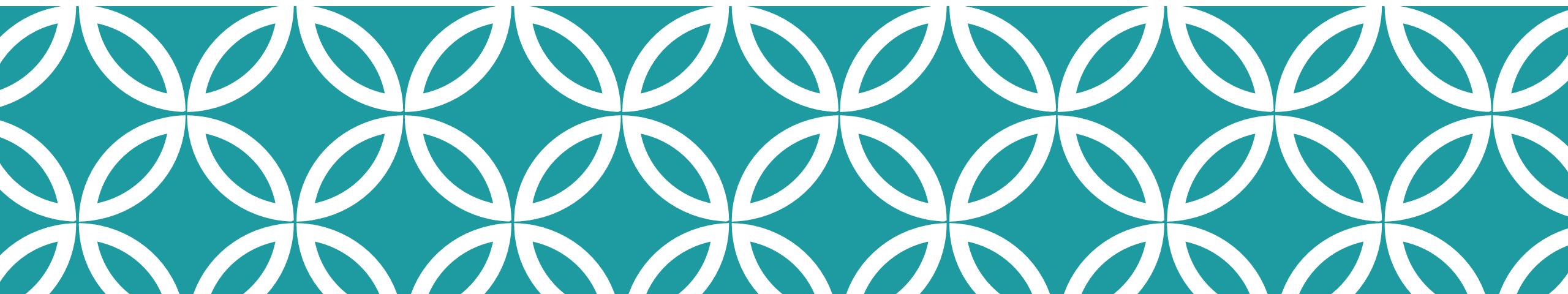


Introduction to R Workshop

Patrick Mathias
September 26, 2021



Course Introduction

Goals and Objectives

- Advocate for the use of R as a means of improving reproducibility in clinical data analysis
- Demonstrate how R is used to perform analyses of laboratory operational data
- Establish a basis of understanding in the 'tidy' approach to data analysis within the framework of R

September 26, 2021	Session	Instructor
8:30 am - 8:45 am	Course Introduction	Patrick Mathias
8:45 am – 9:30 am	Intro to R and Reproducible Reporting	Joseph Rudolf
9:45 am - 10:30 am	Coding Basics and Importing Data	Joseph Rudolf
10:45 am – 11:30 am	Data Visualization	Patrick Mathias
LUNCH		
12:30 pm - 1:30 pm	Data Transformation	Patrick Mathias
1:45 pm – 2:45 pm	Grouping and Summarizing Data	Joseph Rudolf
3:00 pm - 3:30 pm	Dashboard Demo and Course Wrap Up	Patrick Mathias



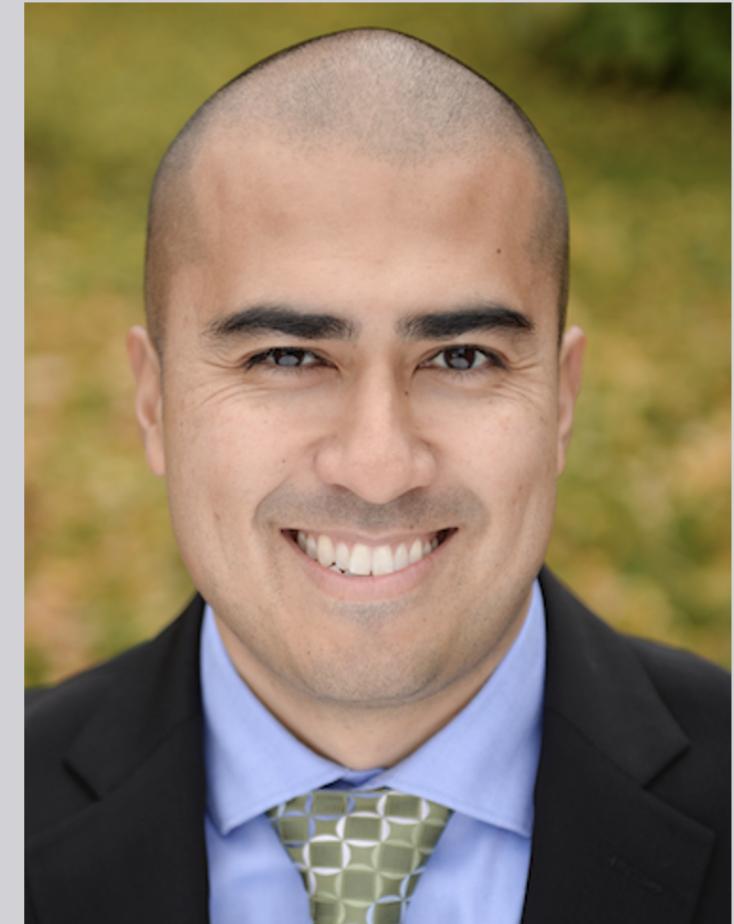
Who are we?

Patrick Mathias

Assistant Professor, Department of
Laboratory Medicine and Pathology,
University of Washington School of
Medicine

Vice Chair of Clinical Operations

Associate Medical Director, Laboratory
Medicine and Pathology Informatics

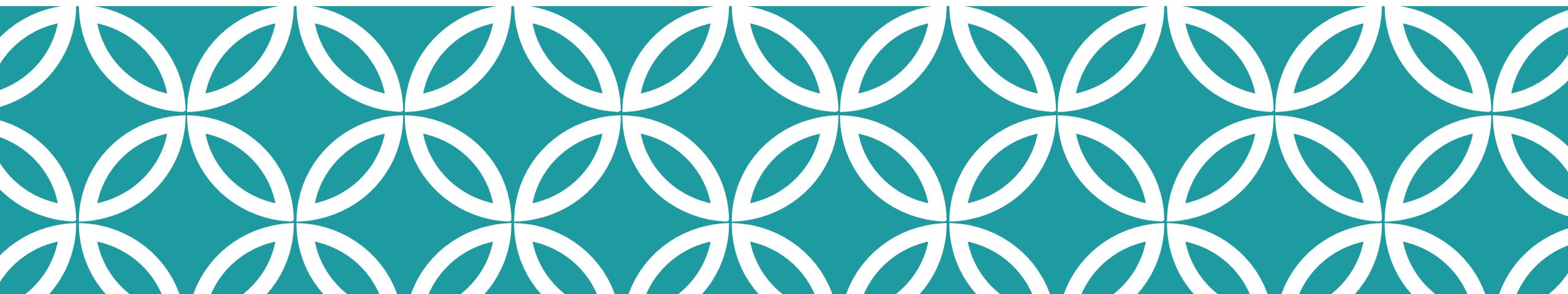


Joseph Rudolf

Assistant Professor, Department of Pathology, University of Utah Medical School

Medical Director, Automated Core Laboratory, ARUP Laboratories



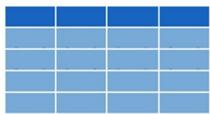


Workshop Workflow

Sessions

Loading Data to Create a Dataframe

```
data_frame <- read_csv("file_name")
```



Your Turn

Introduce yourself to your neighbors

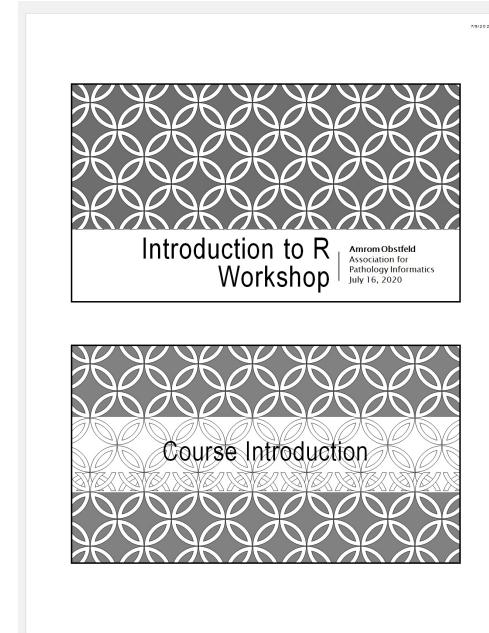
- Who are you?
- Where are you from?
- What do you do with data?
- Have you ever used R?

3:00

```
01-introduction.Rmd x
1 --- 
2 title: "R Notebook"
3 output: html_notebook
4 ---
5
6 This is an R Notebook. R Notebooks are written in R Markdown. An R Notebook is like an electronic lab notebook, but for data analysis. You can use R Notebooks to take notes, write code, and you can run that code and see the results in the same document.
7
8 To take notes, simply edit the text in this document. For example, edit the following line to replace XXX with your name:
9
10 My name is XXX, and I'm editing an R Notebook!
11
12 In an R Markdown document, code goes into *code chunks*. Each code chunk starts with three back-ticks (```) and the letter "r" in curly brackets. It ends with a line that only has three backticks (```'). The RStudio editor makes the background color of code chunks gray. This way it's easy to see where all the code chunks are. You can run the code in a code chunk by clicking the green triangle in the upper right corner of the code chunk. The results will appear beneath the chunk. Try it!
13
14 ``{r}
15 plot(cars)
16 ```
17
18 Good job!
19
20 You can open a new R Notebook by going to **File > New File > R Notebook**.
21
22
1:1 R Notebook : R Markdown
```

Workshop Coursebook

- Coursepack folder on website contains:
 - PDFs for slides
 - Cheatsheets



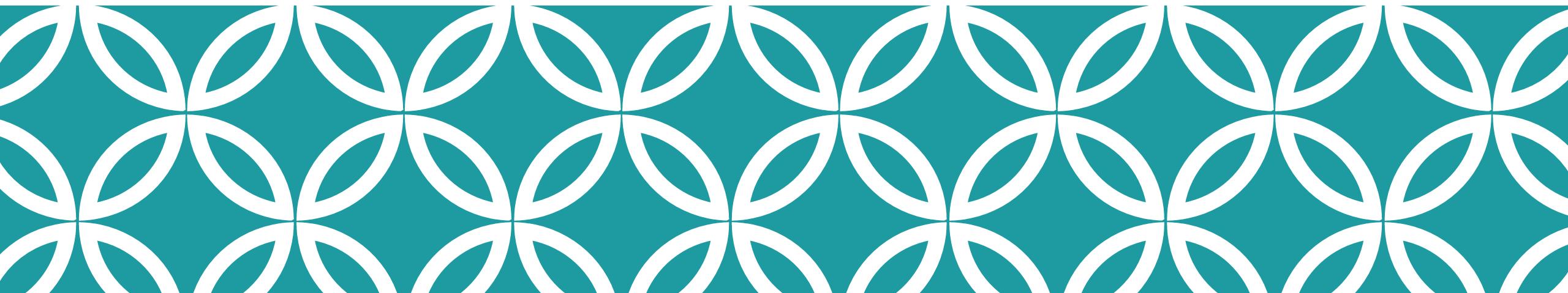
Getting Help – In person lesson



- See email for Slack invite
- Simple question – Ask in # general Slack channel
- More complicated – Direct message remote instructor
- Really complicated – Seek out in person help during exercise or break

Getting Help – Remote lesson

- Raise hand (literally)
- In person and Slack support during exercises



Who are you?

Your Turn

Introduce yourself to the room

Who are you?

Where are you from?

Why are you here?

Have you ever used R?

Tips for learning

- Cheatsheets show how to do common things – orient yourself with them early
- The best way to learn to code is by doing
- Practice is key!
- Programming is hard, even for those with a lot of experience. Find resources and ask for help!