

# Evidence-based decision making

## Introduction

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Rui Mata, FS 2026

Version: Feb 16, 2026

# Course instructors

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Loreen Tisdall

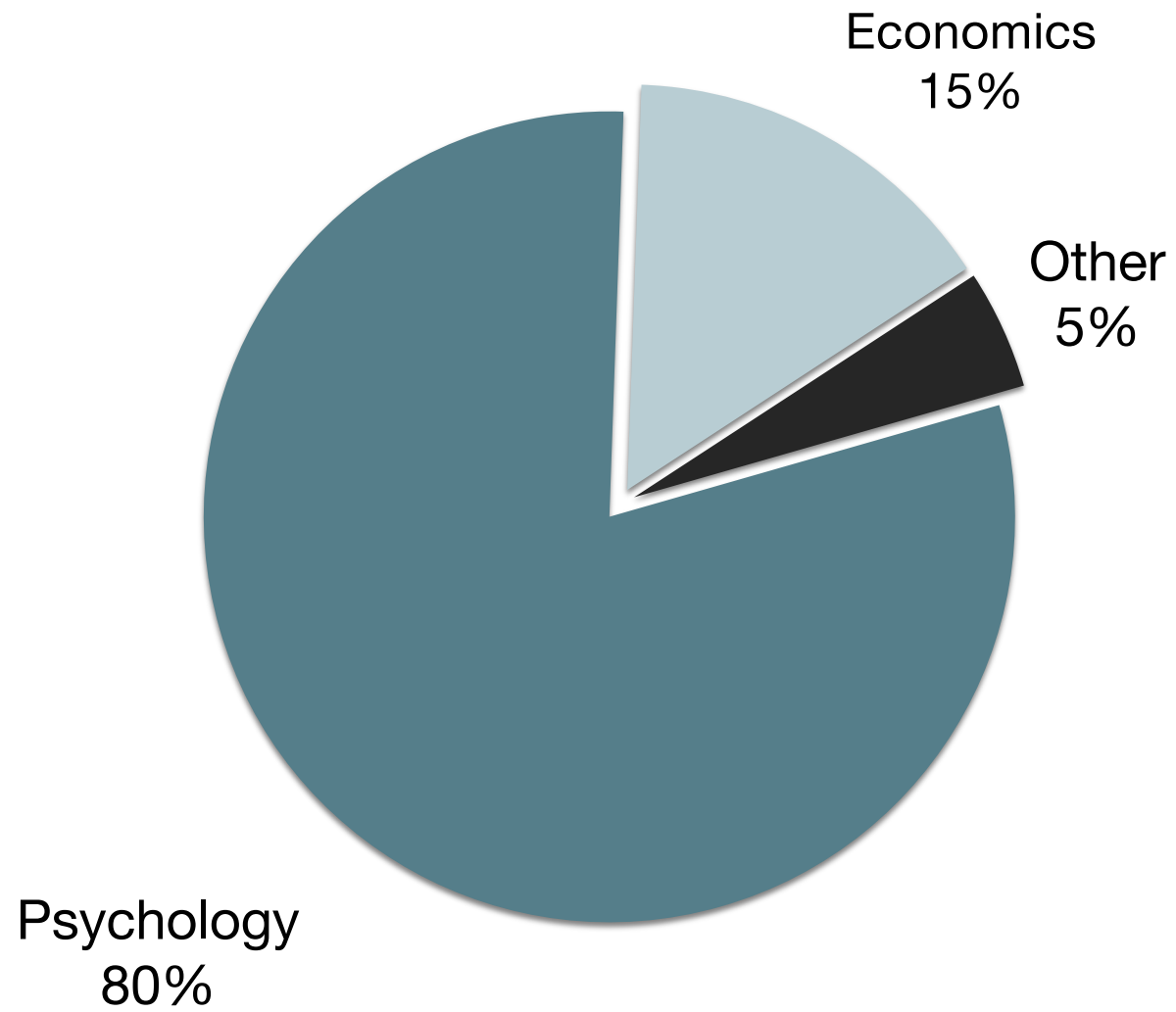


Rui Mata

<http://cds.unibas.ch>

# You!

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# Goals for today

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- Discuss reasons why **WE/YOU** should care about evidence-based decision making
- Understand the course structure and website



**Should social media be banned for under 16s?**

# Should social media be banned for under 16s?



**YES**



**NO**

# Goals for this exercise

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- Identify and distinguish between different types of evidence relevant to policy decisions
- Evaluate the strengths and limitations of different forms of evidence
- Reflect on the power and limits of evidence-based policy-making

# Your task

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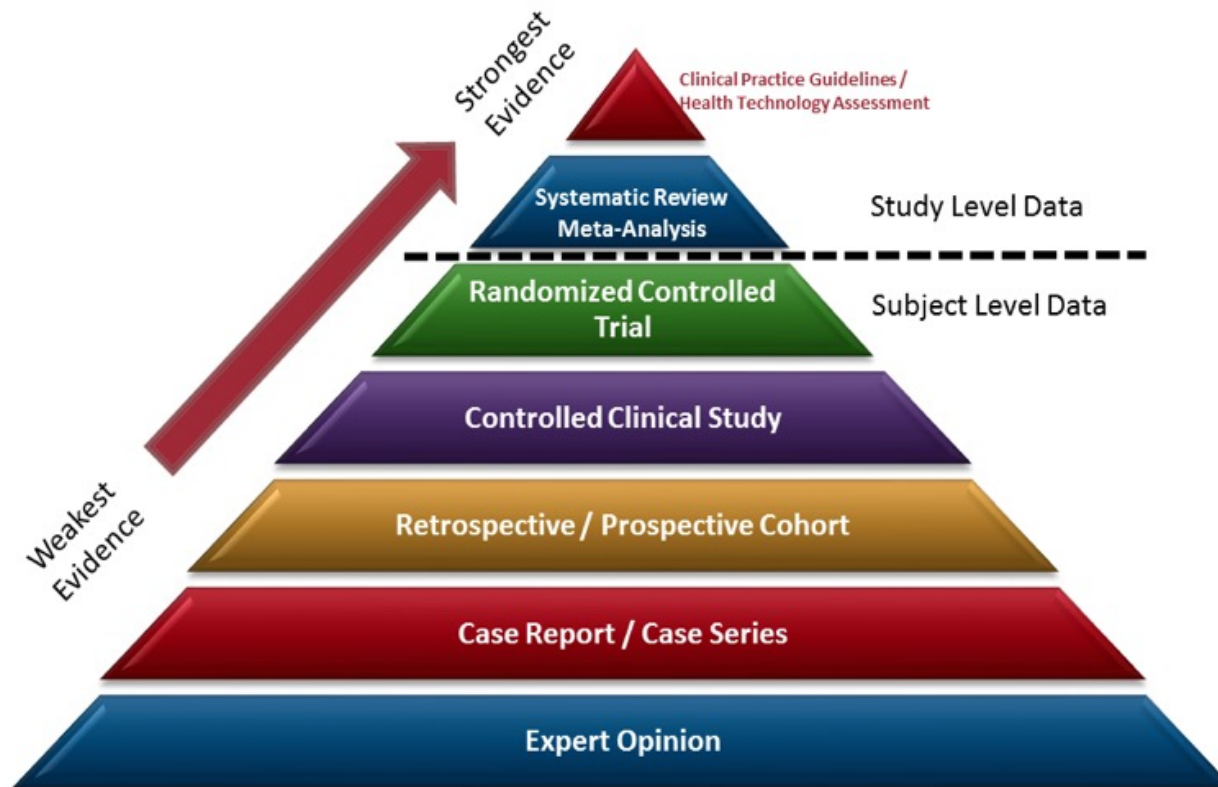
## What Evidence Would We Need?

**Policy Question: Should social media be banned for under-16s?**

**Instructions:** Identify **THREE different lines of evidence** that would help inform this policy decision and complete the table.

Line of evidence and what it would tell us (claim)	Strengths	Limitations	How Useful for Policy? (Low/Med/High + Why)
1.	.	.	
2.	.	.	
3.	.	.	

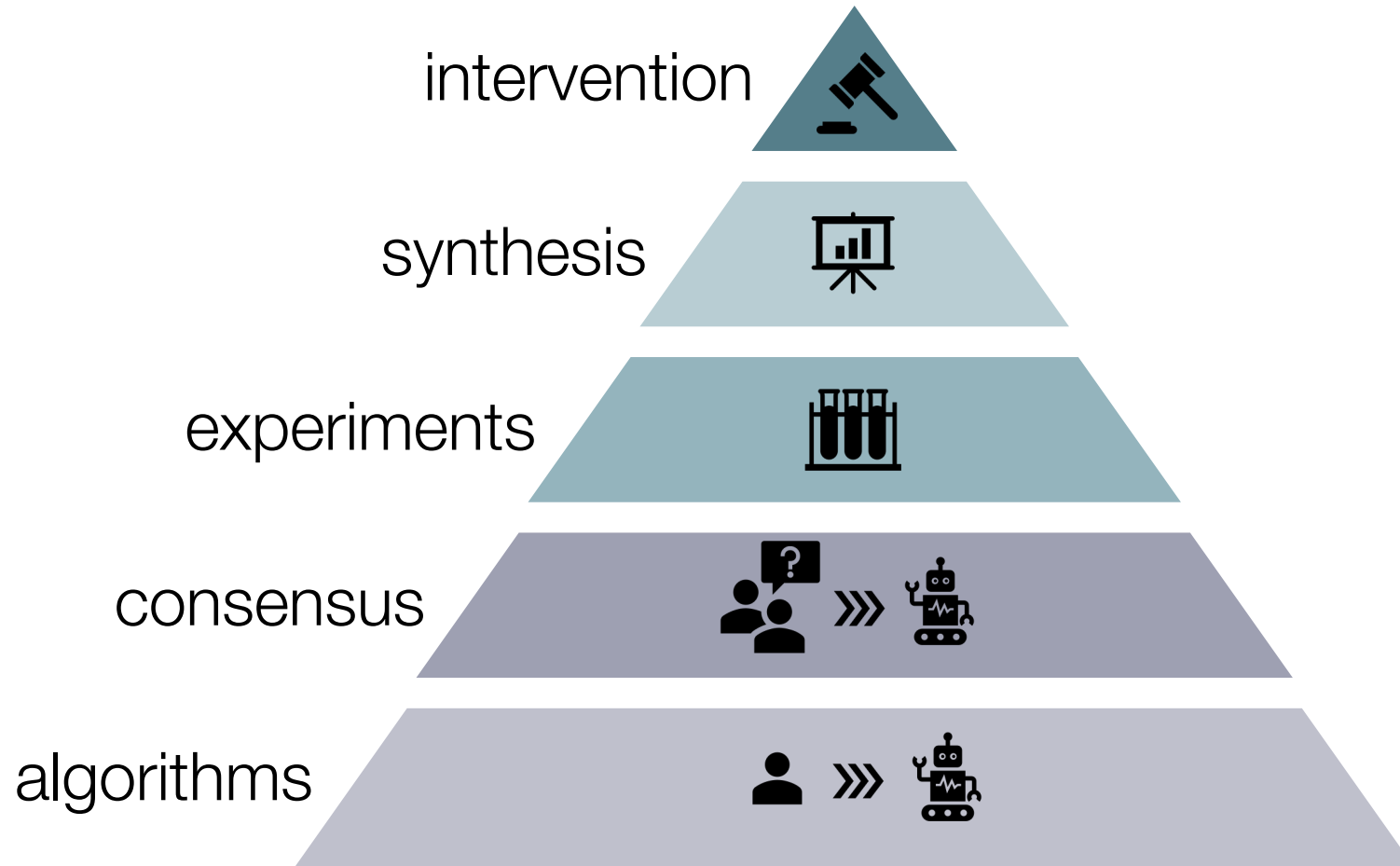
# Course structure



[https://en.wikipedia.org/wiki/Hierarchy\\_of\\_evidence](https://en.wikipedia.org/wiki/Hierarchy_of_evidence)

The course is inspired in the idea of a hierarchy of evidence – starting with expert opinion and ending with systematic reviews and evidence-based interventions

# Course structure



# Should social media be banned for under 16s?

VS

Do we currently have sufficient evidence to justify a ban?



**YES**



**NO**

# Further reading: Haidt & Rausch

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## **Lines of Evidence Relevant to Social Media & Youth Mental Health**

- Youth self-reports (surveys of adolescents about their experiences and perceptions)
- Parent, teacher & clinician reports (observations from adults working closely with young people)
- Internal company research/documents (platform-generated data and internal analyses)
- Cross-sectional studies (associations between social media use and mental health measured at one time point)
- Longitudinal studies (whether earlier use predicts later mental health outcomes and/or vice versa)
- Experimental studies (RCTs) (effects of reducing or manipulating social media use under controlled conditions)
- Natural experiments (mental health changes following policy shifts or variations in access)
- Population trend data (historical or cross-national changes in adolescent outcomes over time)

Haidt, J. & Rausch, Z. (2026). Social media is harming young people at a scale large enough to cause changes at the population level. [https://doi.org/10.31234/osf.io/w5qsm\\_v1](https://doi.org/10.31234/osf.io/w5qsm_v1)

# Why YOU should care about evidence-based practices to...

**1**

**be a good psychologist**

**2**

**improve science**

**3**

**make informed decisions**



# be a good psychologist

## Policy Statement on Evidence-Based Practice in Psychology

*The following statement was approved as policy of the American Psychological Association (APA) by the APA Council of Representatives during its August, 2005 meeting.*

Evidence-based practice in psychology (EBPP) is the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences. This definition of EBPP closely parallels the definition of evidence-based practice adopted by the Institute of Medicine (2001, p. 147) as adapted from Sackett and colleagues (2000): "**Evidence-based practice is the integration of best research evidence with clinical expertise and patient values.**" The purpose of EBPP is to promote effective psychological practice and enhance public health by applying empirically supported principles of psychological assessment, case formulation, therapeutic relationship, and intervention.

**Best research evidence refers to scientific results related to intervention strategies, assessment, clinical problems, and patient populations in laboratory and field settings as well as to clinically relevant results of basic research in psychology and related fields. A sizeable body of evidence drawn from a variety of research designs and methodologies attests to the effectiveness of psychological practices. Generally, evidence derived from clinically relevant research on psychological practices should be based on systematic reviews, reasonable effect sizes, statistical and clinical significance, and a body of supporting evidence. The validity of conclusions from research on interventions is based on a general progression from clinical observation through systematic reviews of randomized clinical trials, while also recognizing gaps and limitations in the existing literature and its applicability to the specific case at hand (APA, 2002). Health policy and practice are also informed by research using a variety of methods in such areas as public health, epidemiology, human development, social relations, and neuroscience.**

Researchers and practitioners should join together to ensure that the research available on psychological practice is both clinically relevant and internally valid. It is important not to assume that interventions that have not yet been studied in controlled trials are ineffective. However, widely used psychological practices as well as innovations developed in the field or laboratory should be rigorously evaluated and barriers to conducting this research should be identified and addressed.

# 2

## improve science

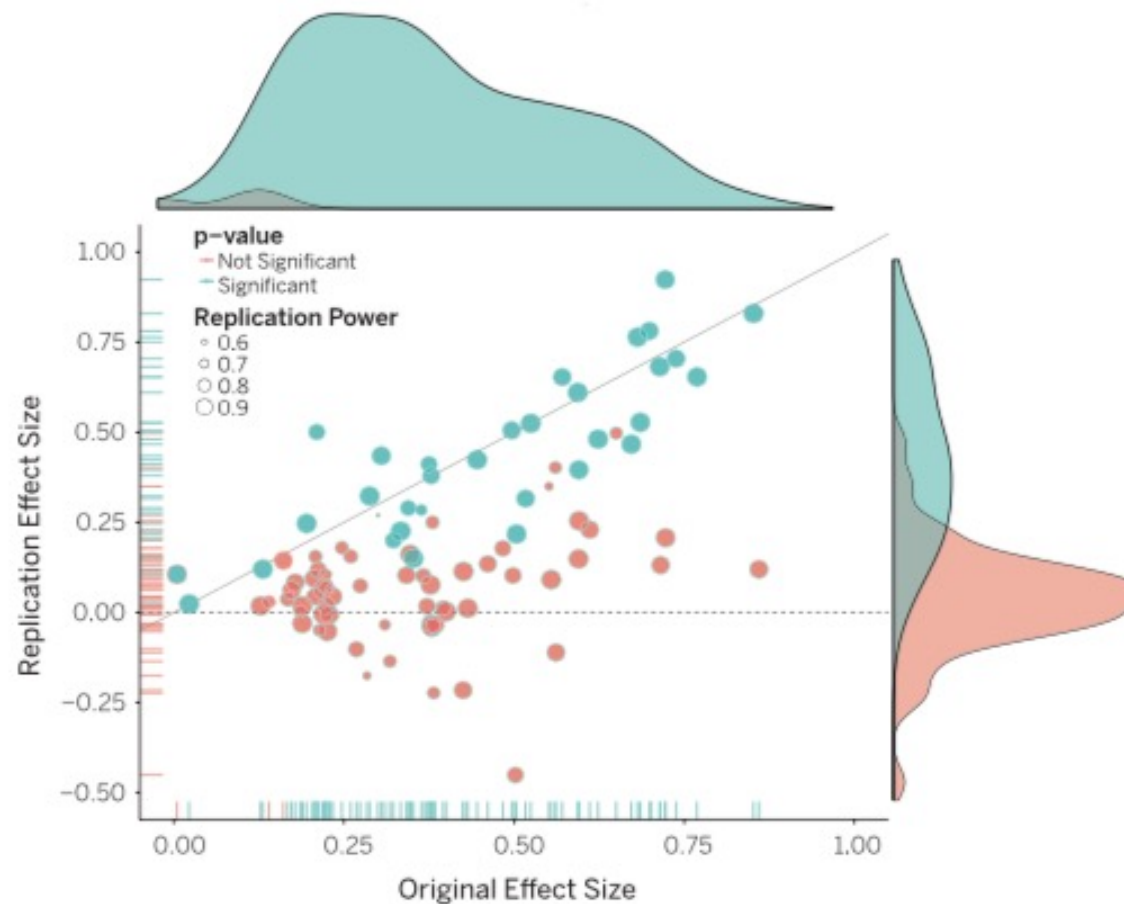


Ioannidis, J. P. A. (2005). Why most published research findings are false. *PLoS Medicine*, 2(8), e124–6.

<http://doi.org/10.1371/journal.pmed.0020124>

Ioannidis, J. (2005). Contradicted and initially stronger effects in highly cited clinical research. *JAMA*, 294(2), 218–228. <http://doi.org/10.1001/jama.294.2.218>

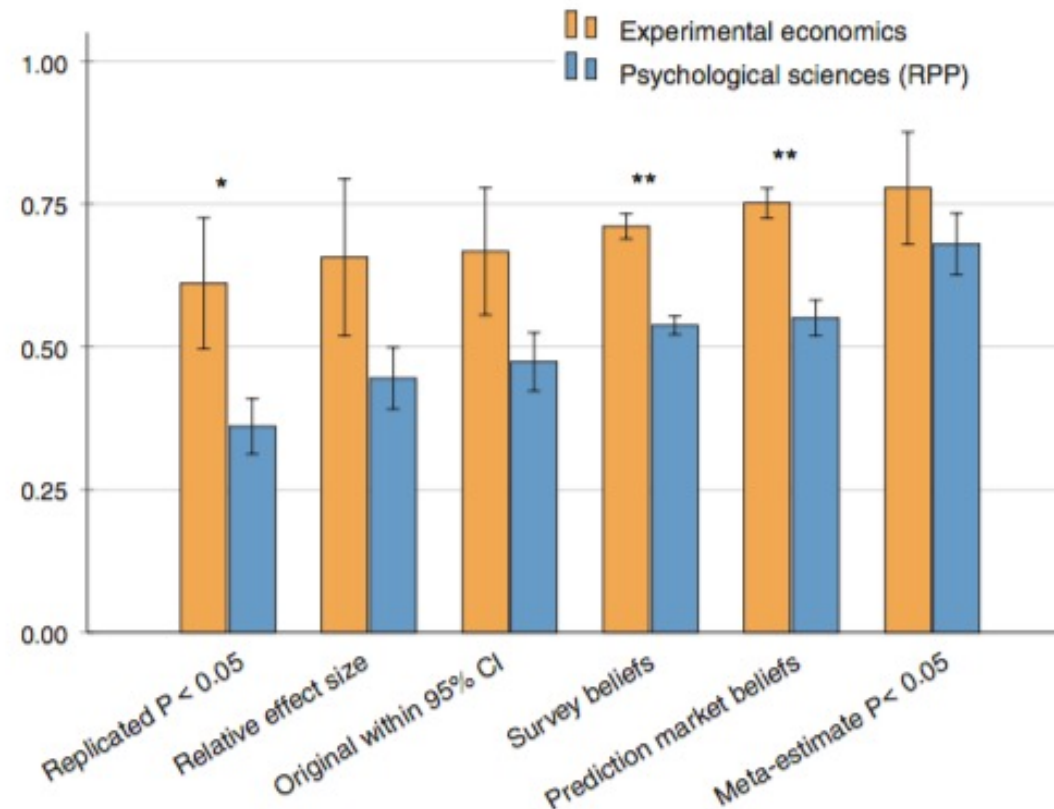
# Replicability Crisis in Psychology and Economics



**Original study effect size versus replication effect size (correlation coefficients).** Diagonal line represents replication effect size equal to original effect size. Dotted line represents replication effect size of 0. Points below the dotted line were effects in the opposite direction of the original. Density plots are separated by significant (blue) and nonsignificant (red) effects.

Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, 349(6251), aac4716–aac4716. <http://doi.org/10.1126/science.aac4716>

# Replicability Crisis in Psychology and Economics



**Fig. 4. A comparison of replicability indicators in experimental economics (this study) and psychological sciences (RPP).** The graph shows means  $\pm$  SE for replicability indicators. All six replicability indicators are higher for experimental economics; this difference is significant for three of the replicability indicators. The average difference in replicability across the six indicators is 19 percentage points. Details about the statistical tests are included in the supplementary materials. \* $P < 0.05$ ; \*\* $P < 0.01$ .

Camerer, C. F., Dreber, A., Forsell, E., Ho, T.-H., Huber, J., Johannesson, M., et al. (2016). Evaluating replicability of laboratory experiments in economics. *Science*, 351(6280), 1433–1436. <http://doi.org/10.1126/science.aaf0918>

# A manifesto for reproducible science

Marcus R. Munafò<sup>1,2\*</sup>, Brian A. Nosek<sup>3,4</sup>, Dorothy V. M. Bishop<sup>5</sup>, Katherine S. Button<sup>6</sup>,  
Christopher D. Chambers<sup>7</sup>, Nathalie Percie du Sert<sup>8</sup>, Uri Simonsohn<sup>9</sup>, Eric-Jan Wagenmakers<sup>10</sup>,  
Jennifer J. Ware<sup>11</sup> and John P. A. Ioannidis<sup>12,13,14</sup>

**Improving the reliability and efficiency of scientific research will increase the credibility of the published scientific literature and accelerate discovery. Here we argue for the adoption of measures to optimize key elements of the scientific process: methods, reporting and dissemination, reproducibility, evaluation and incentives. There is some evidence from both simulations and empirical studies supporting the likely effectiveness of these measures, but their broad adoption by researchers, institutions, funders and journals will require iterative evaluation and improvement. We discuss the goals of these measures, and how they can be implemented, in the hope that this will facilitate action toward improving the transparency, reproducibility and efficiency of scientific research.**

Munafò, M. R., Nosek, B. A., Bishop, D. V. M., Button, K. S., Chambers, C. D., Sert, du, N. P., et al. (2017). A manifesto for reproducible science. *Nature Human Behaviour*, 1, 1–9. <http://doi.org/10.1038/s41562-016-0021>

**Table 1 | A manifesto for reproducible science.**

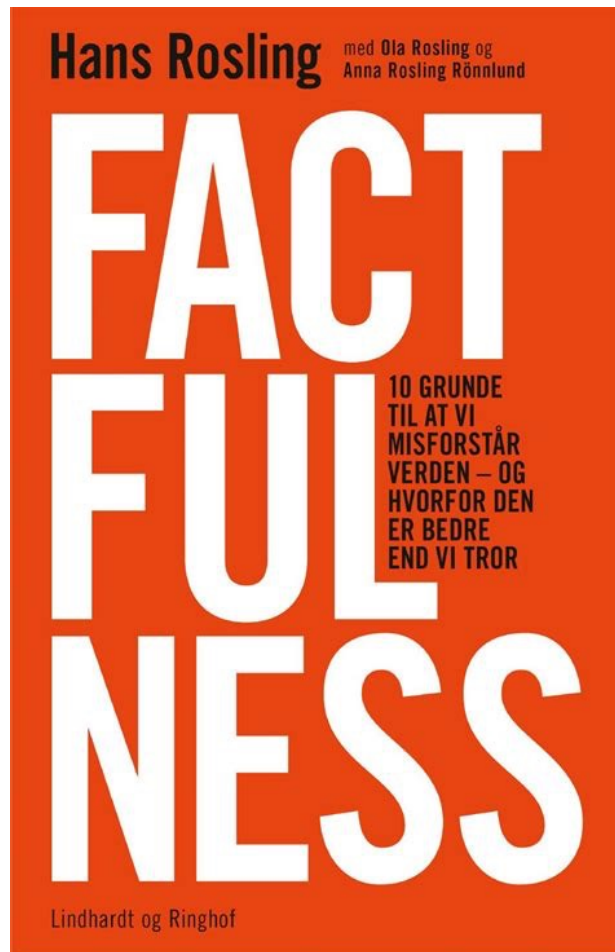
Theme	Proposal	Examples of initiatives/potential solutions (extent of current adoption)	Stakeholder(s)
Methods	Protecting against cognitive biases	All of the initiatives listed below (* to ****) Blinding (**)	J, F
	Improving methodological training	Rigorous training in statistics and research methods for future researchers (*) Rigorous continuing education in statistics and methods for researchers (*)	I, F
	Independent methodological support	Involvement of methodologists in research (**) Independent oversight (*)	F
	Collaboration and team science	Multi-site studies/distributed data collection (*) Team-science consortia (*)	I, F
Reporting and dissemination	Promoting study pre-registration	Registered Reports (*) Open Science Framework (*)	J, F
	Improving the quality of reporting	Use of reporting checklists (**) Protocol checklists (*)	J
	Protecting against conflicts of interest	Disclosure of conflicts of interest (***) Exclusion/containment of financial and non-financial conflicts of interest (*)	J
Reproducibility	Encouraging transparency and open science	Open data, materials, software and so on (* to **) Pre-registration (**** for clinical trials, * for other studies)	J, F, R
Evaluation	Diversifying peer review	Preprints (* in biomedical/behavioural sciences, **** in physical sciences) Pre- and post-publication peer review, for example, Publons, PubMed Commons (*)	J
Incentives	Rewarding open and reproducible practices	Badges (*) Registered Reports (*) Transparency and Openness Promotion guidelines (*) Funding replication studies (*) Open science practices in hiring and promotion (*)	J, I, F

Estimated extent of current adoption: \*, <5%; \*\*, 5-30%; \*\*\*, 30-60%; \*\*\*\*, >60%. Abbreviations for key stakeholders: J, journals/publishers; F, funders; I, institutions; R, regulators.

Munafò, M. R., Nosek, B. A., Bishop, D. V. M., Button, K. S., Chambers, C. D., Sert, du, N. P., et al. (2017). A manifesto for reproducible science. *Nature Human Behaviour*, 1, 1–9. <http://doi.org/10.1038/s41562-016-0021-19>

# 3

## make informed decisions



<https://www.gapminder.org/ignorance/>



<https://ourworldindata.org/team/hannah-ritchie>

# WHY TRUST SCIENCE

?

NAOMI  
ORESKE

Trust in science is **NOT** warranted because there is a singular scientific method that is objective and infallible; science consists of communities of people, making decisions for reasons that can be biased and self-interested, using diverse methods...

There are however some reasons to **TRUST** science, specifically:

- its sustained engagement with testable empirical phenomena;
- its social and organized character – a form of organized skepticism that is not dependent on single individuals and tends to self-correction in the long run.

see [https://matarui.github.io/EBDM\\_FS26/session1.html](https://matarui.github.io/EBDM_FS26/session1.html)

# Course website

## EBDM

Welcome to the website for *Evidence-based decision making* FS25 ([11230-01](#))

Instructors: [Loreen Tisdall](#) and [Rui Mata](#), University of Basel

**WEBSITE UNDER CONSTRUCTION:** Last updated Wed Jan 22 10:10:08 2025



Very much like a spread of tools, science offers a plethora of strategies...  
photo by [Cesar Carlevarino Aragon](#) on [Unsplash](#)

[https://matarui.github.io/EBDM\\_FS26](https://matarui.github.io/EBDM_FS26)

# Summary

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- Policy questions require different types of evidence to avoid relying simply on opinion.
- Not all evidence supports the same level of inference: understanding the hierarchy of evidence helps us judge claims (strength, causality).
- Evidence-based practice integrates research findings, professional expertise, and contextual values.
- Science is imperfect and sometimes provides incorrect results, but it is structured around organized skepticism and self-correction.
- Evidence does not eliminate uncertainty, it provides the best available tools for making decisions under uncertainty for individuals and society.