Carpentries workshop?



# Why Teach Carpentries Workshops?

- To make your **world better**.
- To expand your **technical skills**.
- To join a **community**.
- To get **practice** teaching.



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# Contact me

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# Questions?

