Name of Data Science Course

Learning Hub Team

2023-02-07

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Preface

Course dates: January 30, 2023 - February 3, 2023

This is a test book built using Quarto.

About this Course

This 5-day in-person workshop will provide researchers with an overview of reproducible and ethical research practices, steps and methods for more easily documenting and preserving their data at the Arctic Data Center, and an introduction to programming in R. Special attention will be paid to qualitative data management, including practices working with sensitive data. Example datasets will draw from natural and social sciences, and methods for conducting reproducible research will be discussed in the context of both qualitative and quantitative data. Responsible and reproducible data management practices will be discussed as they apply to all aspects of the data life cycle. This includes ethical data collection and data sharing, data sovereignty, and the CARE principles. The CARE principles are guidelines that help ensure open data practices (like the FAIR principles) appropriately engage with Indigenous Peoples' rights and interests.

Schedule

Code of Conduct

Please note that by participating in this activity you agree to abide by the NCEAS Code of Conduct.

Acknowledgements

These written materials reflect the continuous development of learning materials at the Arctic Data Center and NCEAS to support individuals to understand, adopt, and apply ethical open science practices. In bringing these materials together we recognize that many individuals have contributed to their development. The primary authors are listed alphabetically in the

citation below, with additional contributors recognized for their role in developing previous iterations of these or similar materials.

Citation: Amber E. Budden, S. Jeanette Clark, Natasha Haycock-Chavez, Noor Johnson, Matthew B. Jones. 2022. Fundamentals in Data Management for Qualitative and Quantitative Arctic Research.

Additional contributors: Stephanie Hampton, Jim Regetz, Bryce Mecum, Julien Brun, Julie Lowndes, Erin McLean, Andrew Barrett, David LeBauer, Jessica Guo.

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Part I

Welcome and Overview

Objectives

- The mission and structure of the Arctic Data Center
- How the Arctic Data Center supports the research community
- About data policies from the NSF Arctic program

Arctic Data Center Overview

The Arctic Data Center is the primary data and software repository for the Arctic section of National Science Foundation's Office of Polar Programs (NSF OPP).

We're best known in the research community as a data archive – researchers upload their data to preserve it for the future and make it available for re-use. This isn't the end of that data's life, though. These data can then be downloaded for different analyses or synthesis projects. In addition to being a data discovery portal, we also offer top-notch tools, support services, and training opportunities. We also provide data rescue services.

1 R/RStudio and Git/GitHub Setup

1.1 Learning Objectives

In this lesson, you will learn:

- How to check to make sure your RStudio environment is set up properly for analysis
- How to set up git

1.2 Logging into the RStudio server

To help prevent us from spending most of this lesson remotely troubleshooting the myriad of issues that can arise when setting up the R, RStudio, and git environments, we have chosen to have everyone work on a remote server with all of the software you need installed. We will be using a special kind of RStudio just for servers called, aptly, RStudio Server. If you have never worked on a remove server before, you can think of it like working on a different computer via the internet. Note that the server has no knowledge of the files on your local filesystem, but it is easy to transfer files from the server to your local computer, and vice-versa, using the RStudio server interface.

Here are the instructions for logging in and getting set up:

2 Another Topic

2.1 Learning Objectives

In this lesson, you will learn:

- Things in R!
- Believe in the possibilities

2.2 Lots of content

Part II

Next Part

Objectives

- The mission and structure of the Arctic Data Center
- How the Arctic Data Center supports the research community
- About data policies from the NSF Arctic program

Arctic Data Center Overview

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3 Great Lesson

3.1 Learning Objectives

In this lesson, you will learn:

- All the things!
- Great Scott I can't believe it's not butter

3.2 Great content here

References