

iWOMEN in ARC - Introduction to programming in R
Workshop creator: Sana Naderi

Introduction to programming in R

Target Audience

International women interested in learning programming in R. The target audience is those who have limited or no experience in programming, and would like to form a basic foundation with the R language.

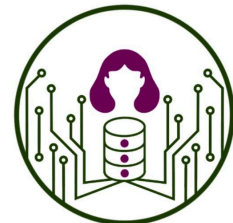
Workshop Summary

This is an introductory level workshop in programming using R. I will walk you through the very basic concepts of computer programming, and the building blocks you would need to write codes and execute fundamental tasks. The goal of this workshop is to learn skills in R that are translatable to any other programming language, and will provide the foundation to learn any other, 'more' complicated programming skill that you would need for your research. I will talk about thinking programmatically and solving programming problems by breaking them down into logical steps. Once a basic understanding of programming is formed, I will then cover data wrangling in R, and finish with an introduction to data visualization using '**ggplot**'. No prior experience in programming is required. You would need your own laptop, with R and RStudio installed prior to the workshop.

Learning outcomes

By the end of the workshop, participants will be able to:

1. Write custom code to execute basic tasks using R. This includes loops, conditions, and functions.
2. Learn to think programmatically, and solve problems by breaking down programming tasks into logical steps.
3. Import data into R, perform basic data wrangling tasks, and write cleaned up data into a file.
4. Learn to visualize data with '**ggplot**', and create basic plots.
5. Access and use pre-written functions and packages.



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Accessibility and Inclusion Considerations

- The Language of instruction will be English.
- In-person and online options will be available. I will remain available for questions via email, or after the workshop.
- If you require any accessibility considerations, please reach out to me or Laura prior to the workshop and we will do our best to accommodate.

Workshop Content

Pre-workshop preparation

- Please make sure to have R and RStudio installed prior to the workshop. Installing R would ensure you have the programming language available to you, and RStudio is an interface that facilitates the use of R.
- You can find instructions online for this, depending on your operating system. [This](#) is one example. You can contact us if you have trouble installing R/RStudio on your laptop, or would need help with this.

Workshop Agenda

- **Module 1: Building blocks of programming.**
 - Create and run a script.
 - Operators in R.
 - Data types in R.
 - Loops, conditions, and functions.
- **Module 2: How to think like a programmer?**
- **Module 3: Data wrangling and visualization.**
 - Introduction to Dataframes.
 - How to access data in a dataframe?
 - Performing basic analysis on dataframes.
 - Writing and exporting data from R.
 - 'ggplot': how to make clear plots?



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We will release the syllabus and more details regarding the modules to registrants prior to the workshop.

Materials and Resources

- Presentation slides to be released.

Feedback

- Feedback form will be shared after the workshop to help us improve.

Follow-up & Next steps.

- Contact Laura
- Contact mentor (me): You can reach out to me at my email at sannanadery@gmail.com.

Contributors and License

Workshop creator. Sana Naderi

Facilitator: [iWOMEN in ARC](#) - Laura Camelo.

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