

Reproducible Manuscripts

Alexander Mark Weber

UBC and BCCHR

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Bridge-In

Mentimeter

Scientific Method

Scientific Method

What is the scientific method (broadly)?

1. Define a question
2. Gather information and resources (observe)
3. Form an explanatory hypothesis
4. Test the hypothesis by performing an experiment and collecting data in a reproducible manner
5. Analyze the data
6. Interpret the data and draw conclusions that serve as a starting point for a new hypothesis
7. Publish results
8. Retest (frequently done by other scientists)

Scientific Method

7. Publish Results

8. Retest (frequently done by other scientists)

Problem

- In 2011, John Ioannidis¹ published

Essay

Why Most Published Research Findings Are False

John P. A. Ioannidis

- Why?
 - Studies are underpowered
 - Current incentives lead scientists to publish quantity over quality
 - No incentives for scientists to replicate other studies
 - More...