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### Title

A Reproducibility Workshop Series for Biomedical Researchers

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# Reproducibility in the Biomedical Sciences: A workshop series

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Why teach a series on reproducibility?

## The requirement:

Advanced Notice of Coming Requirements for Formal Instruction in Rigorous Experimental Design and Transparency to Enhance Reproducibility: NIH and AHRQ Institutional Training Grants, Institutional Career Development Awards, and Individual Fellowships

Notice Number: NOT-OD-16-034

### Key Dates

Release Date: December 17, 2015

## The inspiration:



## The catalyst:

Perspective | [Open Access](#) | Published: 10 January 2017

### A manifesto for reproducible science

Marcus R. Munafò , Brian A. Nosek, Dorothy V. M. Bishop, Katherine S. Button, Christopher D.

Chambers, Nathalie Percie du Sert, Uri Simonsohn, Eric-Jan Wagenmakers, Jennifer J. Ware & John P. A.

Ioannidis

*Nature Human Behaviour* **1**, Article number: 0021 (2017) | [Download Citation](#) 

**30k** Accesses | **495** Citations | **2587** Altmetric | [Metrics](#) 

# About the Workshops

- **Partnership** between the UCSF Library, Graduate Division, and Open Science Group
- 8-part workshop series on Reproducibility for Biomedical Researchers
- Primary audience: graduate students and postdocs needing NIH reproducibility training
- Secondary audience: everyone at UCSF



## Reproducibility in the Biomedical Sciences

A Free Workshop Series for the UCSF Community  
Sept 19 - Nov 14, 2019

What topics should we cover?



## Enhancing Transparency

The information provided addresses rigor and transparency in conducting research toward improving health

# Transparency and Openness Promotion (TOP) Guidelines

### AUTHORS

Brian Nosek, George Alter, George Banks, Denny Borsboom, Sara Bowman, Steven Breckler, Stuart Buck, Chris Chambers, Gilbert Chin, Garret Christensen, Monica Contestabile, Allan Dafoe, Eric Eich, Jeremy Freese, Rachel Glennerster, Daniel Goroff, Don Green, Bradford Hesse, Macartan Humphreys, John Ishiyama, Dean Karlan, Alan Kraut, Arthur Lupia, Patricia Mabry, Temina Madon, Neil Malhotra, Evan Mayo-Wilson, Marcia McNutt, Edward Miguel, Elizabeth Paluck, Uri Simonsohn, Courtney Soderberg, Bobbie Spellman, James Turitto, Gary VandenBos, Simine Vazire, Eric-Jan Wagenmakers, Rick Wilson, Tal Yarkoni, Victoria Stodden, Alexander DeHaven

### CREATED ON

October 05, 2016

### LAST EDITED

July 02, 2018

### SUPPLEMENTAL MATERIALS

[osf.io/9f6gx/](https://osf.io/9f6gx/)



## Recommendations to Funding Agencies for Supporting Reproducible Research

January 18, 2017

And remember:

“... ask not what you can do for  
reproducibility; ask what reproducibility  
can do for you” - Florian Markowetz



# The Series

- **Introduction to Reproducibility + Panel** - Ariel Deardorff, UCSF Library
- **Rigorous Experimental Design** – Karla Lindquist, PhD, UCSF Library
- **Open Publishing** - Veronique Kiermer, PhD, and Dan Morgan, PhD, PLOS
- **Open Protocols** – Lenny Teytelman, PhD, Protocols.io
- **Open Code** – Karthik Ram, PhD, BIDS
- **Peer Review** – Jessica Polka, PhD, ASAP Bio
- **Data Publishing** – Daniella Lowenberg, California Digital Library
- **Trust and Transparency** – Elizabeth Silva, PhD, UCSF Graduate Division

# The Schedule – *Halfway Done!*

- **Introduction to Reproducibility + Panel** - Sept 19
- **Rigorous Experimental Design** - Sept 26
- **Open Publishing** - Oct 3
- **Open Protocols** - Oct 10
- **Open Code** - Oct 24
- **Peer Review** - Oct 31
- **Data Publishing** - Nov 7
- **Trust and Transparency** - Nov 14

What have we learned so far?

# What do attendees want to learn?

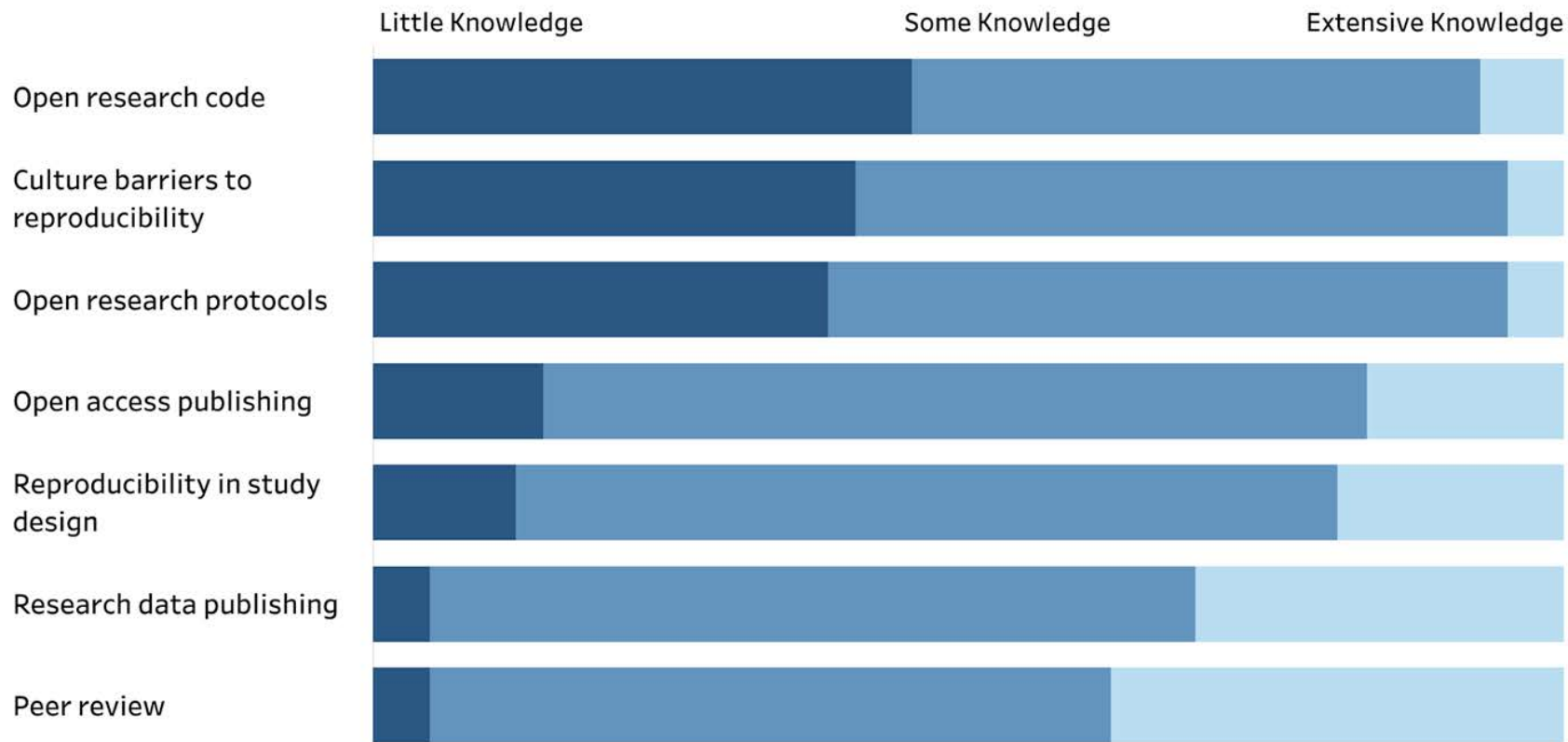
“How can I check if I designed a good (reproducible) study?”

“How to design and carry out experiments that are rigorous and reproducible, and **how to make the details and protocols of those experiments available** to other researchers so that they can repeat or build on them”

“I’m hoping to learn the best practices to improve reproducibility in my field of research. In particular, **I’m hoping to learn how to do so efficiently so as to balance productivity and reproducibility.**”

“I **worry** about rigor & reproducibility in my research a lot, **but I don't really know what to do about it**”

Attendees know the least about **open research code**, the most about **peer review**



# What barriers do they face?

- Lack of knowledge
- Biological experiments with low success rates/repeatability
- Highly specialized equipment, animal models, etc.
- Small sample sizes
- Inadequate documentation
- Lack of standard ways to share data
- Reluctance to publish negative results
- Pressures from PI to make experiments work and publish **fast**
- Lack of time
- “The research culture’s desire for impact”



# Next Steps

- Finish the workshop series!
- Evaluate learner satisfaction, knowledge, and behavioral change
- Share and promote the [workshop materials](#)
- Figure out how to make this sustainable

# Questions?

**Email me!** [ariel.deardorff@ucsf.edu](mailto:ariel.deardorff@ucsf.edu)

**Check out the series!** [tiny.ucsf.edu/reproducibilityworkshops](http://tiny.ucsf.edu/reproducibilityworkshops)

# References

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