



LIGHTNING TALK • R FOR COMMUNITIES

Empowering African Life Scientists Through R

Outcomes of a 3-Day Bioinformatics Outreach Nigeria (BON) Training

Seun Olufemi

Community lead, Bioinformatics Outreach Nigeria

E: oluwaseunj1@gmail.com

A Computational Literacy Gap Is Holding Back African Life Scientists

Across sub-Saharan Africa, limited exposure to computational tools restricts life scientists' ability to contribute to global research and compete for data-driven careers.



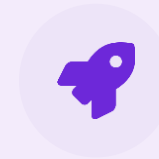
Global Competitiveness

Without computational fluency, researchers fall behind in an increasingly data-driven scientific landscape.



Research Capacity

Gene expression, ecological, and clinical data all demand modern analysis and visualisation skills.



Career Readiness

R fluency is fast becoming a baseline requirement for academic and industry life-science careers.

A 3-Day, Applied R Curriculum for Life Scientists

Every topic was taught through life sciences examples — gene expression, ecological data, and clinical datasets — so skills transferred directly to participants' own research.



Base R & Data Structures

Core syntax, data types, and structures for scientific computing.



Data Cleaning & Tidyverse

Applied wrangling with `filter()`, `mutate()`, and `group_by()`.



ggplot2 Visualisation

Building clear, publication-ready plots from real data.



Life Sciences Applications

Gene expression, ecological, and clinical datasets throughout.

Where Participants Started



n ≈ 200

participants surveyed before training



65–70%

had no prior R experience at all



1–2 / 5

self-rated confidence in base R, tidyverse & ggplot2



Nearly All

rated R “extremely important” for their goals

Measurable Gains in Skill & Confidence



"Excellent / Good" overall rating

Given by the large majority of participants across the 3-day training.



Nearly all would recommend it

Participants said they'd "definitely" or "probably" recommend the training to peers.



20-Item Applied Knowledge Assessment

Most participants correctly answered questions covering:

Data Structures

`filter()`

`mutate()`

`group_by()`

ggplot2 Syntax

Most also found the life sciences examples used throughout "highly relevant" to their own work.

What Participants Want Next



Extend the training to at least one week

The dominant improvement suggestion, raised by a substantial majority of participants — more time to absorb and practice each concept.



Faster access to recordings

Prompt sharing of session recordings so participants can revisit material.



More hands-on exercises

Additional applied practice to reinforce new R skills.



KEY TAKEAWAY

Targeted, context-relevant R training can meaningfully shift computational confidence in underrepresented scientific communities.

This work offers practical insights for designing inclusive R outreach programmes — in Africa and globally.