

Responsible Conduct of Research (Research Integrity and Ethics)

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This presentation is based on a presentation by *Guiyun Yan* - Program in Public Health, The *University of California, Irvine*, given at a workshop at *icipe*.
It was itself based on online lectures and online publications, including:

- <https://ori.hhs.gov/education/products/ucla/chapter1/page02.htm>
- <http://www.cuny.edu/research/compliance.html>
- <https://ori.hhs.gov/ori-introduction-responsible-conduct-research>
- <http://nas-sites.org/responsible-science/files/2016/05/responsible-authorship.pdf>
- <https://www.mrc.ac.uk/publications/browse/good-research-practice-principles-and-guidelines/>
- <http://research.ucmerced.edu/files/docs/ORI%20Introduction.pdf>
- <https://ori.hhs.gov/education/products/ucla/chapter1/page02.htm>
- <https://libguides.library.cityu.edu.hk/researchmethods/ethics>
- <http://www.plagiarism.org>



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What is ethics?



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Ethics

Moral principles that govern a person's or group's behavior.



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Principles of Research Ethics

Fundamental principles:

1. Respect for Persons
2. Beneficence
3. Justice



ETHICS



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The Importance of Research Ethics

- Promote the aims of research.
- Support the values required for collaborative work.
 - Scientific research depends on collaboration between researchers and groups.
- Researchers can be held accountable for their actions.
- The public can trust research.
- Supports important social and moral values, such as the principle of doing no harm to others.



ETHICS



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What is integrity?



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Integrity

The quality of being honest and having strong moral principles



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Research Integrity

Research integrity includes:

- Use of honest and verifiable methods in proposing, performing, and evaluating research
- Reporting research results with particular attention to adherence to rules, regulations, guidelines
- Following commonly accepted professional codes or norms



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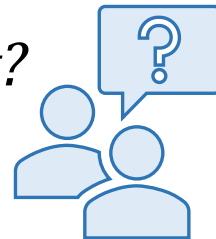
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What is Research Misconduct?



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Research Misconduct



“Fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results; or the mismanagement or inadequate preservation of data and/or related materials”

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Violation of Research Integrity

- Fraud
 - Fabricating data
 - Falsified data
- Plagiarism
- Conflicts of interest
- Influence of the researcher's personal values

Violation of research integrity cause abandonment of basic scientific principles including:

- Openness
- Transparency
- Critical and systemic empirical testing



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1] Fraud

- Act of deception or misrepresentation



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Fraud

- Fraud refers to cases where data were either fabricated or falsified to provide false support for the researcher's hypothesis.
 - Fabrication means the data were never collected, but were made up.
 - Falsification means existing data were illegitimately altered.



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Consequences of Fraud

- Scientific literature is contaminated with false empirical data
- Funding resources that could have been spent on valid avenues of research are spent on fraudulent research
- The reputation and credibility of the field, including the majority of researchers who do have integrity, is severely damaged.



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2] Plagiarism

- Have you had training on plagiarism?



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Plagiarism

- “Plagiarism is the appropriation of another person’s ideas, processes, results or words without giving appropriate credit.”
- Substantial scientific contribution is presented as one's own by copying original text, concepts or data of others without referring to the original source.

<https://ori.hhs.gov/definition-misconduct>



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Self-plagiarism

Self-plagiarism refers to the practice of presenting one's own previously published work as though it were new

How can you plagiarize yourself?

- Republishing the same paper
- Publishing a significant study of smaller studies
- Reusing portions of a previously written text



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3] Conflict of interest

An individual may have preference, or be perceived to have preference, of their own interests or obligations over their duties and responsibilities as a researcher.



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Conflict of interest

- Conflicts of interest have the potential to inappropriately influence many aspects of research.
- Conflicts of interest they should be explicitly stated in a publication



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What is the impact of errors

- Harm to stakeholders and end-users
- Harm to research field and other researchers
- Loss of funding
- Loss of scholarship, position
- Negative impact on career
- Negative impact on institution



<https://www.thesun.co.uk/news/1772176/samsung-s7-edge-overheated-and-then-exploded-in-teachers-hands-in-the-middle-of-busy-cafe/>



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Impact of doing it right

- Good science – whatever it shows
- Credibility
- Positive career development
- Good mentoring and development of students
- Benefit to people and society
- Good for the institution



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Research Integrity and Ethics: what does it cover?



1. Honesty and objectivity
2. Accuracy and fairness
3. Fairness in cooperation between colleagues (scientific interactions, communications and sharing of resources)
4. Disclosure of conflicts of interest
5. Adherence to the mutual responsibilities of mentors and trainees
6. Proficiency and fairness in peer review
7. Protection of human subjects
8. Humane care of animals

<https://ori.hhs.gov/education/products/ucla/chapter1/page02.htm>

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Honesty and objectivity in proposing, conducting, and reporting research



Honesty

- Honestly report data, results, methods and procedures. Do not fabricate, falsify, or misrepresent data.

Objectivity

- Strive to avoid bias in experimental design, data analysis, data interpretation, peer review, personnel decisions, grant writing, and other aspects of research.

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Examples



Image from: http://undsci.berkeley.edu/article/socialsideofscience_06

Some examples of research misconduct:

https://www.slideshare.net/cjrw2/infamous-cases-of-research-misconduct?qid=66521187-ff1f-4792-b615-7ac872de4a16&v=&b=&from_search=1

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Hwang Woo-Suk (2004-05)

Clip slide



<http://tinyurl.com/hwang11>

- 2 landmark papers in *Science* reporting production of human embryonic stem cells via Somatic Cell Nuclear Transfer
- Data fabricated and falsified
- Also obtained human eggs for research by unethical means, including requiring female team members to superovulate
- Suspended prison sentence for embezzlement

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Vipul Bhrigu (2010)



- U Michigan PhD student Heather Ames struggled to get expts to work in her own lab, but worked fine in boyfriend's lab
- Suspected PostDoc Vipul Bhrigu (inset) was sabotaging expts
- Set up concealed camera and caught Bhrigu adding ethanol to cell culture
- April 2011 pleaded guilty to destruction



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- The first accusations of plagiarism in Karl-Theodor Guttenberg's 2007 PhD dissertation were made public in February 2011.
- On 23 February 2011, the University of Bayreuth withdrew Guttenberg's doctorate.
- On 1 March 2011, Guttenberg announced his resignation as Minister of Defense, from his seat in the Bundestag, and from all other political offices.
- Criminal proceedings for copyright violations were discontinued on condition of Guttenberg paying €20,000 to a charity.

German defense minister quits in plagiarism row

Recommend 118 recommendations. Sign up to see what your friends recommend.



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Case Study 1: Research Misconduct



- Hellen writes her thesis.
 - She incorporates whole sentences and paragraphs verbatim from several published papers without quotation marks or citations.
 - Her thesis is rejected, and she is expelled from the PhD programme
-
- Is plagiarism like this a common practice?
 - Are there circumstances that should have led to Hellen's being forgiven for plagiarizing?
 - Should Hellen be allowed to reapply to the programme?

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Case Study 2: Self-Plagiarism?



David is writing his thesis after four years of study in the laboratory of Professor Windbag.

Due to excellent mentoring, David has published three first author papers that he co-wrote with Professor Windbag.

As he writes his thesis, he copies and pastes some of the introductory materials from the papers he wrote.

Professor Windbag reviews the literature study. He notices that David has copied materials from the papers.

Has David done anything wrong?

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Case Study 3: Making an Error



John has published a paper in the *Journal of Ostrich Physiology* with his mentor, Professor Bigbrain.

After the paper is published and downloaded 10,000 times from the journal website, both student and professor are congratulating themselves on their fantastic accomplishment.

However, after going over some of his notes, **John** realizes he has made an error in the paper and used the wrong dataset in Figure 3.

The error does not affect the main conclusions of the paper but could waste the time of someone who might want to reproduce the work.

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Case Study 3: Making an Error



What is the right thing to do?

- Forget about it and hope no one notices.
- Call the journal and issue a correction.
- Write a new paper showing how there are different ways of interpreting the data in Figure 3.

How does a correction affect the reputation of John, Professor Bigbrain and the lab?

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Correcting an error in a published paper



Correct course of action:

- Where there is a distortion or inaccuracy in the published research record, the authors should take all necessary steps to correct the public record.

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Research excellence and research integrity go hand in hand.

You can't have research excellence without research integrity.

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Responsible Conduct of Research

- Responsible conduct of research is simply good citizenship applied to your professional life.
- Research scientists have clear obligations to conduct their research in a responsible manner.
- Researchers who report their work honestly, accurately, efficiently, and objectively are conducting their research responsibly.



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<http://research.ucmerced.edu/files/docs/ORI%20Introduction.pdf>

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Responsible Conduct of Research

Anyone who is

- dishonest
- knowingly reports inaccurate results
- wastes funds
- or allows personal bias to influence scientific findings

is **not** conducting their research responsibly.



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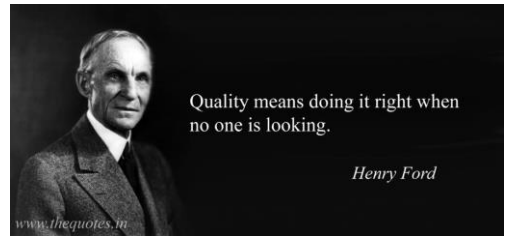


<http://research.ucmerced.edu/files/docs/ORI%20Introduction.pdf>

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Rules for Good Practice

- Professional self-regulation
- Scholarship contract
- Institutional policies & practices
- International and national standards
- Standards of relevant research community



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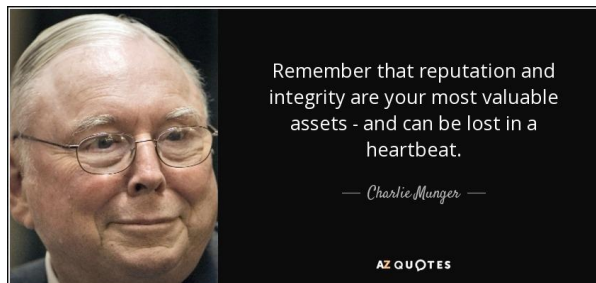


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A scientist's most important assets are

INTEGRITY & REPUTATION



www.azquotes.com

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Videos on Research Integrity and Ethics

University of Amsterdam

Research Integrity (5 minutes)

<https://www.coursera.org/lecture/quantitative-methods/6-05-research-integrity-Rkpli>

Université de Bordeaux

Fabrication and falsification of data (5 minutes)

<https://www.fun-mooc.fr/courses/course->

[v1:Ubordeaux+28007EN+session02/courseware/04368c1ee43843e9821b37eccbf55d15/3d04456962f84f10aa2c3e72835c865b/](https://www.fun-mooc.fr/courses/course-v1:Ubordeaux+28007EN+session02/courseware/04368c1ee43843e9821b37eccbf55d15/3d04456962f84f10aa2c3e72835c865b/)

Plagiarism (5 minutes)

<https://www.fun-mooc.fr/courses/course->

[v1:Ubordeaux+28007EN+session02/courseware/04368c1ee43843e9821b37eccbf55d15/0f230d9f65b84314bbcc484343260624/](https://www.fun-mooc.fr/courses/course-v1:Ubordeaux+28007EN+session02/courseware/04368c1ee43843e9821b37eccbf55d15/0f230d9f65b84314bbcc484343260624/)



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The History of Research Ethics

A Brief History of Human Subject Research: Arcadia University US275 Scientific Ethics

<https://www.youtube.com/watch?v=WDollfd3PHg>

A Public Documentary on the History of Research Ethics

<https://www.youtube.com/watch?v=9zfrpFwlwug>



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Question and Answer
Question et réponse
Pergunta e resposta

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Acknowledgement

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Thank you



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