



Introduction to R Workshop

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MD PhD

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Course Introduction



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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

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Session	Instructor
Instructor Introductions, Introduction to technology	Amrom Obstfeld
Introduction to R and RStudio	Joe Rudolf
Reproducible Reporting	Joe Rudolf
Data Visualization	Stephan Kadauke
Data Transformation	Amrom Obstfeld
Group and Summarize	Patrick Mathias
Advanced Reporting	Patrick Mathias

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Who are we?

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A portrait of Joseph Rudolf, a man with a beard and glasses, wearing a light blue shirt and a dark blue tie, smiling against a light-colored wall.

Joseph Rudolf

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

Medical Director, Automated Core Laboratory, ARUP
Laboratories

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Patrick Mathias

Assistant Professor, Department of
Laboratory Medicine and Pathology

University of Washington School of
Medicine

Associate Medical Director, Laboratory
Medicine and Pathology Informatics



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Stephan Kadauke

Assistant Professor of Clinical Pathology and
Laboratory Medicine

University of Pennsylvania Perelman School
of Medicine

Assistant Director of the Cell and Gene
Therapy Laboratory

Children's Hospital of Philadelphia



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Amrom Obstfeld

Assistant Professor of Clinical Pathology
and Laboratory Medicine

University of Pennsylvania Perelman
School of Medicine

Director of Pathology Informatics

Children's Hospital of Philadelphia



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Workshop Workflow

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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

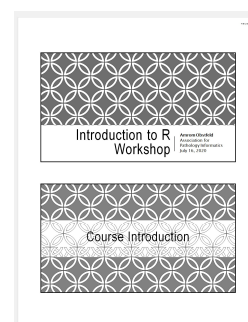
01-introduction.Rmd

```
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
7- Notebook is like an electronic lab notebook, but for data analysis. You
8- can use R Notebooks to take notes, write code, and you can run that code
9- and see the results in the same document.
10-
11- To take notes, simply edit the text in this document. For example, edit
12- the following line to replace XXX with your name:
13-
14- My name is XXX, and I'm editing an R Notebook!
15-
16- In an R Markdown document, code goes into "code chunks". Each code chunk
17- starts with three back-ticks (```) and the letter "r" in curly brackets.
18- It ends with a line that only has three backticks (```). The RStudio
19- editor makes the background color of code chunks gray. This way it's easy
20- to see where all the code chunks are. You can run the code in a code
21- chunk by clicking the green triangle in the upper right corner of the
22- code chunk. The results will appear beneath the chunk. Try it!
23-
24- ```{r}
25- plot(cars)
26- ```
27-
28- Good job!
29-
30- You can open a new R Notebook by going to File > New File > R
31- Notebook.
```

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Workshop Coursebook

- Print out of all slides
- Appendix
 - Cheat sheets
 - Useful resources



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Who are you?

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Your Turn

Introduce yourself to your breakout roommates

Who are you?
Where are you from?
Why are you here?
Have you ever used R?

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Final Tips

- The best way to learn to code is by doing
- Practice is key!

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