



Academic and Research Integrity

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Orientation

2024

Graduate School Success



Academic Integrity

- **Cheating:** Dishonesty of any kind with respect to homework, examinations, large and small group activities, written exercises, journal club, laboratory, presentations or required web-based activities
- **Plagiarism and Copyright:** You must use your own words or paraphrase articles/books used with appropriate reference to the article/book cited.
- **Professionalism:** Includes both the application of academic integrity and honesty in your class participation and assignments and treating both classmates and faculty with respect. Professionalism also includes attendance at required sessions and checking your school email regularly!!



Examinations

- **Classroom examination:**

Unless otherwise stated, no material (books, notes, calculators, computers) of any kind can be used during an examination. You may not look at or copy the work of another student during an exam.

NO communications devices, especially cell phones.

- **Take-home examination or work:**

Unless otherwise stated, research and writing must be done individually without assistance or exchange of information with others.



turnitin.com to avoid plagiarism

- **Turnitin** Software is licensed by Rutgers University.
 - **Turnitin** compares your paper to digital content on the web, archived digital content, student papers and thesis, and published journal articles.
 - It does not determine plagiarism, instead it detects matched content
- Create your own assignment in Canvas using Sandbox to check your paper using Turnitin before you submit them to classes or your advisor



- Unless stated otherwise, assume that ChatGPT and other AI apps are NOT permitted to be used at any point in the course.



What if You Suspect Cheating or Professionalism Violations?

Report it:

- During the exam/exercise to the proctor
- As soon as possible after the exam/exercise to either the
Course director
Program directors
Deans Janet Alder or Jim Millonig

Research Misconduct

- **Fabrication** - making up data or results
- **Falsification** - inaccurate representation of the results by changing or omitting data, by manipulating research materials, equipment or processes
- **Plagiarism** - appropriation of someone else's ideas, results or words without giving appropriate credit

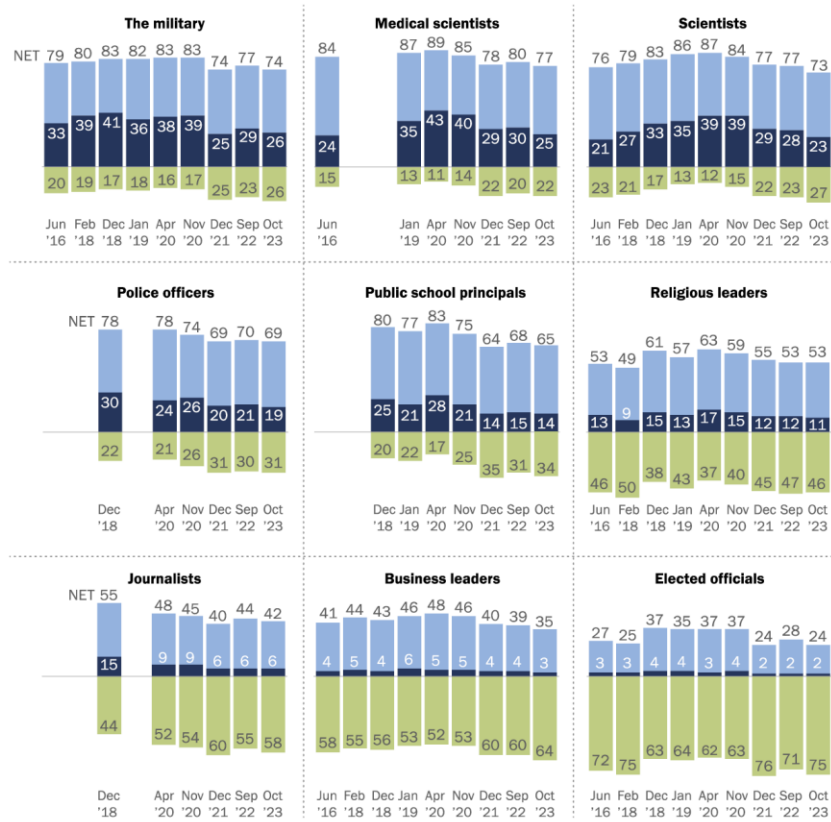
... in proposing, performing, reviewing research, or in reporting research results

- **committed intentionally, knowingly or recklessly**
- **DOES NOT** include honest error, conflicting data, differences of opinion, or differences in interpretations or judgments about data or experimental design.

Majorities of Americans say they have at least a fair amount of confidence in scientists, but ratings have fallen since early in the coronavirus outbreak

% of U.S. adults who have ___ of confidence in the following groups to act in the best interests of the public

● A great deal ● A fair amount ● Not too much/No confidence at all

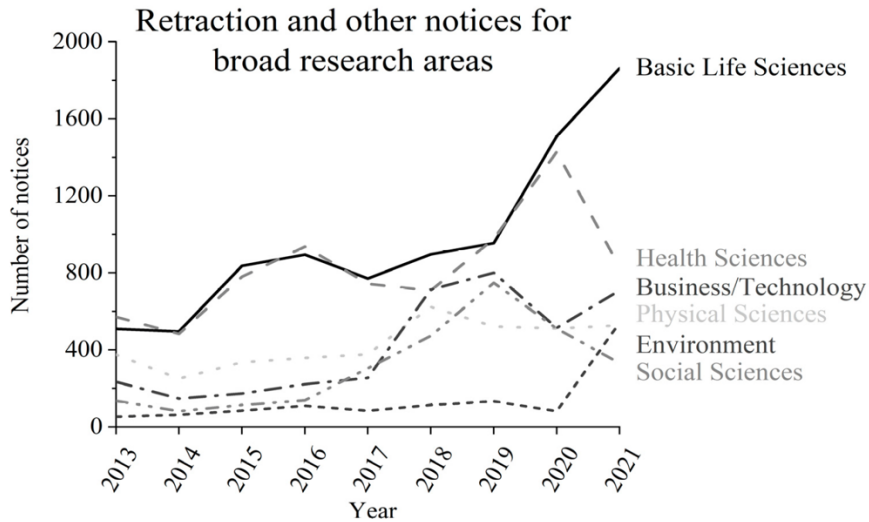


Note: Respondents who did not give an answer are not shown.
 Source: Survey of U.S. adults conducted Sept. 25-Oct. 1, 2023.
 "Americans' Trust in Scientists, Positive Views of Science Continue to Decline"

Yet scientists are still one of the most trusted groups in society.
 We have a lot of responsibility...

- Public, government and philanthropic agencies support research
- Potential to harm animal and human subjects
- Direct impact on human health
- Scientists have mutual dependency

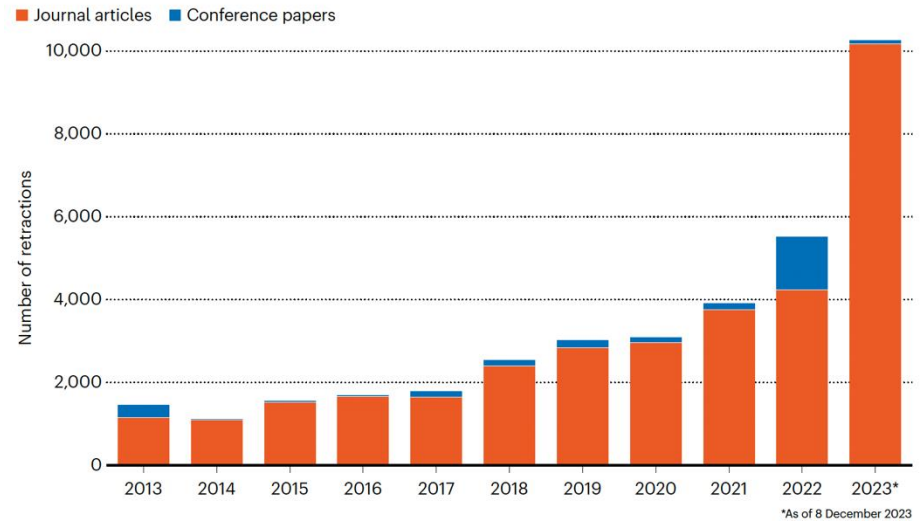
Retractions of Papers in the Life Sciences Has an Increasing Trend, Especially in 2023



Nicole Shu Ling Yeo-Teh and Bor Luen Tang, 2022

A BUMPER YEAR FOR RETRACTIONS

Retraction notices in 2023 have passed 10,000, largely because of more than 8,000 retractions by Hindawi.



Nature Dec 2023

Are You Authorized To Collect Data?

- Human subjects:
 - CITI training, IRB submission or addition
- Animal subjects:
 - IACUC approval, vivarium training and tour
- Radioactive materials:
 - Training
- Laboratory safety:
 - Training

**AVAILABLE
TRAININGS**



Human Subjects: Informed Consent

- Voluntary: problems with prisoners, students, employees, children, etc.
- No undue inducements
- Must be understandable to subject
- Risks and potential benefits must be presented accurately
- Right to withdraw at any time
- Deception is generally not allowed

A word cloud of terms related to human subjects research ethics. The words are arranged in a roughly rectangular shape and include: Ethics (vertical), IRB, Human, Subjects, Monitoring, Compliance, Justice, Beneficence, Respect, Education, and Research.

Animal Subjects: The Three Rs

- **Replace** the use of animals with alternative techniques, or avoid the use of animals altogether.
- **Reduce** the number of animals used to a minimum, to obtain information from fewer animals or more information from the same number of animals.
- **Refine** the way experiments are carried out, to make sure animals suffer as little as possible. This includes better housing and improvements to procedures which minimize pain and suffering and/or improve animal welfare.



Enhancing Reproducibility through Rigor and Transparency

Four areas that NIH is now requiring in applications and reviewing:

- **SIGNIFICANCE:**

Describe Scientific premise: consider strengths and weaknesses of published research or preliminary data crucial to the support of the application

(rigor of previous experiments; methodology, analysis and interpretation, relevant biological variables, authentication of key resources)

- **RESEARCH STRATEGY:**

2) Describe rigorous experimental design and methods and how will achieve robust and unbiased results: sample size calculation for significance (# mice per group), randomize subjects, blinded, inclusion/exclusion criteria etc.

3) Consider relevant biological variables for vertebrate animals or human subjects: e.g. Sex, weight, age, genetic strain etc.

4) Authentication of key biological and/or chemical resources; how plan to authenticate; methods to ensure identity and validity

e.g. Cell lines (not mis-identified or contaminated), speciality chemicals, antibodies, other biologicals

Fabrication and Falsification

Best way to prevent scientific misconduct is promote good research practices:

- Good record keeping
- Solid basis for data selection
- Talking to each other, to PI, to other researchers; don't get isolated



Data Acquisition and Lab Tools

- Data are the basis of science
- Who owns them?
- Data entry into lab book
 - ✓ Date
 - ✓ What you did
 - ✓ Why you did it
 - ✓ How you did it
 - ✓ Where the materials are
 - ✓ What happened
 - ✓ Your interpretation
 - ✓ Contributions of others
 - ✓ What's next
- Notebooks - paper or electronic (not erasable)
- Computer files (not editable)
- Physical samples (not removable)
- Confidentiality
- Keep for how long?



What if You Suspect Research Violations?

Report it immediately to either:

- PI
- Office for Research

Michael E. Zwick

Senior Vice President for Research

michael.zwick@rutgers.edu

or

Glenn Krell

Director of Research Integrity

(732) 235-7004

glenn.krell@rutgers.edu

Protection and Responsibilities of “Whistle Blowers”

- Initially, the identity of a complainant can be kept confidential.
- Should the allegation lead to an inquiry or investigation, testimony by the complainant may be required.
- The University is committed to the protection of “good-faith” whistleblowers.
- However, “whistle-blowers” whose allegations which prove to be untrue and which are found to have been made in bad faith will be subject to appropriate disciplinary actions by the University.



Policies of Rutgers

- SGS Policies and Procedures including Academic Integrity, Code of Conduct and Professionalism

<https://grad.rutgers.edu/current-students/policies-procedures-students>

- Rutgers Policy on Research Misconduct 90.2.2 as well as Animal and Human Subject Protection

<http://policies.rutgers.edu/view-policies/research-section-90#2>

Ignorance of rules is not an excuse!

Expectations of graduate students

- Check and respond to Rutgers email
- Ensure we have correct contact information
- Familiarize yourself with website content
- Complete and submit academic forms in timely manner
- Maintain 3.0 GPA
- Follow academic integrity policies
- Follow research integrity policies
- Let us know if there is a problem
- Let us know when something good happens!
- Check and respond to Rutgers email

A Scientist's Oath



A SCIENTIST'S OATH*

As I embark on my career as a scientist, I willingly pledge that:

- I will practice and support a scientific process that is based on logic, intellectual rigor, personal integrity, and an uncompromising respect for truth;
- I will perform my professional activities and interactions with scientific integrity and respect for the field and my peers;
- I will acknowledge my role as an ambassador of science to the public, and strive to be honest, respectful, and unbiased with engaging the public;
- I will value my work and its contribution to the scientific community;
- I will never let the potential for personal recognition or advancement cause me to act in a way that violates the public trust in science or in me as a scientist;
- I will foster a community that is inclusive of all and recognize that diversity cultivates innovation, creativity, and progress;
- I will acknowledge and honor the contributions of scientists who have preceded me and become a worthy role model deserving of respect by those who follow me;
- And I will always be cognizant that my work is for the advancement of knowledge and the benefit of all humanity.
- By pronouncing this Oath, I declare my commitment to these professional standards and goals.

*Kelsey E. Bettridge, Ashley L. Cook, Roy C. Ziegelstein, Peter J. Espenshade, A Scientist's Oath, *Molecular Cell*, Volume 71, Issue 6, 2018.



CONGRATULATIONS!