

Research Integrity: Navigating Authorship, Data Ownership and Conflicts of Interest

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Agenda

- Authorship Disputes
- Data Ownership & Management
- Research Misconduct (RM)
- Protecting Yourself Against RM
- Using AI in Research
- Science as “Organized Skepticism”
- Questionable Research Practices
- Changing the Incentives

Authorship Disputes

- Authorship Disputes are not “Research Misconduct,” but they are common and often troublesome
- We don’t have an official campus policy on authorship, but ghost and gift authorships are widely discouraged (see the [Committee on Publication Ethics \(COPE\)](#))
- Be proactive: develop written “authorship agreements”
- Get all contributors to agree on author sequence (including “joint first and/or senior authorship”)
- Revisit the agreement as the project evolves (e.g., as new collaborators join)

Data Ownership & Management

- Technically, the university owns all the data; PIs function only as “stewards.” If you or people in your lab leave the institution, they can only take copies of the data.
- Sometimes “material transfer agreements” may be appropriate.
- Different granting agencies have different policies on how long data must be retained. NSF and NIH require 3 years after last grant report.
- It’s wise to keep old data as long as possible (and organized!), just in case it is ever questioned.
- Train your lab on how to follow the data management plan you specified in your grant!

Research Misconduct

- The federal government mandated that we revise our research misconduct policy. It took effect Jan 1, 2026
- Research misconduct includes fabrication or falsification of the “research record” (i.e., making up or misrepresenting data, whether it’s published or not)
- It also includes plagiarism, except for self-plagiarism and “common knowledge”
- Plagiarism includes theft of ideas, processes, or results (e.g., after reviewing confidential material)
- Plagiarism does **not** include “credit disputes” among collaborators (common when collaborations fall apart)

Protecting Yourself against RM

- Run papers and grants through misconduct-detecting software (e.g., Profig, ImageTwin, iThenticate)
- Train lab members in data management and record keeping
- Use electronic lab notebooks and Open Science resources (e.g., Open Science Framework or UCI's Dryad data repository)
- Promote a lab culture in which it is okay to get results that do not “fit”
- Don't automatically guarantee the veracity of submitted manuscripts or applications; when in doubt, ask questions

Using AI in Research

- Regulatory frameworks are still “under development”
- Be transparent about your usage of AI
- “It wasn’t me, it was AI” is not a good excuse for research misconduct
- Verify as much as you can (if AI hallucinates references, what else is it making up?)
- When using AI for data analysis, explore whether the results are repeatable
- Don’t use AI to write manuscript reviews. Many journals forbid it and some authors may manipulate AI reviews

Science as “Organized Skepticism”

– Robert Merton, 1942

- Paper mills are running wild. Learn how to spot fraudulent papers ([Five ways to spot when a paper is a fraud](#))
- Beware of retracted papers that still get cited frequently (Zotero and EndNote let you know which papers have been retracted)
- Install PubPeer’s browser extension to read post-publication commentary
- Trust but verify! Make sure your trust is earned. Don’t be “reckless” in how you supervise your lab.
- How do you verify the work of collaborators whose expertise is very different from your own? Ask probing questions!

Questionable Research Practices

- Small sample sizes (low power) can lead to false positives (i.e. surprising results that look significant but aren't real)
- Failure to control for multiple comparisons exaggerates statistical significance ([Why, When and How to Adjust Your P Values?](#))
- Stopping data collection when you have reached statistical significance is a dubious practice (a form of p-hacking)
- QRPs contribute to the “replication crisis”
- QRPs increase the pressure to publish for everyone, potentially leading to research misconduct. Are they “the steroids of scientific competition”?)

Changing the Incentives – How?

- De-emphasize flashy “stories” and, instead, promote “strong science”
- Have personnel committees evaluate the science, not the number of papers. Reward quality, not quantity!
- Reward pre-registered reports and transparent sharing of results and experimental procedures
- Don’t look down on replication attempts
- Reduce the pressure on young scientists, and promote a culture of scientific rigor