Plagiarism includes 2013 research integrity and implemented the To ensure a Researchers must strive for the 12%, and plagiarism is the source of data for the figures above. It is making up data or results and recording or reporting them 24%, and plagiarism 2018 2021 RCR education Breach of duty care is the appropriation of another person’s ideas, processes, results, or words without misrepresentation of data undisclosed duplication of publication misrepresentation of qualifications and/or experience

RCR Core Values and Guiding Norms

Honesty Convey information truthfully and honor commitments

Accountability Be responsible for and stand behind the work, statements, actions, and roles in the conduct of your work

Stewardship Ensure the long-term and sustainable care of research data and materials, from study design to data collection, analysis, storage, and sharing

Objectivity Let the facts speak for themselves and avoid improper bias

Transparency Declare interests and report all methods and data behind an analysis

Fairness/Mentorship Treat everyone fairly and with respect. Be responsible for the professional development of research trainees

Definitions

Research Integrity: The use of honest and verifiable methods in proposing, performing, and evaluating research; reporting research results with particular attention to adherence to rules, regulations, and guidelines; and following commonly accepted professional codes or norms.

Detrimental Research Practices (DRPs): Actions that may threaten the integrity of research/researcher

- misrepresentation of data, e.g., suppression of relevant findings and/or data, or knowingly presenting a flawed interpretation of data
- undisclosed duplication of publication, including undisclosed duplicate submission of manuscripts for publication
- misrepresentation of interests, including failure to declare conflicts of interests either of the researcher or of the funders of the research
- misrepresentation of qualifications and/or experience, including claiming or implying qualifications or experience which are not held
- misrepresentation of involvement, such as inappropriate claims to authorship and/or attribution of work where there has been no significant contribution, or the denial of authorship where an author has made a significant contribution (NASEM, p. 69-70).
- breach of duty care (researcher negligence), improper dealing of allegations (institutional negligence) and neglectful and exploitive mentoring (mentoring malpractice)

Research Misconduct: Fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.

- Fabrication is making up data or results and recording or reporting them
- Falsification is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record
- Plagiarism is the appropriation of another person’s ideas, processes, results, or words without giving appropriate credit.
- Research misconduct does not include honest error or differences of opinion.

Consequences of Research Misconduct and Detrimental Research Practices

Retraction Trends: Number of Retractions by Year of Publication

RCR Education and Resources at Purdue

Purdue is committed to the highest standards of research integrity and implemented the Responsible Conduct of Research (RCR) Standard (S20) in 2020. It requires all researchers (faculty, staff, trainees/post docs, graduate and undergraduate students) who design and conduct research and/or report and publish research outcomes to complete RCR training tailored to their career stage and research field/area. It has two components:

- General RCR training offered through the CITI online program
- Field-specific RCR training includes formal and informal PI- and Peer-led research group discussions, RCR workshops at the departmental and college level, case studies and ethics courses that are specific to the research field/area.

Resources

- OSUVRP RCR website: https://www.purdue.edu/research/osuvrp/regulatory-affairs/responsible-conduct.php

Conclusions

- Research misconduct and DRPs jeopardize research integrity and public trust in the research enterprise
- Researchers must strive for the highest levels of ethics, honesty, and accuracy
- The biggest impact on research integrity is achieved through sustained improvements in day-to-day research practices — better record-keeping, vetting experimental designs, techniques to reduce bias, rewards for rigorous work, and incentives for sharing data, code and protocols. Nature 570, 5 (2019)
- RCR education ensures that researchers have the knowledge, skills, and necessary resources to conduct science in a healthy, safe, ethical and secure research environment
- To ensure a safe, ethical, secure and productive research environment, each laboratory should maintain and periodically update a Lab Expectations document or online resource that outlines responsibilities of researchers for the specific research portfolio and lab rules for authority, mentorship, and stewardship.