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H2020-MSCA-ITN-2019

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GMOS-Train

Global Mercury Observation Training Network in Support of
the Minamata Convention

Deliverable D7.2

"Training materials from ethics and IP training"



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Acronyms and Abbreviations

PROJECT BENEFICIARIES:

AMU	Université d'Aix-Marseille – Mediterranean Institute of Oceanography, France
CNR IIA	Institute of Atmospheric Pollution Research of the Italian National Research Council, Italy
CNRS	Centre National de Recherche Scientifique, France
HEREON	Helmholtz-Zentrum hereon GmbH, Germany
IFREMER	French Research Institute for Exploitation of the Sea, France
IOS	Institute for Environmental Protection and Sensors, Slovenia
JSI	Jožef Stefan Institute, Slovenia
PSA	PS Analytical, United Kingdom – project exit date 1.7.2020
UGA	Université Grenoble Alpes, France
UPPA	Université de Pau et des Pays de l'Adour, France
SU	Stockholm University, Sweden

PROJECT PARTNER ORGANISATIONS:

AMAP	Arctic Monitoring and Assessment Programme, Norway
AUTH	Aristotle University of Thessaloniki, Greece
EEB	European Environmental Bureau, Belgium
Harvard	Harvard University, USA
IPSJS	International Postgraduate School Jožef Stefan, Slovenia
IRD	Institut de Recherche pour le Développement, France
Lumex	Lumex, Germany/Russia
MIT	Massachusetts Institute of Technology, USA
MSC-E	Meteorological Synthesizing Centre – East of EMEP, Russia
PSA	PS Analytical, United Kingdom – project exit date 1.7.2020
SPRS	Swedish Polar Research Secretariat, Sweden
Tekran	Tekran, Canada
UBL	Université Bretagne Loire , France
UNEP	United Nations Environmental Programme, Switzerland
UPS	Université Paul Sabatier, France
VSL	Dutch National Standard Laboratory, The Netherlands
ESR	Early Stage Researcher
IPR	Intellectual Property Rights



Executive Summary

This document captures the report on GMOS-Train Webinar »Research Integrity« by Prof Abhay Pandit (established Professor of Biomaterials at the National University of Ireland, Galway, and Director of the Centre for Research in Medical Devices - CÚRAM), and GMOS-Train IP Training “IPR Management in the Changing World of Economic and Social Impact”, organised by Dr Špela Stres, LLM, MBA (Head of the Centre for Technology Transfer and Innovation at Jožef Stefan Institute). The purpose of both events was to train ESRs on intellectual property issues, i.e. principles of IP, IP Arrangements, R&D contracts, regulations, hands-on patents searching and ethics in research.

This deliverable has been submitted with some delay with respect to the original plan, as the COVID-19 pandemic has affected the organisation of this training event.



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1. Introduction

According to the Annex 1 of the GMOS-Train Grant Agreement the Ethics and Intellectual Property Rights (IPR) Training was primarily planned to be organised in conjunction with the GMOS-Train Kick-off Meeting in December 2020 (month 12). Due to the global Covid-19 pandemic situation, the Kick-off meeting was organised virtually and the training has been postponed and organised in a form of a two separate online events. The first event was a webinar "Research Integrity" performed by Prof Abhay Pandit, scientific director of the Centre for Research in Medical Devices (CÚRAM) and Professor in Biomaterials at NUI Galway, who discussed the importance of responsible behaviour as a fundamental component of quality research. This webinar was followed by IP Training "IPR Management in the Changing World of Economic and Social Impact", performed by Dr Špela Stres, LLM, MBA (Head of the Centre for Technology Transfer and Innovation at Jožef Stefan Institute). The purpose of both events was to train ESRs on intellectual property issues, i.e. principles of IP, IP Arrangements, R&D contracts, regulations, hands-on patents searching and ethics in research. Attendance was obligatory for all GMOS-Train ESRs. Both events have been recorded for all those students who could not attend the lectures due to other student obligations or illness.

2. Ethics Training: "Research Integrity Webinar"

GMOS-Train Webinar: »Research Integrity« by Prof Abhay Pandit was organised via ZOOM videoconference system, on Monday, Feb. 22nd at 2 PM (CET). Attendance at webinar was obligatory for all ESRs. The webinar covered the importance of responsible behaviour as a fundamental component of quality research to ensure that our research leaders of the future will be upstanding, responsible scientists and mentors. Some thoughts have been given to the basic fact of reputation, as we need to ensure that the quality of our work is maintained so that our partners and peers can rely on any data or other research outputs to the benefit of both society and the economy.

The main agenda items were:

- What is Research Integrity and why is it important?
- Research Misconduct & Questionable Research Practices
- The Dilemma Game
- Authorship Case study 1: The Left-out Author
- Plagiarism Case study 2: Ruined Internship

Prof Pandit explained that research Integrity relates to the performance of research to the highest standards of professionalism and rigour, and to the accuracy and trustworthiness of the research record in publications and elsewhere. It is based on the fundamental principles of Good Research Practice:

- Reliability - ensuring the quality of research i.e. in the design, methodology, analysis and the use of resources.
- Honesty - in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair, full and unbiased way.



- Respect - for researchers, research participants, society, cultural heritage and the environment
- Accountability -for the research from idea to publication, for its management and organisation, for training and supervision

The lecturer discussed with ESRs the importance of Research Integrity:

1. It safeguards the foundations of science and scholarship.
2. It maintains public confidence in researchers and research evidence.
3. It underpins continued public investment in research.
4. It protects the reputation and careers of researchers.
5. It prevents adverse impact on patients and the public.
6. It promotes economic advancement.
7. It prevents avoidable waste of resources.

As science becomes increasingly intertwined with major social, philosophical, economic, and political issues, scientists become more accountable to the larger society of which they are a part. As a consequence, it is more important than ever that individual scientists and their institutions periodically reassess the values and professional practices that guide their research as well as their efforts to perform their work with integrity. The Impact of Research Integrity affects:

1. Excellence in Research
 - High quality research outputs – trust in the research record.
 - Exaggerated results undermine knowledge base.
2. Society
 - Enabling innovation and informing policy makers with sound facts, e.g. Public Health, Environmental Protection
3. Public Trust
 - Ensuring research integrity is crucial to ensuring public trust in science
 - Trust ensures funding further research

Prof Pandit explained that research is a complex activity, where the 'shoulds' and 'should nots' are not always obvious and can even conflict with one another. There are three types of Research Misconduct:

1. Fabrication of data – making it up;
2. Falsification – manipulation, omission, inaccurate representation;
3. Plagiarism – stealing another person's ideas;

Webinar participants also discussed Questionable Research Practices, amongst other:

- Neglecting negative outcomes.
- Exaggerating in Abstracts.
- Salami publishing.
- Inappropriate research design.



- Leaving out relevant controls.
- Questionable data interpretation.
- Peer review abuse.
- Removal of outliers.
- Improper Authorship.
- Inappropriate reuse of controls.

The webinar attendees further on participated in the virtual Dilemma Game, which lets participants consider, choose and defend (and possibly reconsider) alternative courses of action regarding a realistic dilemma related to professionalism and integrity in research. The Dilemma Game app has been developed by Erasmus University Rotterdam to stimulate awareness of, and an open and critical discussion about, integrity and professionalism in research. The game consists of dilemmas with four possible courses of action which the players can choose from. It is important to note that due to the complexity of integrity-related dilemmas, there is no winning or losing in this game. Rather, by defending and discussing these choices in the context of a critical dialogue, the game aims to support researchers in further developing their moral compass.

High ethical and professional standards are imperative to success in research, therefore the GMOS-Train Research Integrity webinar helped the ESRs to locate and familiarize themselves with institutional or discipline-specific policies and guidelines and provided a useful reference manual for their individual research careers.



Figure 1 Research Integrity Webinar Participants



3. IP Training: "IPR Management in the Changing World of Economic and Social Impact"

The GMOS-Train IP Training "IPR Management in the Changing World of Economic and Social Impact" was organised in May 2021 as a virtual training using ZOOM videoconference system. It was performed by Dr Špela Stres, LLM, MBA, Head of the Centre for Technology Transfer and Innovation at Jožef Stefan Institute. The course aimed to train ESRs on intellectual property issues, i.e. principles of IP, IP Arrangements, R&D contracts, regulations, and hands-on patents searching. It was organised as an interactive training, combining lectures and practical work with individual or group consultations.

Training timeline was as follows:

May 6th and 7th 2021: lectures

May 12th -14th 2021: individual/group consultations

May 20th and 21st 2021: reporting

Attendance was obligatory for all GMOS-Train ESRs. The lecture was recorded for all those students who could not attend the lectures due to other student obligations or illness.

The lecture was organised in two parts:

- The first part of the course was dedicated to review the challenges of cooperation between SMEs and academic institutions. The participants addressed the current legal and financial framework and made a situation analysis. They have also reviewed existing incentives and mentioned some of the essential intermediary institutions. Finally, they have also discussed some success stories of collaboration between researchers and companies and solutions to improve the situation as seen by the innovation support environment.
- In the second part, the lecturer explained why everything (or nothing) starts with intellectual property. Part of the lecture was devoted to discussing the situation in Slovenia, at the level of the European Commission and globally. Participants discussed technology transfer vehicles and topics ranging from public research organizations to the economy, actual examples of collaboration through research contracts, spin-off and spin-out companies. They have touched upon questions regarding policies and instruments for promoting innovation and entrepreneurship at the national and EU level, based on measuring innovation. The discussion that followed addressed also the purpose of the Quadruple helix (science, economy, society, government), what it means in the EU and what to change to create even better conditions for progress.

The lecture was followed by the practical part, which has been focused on addressing concrete cases from student's present professional situation or cases they have come across. All participants prepared their own study reports. Dr Špela Stres organised individual and group consultations to address any issues that the might students have with their reports.

The final part of the IP Training was reporting. All training participants were requested to give a short



presentation (7-10 minutes) of their study reports. Each presentation was followed by short discussion. ESR study reports will be submitted to the EC separately in deliverable D7.3 "ESRs study reports on IP issues and patenting as a result from Soft skills training".

A certificate of participation has been issued to the ESRs who successfully completed all training requirements. Training participants also earned 1 ECTS credit point, based on a total workload of 25 hours.

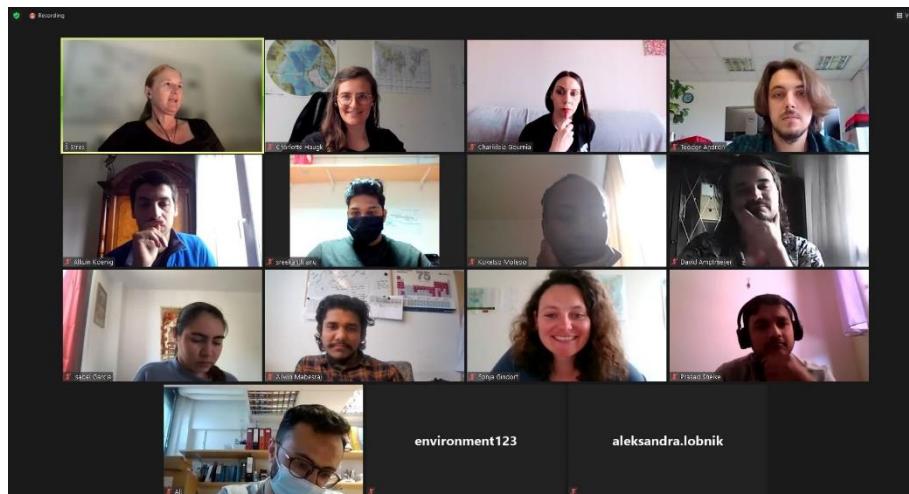


Figure 2 IP Training Participants

4. More about the lecturers

4.1 Prof Abhajt Pandit

Prof. Abhay Pandit is established Professor of Biomaterials at the National University of Ireland, Galway, and Director of the Centre for Research in Medical Devices (CÚRAM), a multi-disciplinary academic-industry-clinician translational research centre. Prior to joining NUI Galway, Prof Pandit's research at The Kendall Company resulted in a patent and FDA approval for a commercial wound dressing. He has received FDA 510k approval for a hydrophilic wound dressing. He led the Biomaterials Research Group at Surgical Sealants, Inc. where he received IDE approval for a collagen-based vascular sealant. At NUI Galway, Prof Pandit has validated the efficacy of a fibrin scaffold to spatiotemporally deliver multiple biomolecules to reduce inflammation and enhance wound closure in a pre-clinical model of compromised diabetic wound healing. He has also demonstrated the efficacy of a cell seeded collagen scaffold to significantly enhance the percentage wound closure of full thickness cutaneous ulcers. He has published over 225 papers in peer reviewed journals. He is a Fellow of the Tissue Engineering and Regenerative International Society and an International Fellow in Biomaterials Science and Engineering. More information about the lecturer is available on the NUI webpage: <http://www.nuigalway.ie/ariw/alliancesteeringcommittee/profabhaypandit/>.



4.2 Dr Špela Stres, LLM, MBA

Dr Špela Stres is the Head of Innovation and Technology Transfer Center for Jožef Stefan Institute and a visiting lecturer at University of Ljubljana. She started her career in research at Jožef Stefan Institute and continued as a Research Associate at Deutsches Elektronen Synchroton (DESY) in Hamburg, Germany. After an engagement in the industry she returned to Jožef Stefan Institute as a Senior Researcher. She managed the Communication and TechTransfer Unit, coordinated Enterprise Europe Network and supervised creation of several spinout companies in the field of material science and ICT. She was the first president of Slovene Technology Transfer Association. She served as a Board Member of CERN Technology Transfer Network and as a Vice President of ASTPProton, Knowledge Transfer Europe, European Association of Science and Technology Professionals. She has vast experience in European Commission programs. She is a European Research Council Evaluator and an Advisory Group Member for The Directorate-General for Communications Networks, Content and Technology and The Directorate-General for Research and Innovation. She is Member of the high-level 10MG of the Technology Facilitation Mechanism at the United Nations, New York, USA. She holds a PhD in Physics at University of Ljubljana, a Masters Degree of Law in the field of Intellectual Property at University of Turin and World Intellectual Property Office, Geneva and the Executive MBA at Cotrugli Bussines School.

5. Conclusions

Both events, "Research Integrity" webinar and IP Training emphasised the importance of Intellectual Property Rights and Research Ethics. Discussing research integrity is vital as it contributes to an open, safe, and inclusive research culture in which good research practices are deeply embedded. A certificate of participation has been issued to all ESRs who successfully completed the IP training requirements. Training participants also earned 1 ECTS credit point, based on a total workload of 25 hours.



6. Appendix

6.1 Research Integrity Webinar Presentation



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement no. 860497.



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OÉ Gaillimh

Research Integrity



Abhay Pandit
Established Professor of Biomaterials

The plan for today...

- What is Research Integrity and why is it important?
- Research Misconduct & Questionable Research Practices
- The Dilemma Game
- Authorship Case study 1: The Left-out Author
- Plagiarism Case study 2: Ruined Internship

Research Integrity – what is it?

What is Research Integrity?



- Research Integrity relates to the performance of research to the highest standards of professionalism and rigour, and to the accuracy and trustworthiness of the research record in publications and elsewhere.
- Research Integrity is based on the fundamental principles of Good Research Practice.

The Principles of Good Research Practice



The Principles of Good Research Practice

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- **Reliability** - ensuring the quality of research i.e. in the design, methodology, analysis and the use of resources
- **Honesty** - in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair, full and unbiased way
- **Respect** - for researchers, research participants, society, cultural heritage and the environment
- **Accountability** -for the research from idea to publication, for its management and organisation, for training and supervision

Research Integrity – just common sense?



Image credit to: University of California Museum of Paleontology's Understanding Science (<http://www.understandingscience.org>)

Selecting results that fit with your hypothesis and excluding those that don't



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Research Integrity – just common sense?



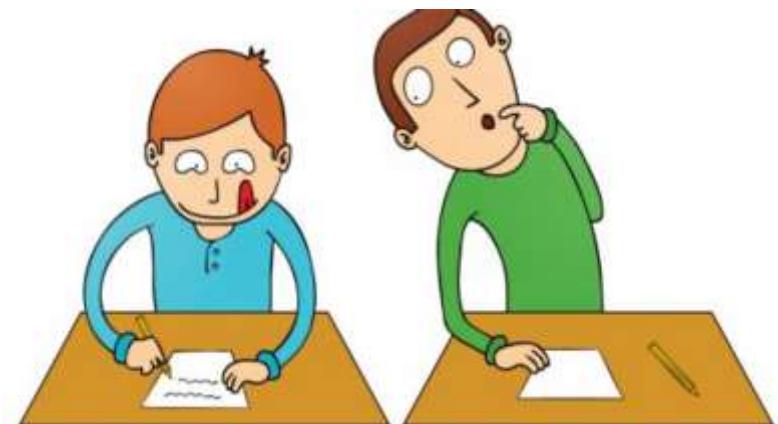
Selecting results that fit with your hypothesis and excluding those that don't



Research Integrity – just common sense?



Selecting results that fit with your hypothesis and excluding those that don't



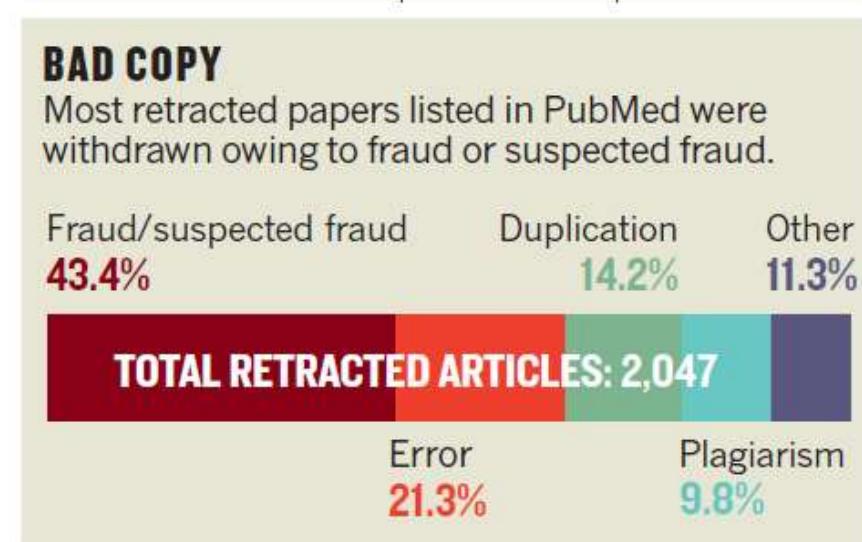
[https://www.the-scientist.com/the-nutshell/
study-scientists-witness-plagiarism-often-36475](https://www.the-scientist.com/the-nutshell/study-scientists-witness-plagiarism-often-36475)

The grey areas of research

Research is a complex activity, where the '**shoulds**' and '**should nots**' are not always obvious and can even conflict with one another!

The grey areas of research

- In academic publishing retraction is when a published paper in an academic journal is removed from the journal.
- Retraction Watch is a blog that reports on retractions of scientific papers and on related topic (<https://retractionwatch.com/>)



<http://www.nature.com/news/misconduct-is-the-main-cause-of-life-sciences-retractions-1.11507>

The grey areas of research

You are applying for your first post-doctoral position and it is in a prestigious institute – every publication counts towards your chances of success.

Unfortunately on one of your publications, a co-author was found to have plagiarised a few sentences and the paper had to be retracted. You were not aware of the plagiarism and you did everything right.

Would you still list this paper on your CV?

1. Yes, list it on my CV and mark it as “retracted”
2. Yes, list it on my CV but do not mention it was retracted
3. No, I would not mention the paper

The grey areas of research

Data collection on your project was split between four colleagues, one of whom left after just a few weeks. This colleague found a job in industry and was not interested in publishing academic papers anymore. You and your colleagues continued collecting data for two years. Does everyone merit authorship on the resulting paper?

1. Yes, all contributors should be listed
2. No, leave out the colleague that left after a few weeks
3. List the colleague in acknowledgements instead

What rules do we follow as researchers?

- Laws
- Institutional Policies
- Non-binding codes & guidelines
- Most are commonly accepted practises taught informally through mentoring



Poll 3

Research Integrity – where can I find out more?

International & National Guidelines

- Singapore Statement (2010)
- European Code of Conduct for Research Integrity (2017)
- Policy Statement on Ensuring Research Integrity in Ireland (2019)

University Policies

- Research Integrity
- Research Data Management
- Conflict of Interest

<http://www.nuigalway.ie/research-office/policiesandprocedures/>

Journals in your field

Guide for authors – publication ethics section

Ask for advice!

Supervisor
Graduate Research Committee
Colleagues

Research Integrity Training –
Module GS5110 available at NUI Galway (5 ECTS) – **Semester 1**



The Singapore Statement on Research Integrity

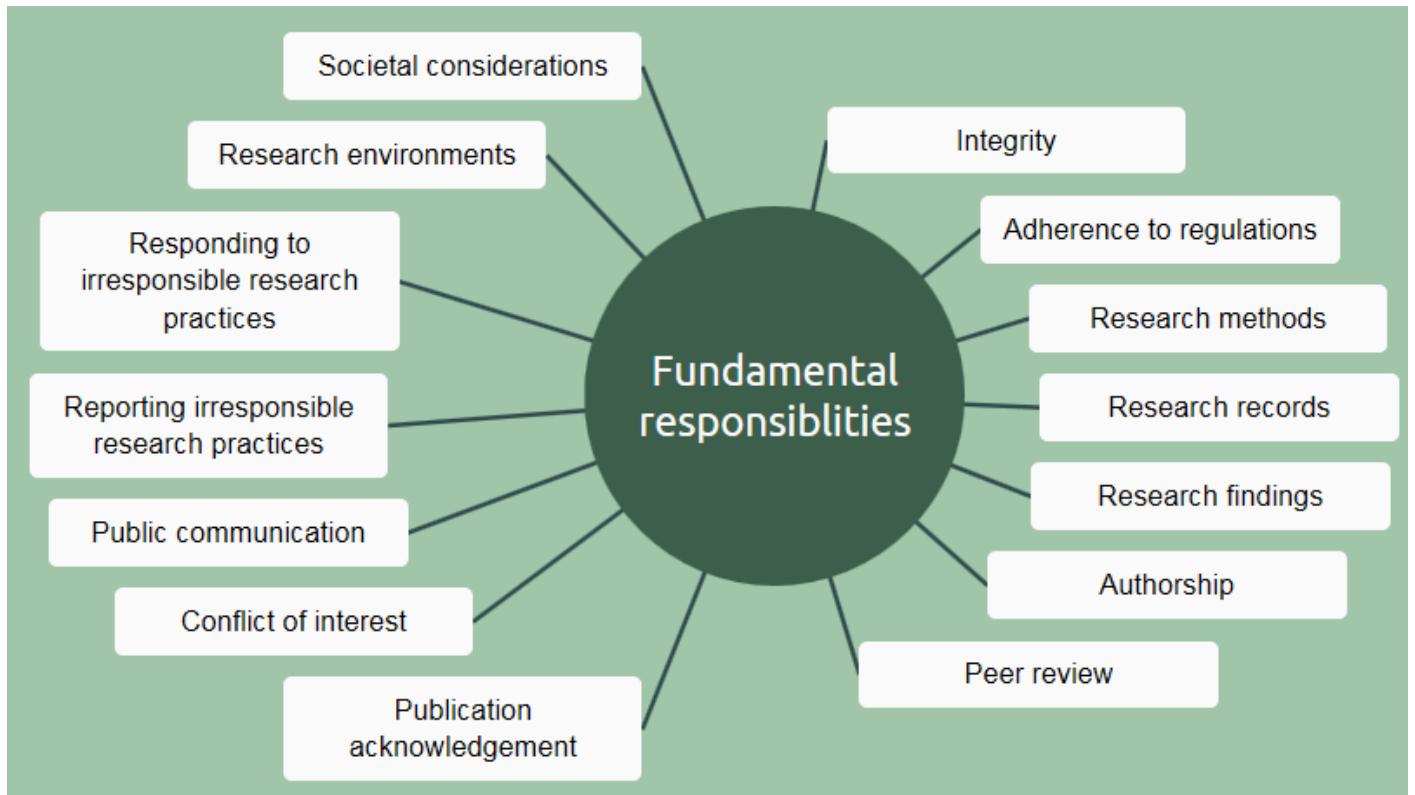
4 Principles:

1. Honesty
2. Accountability
3. Professional Courtesy
4. Good Stewardship

The Singapore Statement on Research Integrity

4 Principles:

1. Honesty
 2. Accountability
 3. Professional Courtesy
 4. Good Stewardship
- 14 Responsibilities:



The 14 Responsibilities of Researchers

Research Methods	Research Records	Research Findings
<ul style="list-style-type: none">• Appropriate methods• Base conclusions on critical analysis of the evidence• Report findings fully & objectively	<ul style="list-style-type: none">• Clear• Accurate• To allow verification and replication• Data storage – follow institutional policies	<ul style="list-style-type: none">• Share data and findings openly and promptly• As open as possible, as closed as necessary

Reference: The Singapore Statement on Research Integrity



The 14 Responsibilities of Researchers

Peer Review	Conflict of Interest	Public Communication
<ul style="list-style-type: none">• Provide fair, prompt and rigorous evaluations• Respect confidentiality	<ul style="list-style-type: none">• Disclose financial/other conflict of interest• Proposals, publications, reviews	<ul style="list-style-type: none">• Limit professional comments to your expertise• Professional comments vs. opinions based on personal views

Reference: The Singapore Statement on Research Integrity

European Code of Conduct for Research Integrity 2017



“Research involves collaboration, direct or indirect, which often transcends social, political and cultural boundaries”

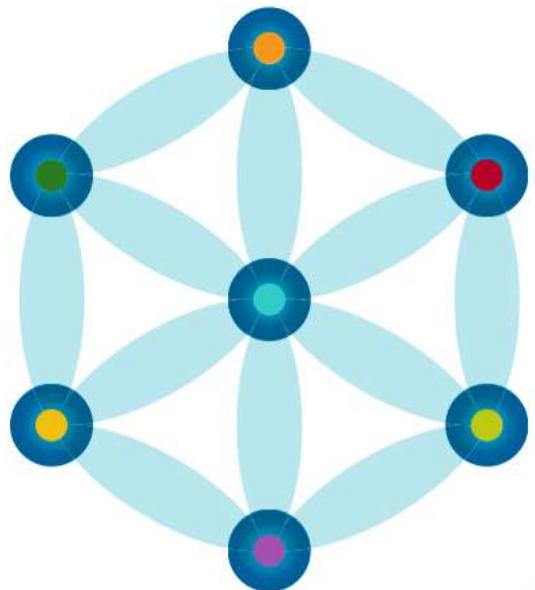
Aim of this code of conduct: to serve the research community as a framework for self-regulation

Data management: Access to data should be as open as possible, as closed as necessary and in line with the FAIR Principles (Findable, Accessible, Interoperable and Re-usable)

Mentoring/Training: Researchers across the entire career path, from junior to the most senior level, should undertake training in ethics and research integrity.

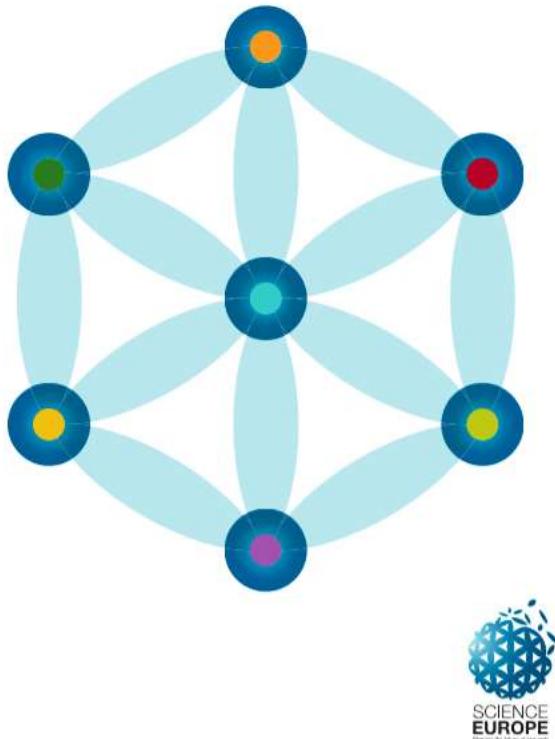
Why is Research Integrity Important?

SCIENCE EUROPE
SEVEN REASONS
TO CARE ABOUT INTEGRITY IN RESEARCH



Why is Research Integrity Important?

SCIENCE EUROPE
SEVEN REASONS
TO CARE ABOUT INTEGRITY IN RESEARCH



1. safeguards the **foundations of science and scholarship**
2. maintains **public confidence** in researchers and research evidence
3. underpins continued **public investment** in research
4. protects the **reputation and careers** of researchers
5. prevents **adverse impact** on patients and the public
6. promotes **economic advancement**
7. prevents avoidable waste of **resources**

https://www.scienceeurope.org/wp-content/uploads/2015/06/20150617_Seven-Reasons_web2_Final.pdf

The Impact of Research Integrity

Excellence in Research

- High quality research outputs – trust in the research record
- Exaggerated results undermine knowledge base

Society

- Enabling innovation and informing policy makers with sound facts
 - e.g. Public Health, Environmental Protection

Public Trust

- Ensuring research integrity is crucial to ensuring public trust in science
- Trust ensures funding further research

Source:- European Code of Conduct in Research Integrity 2017

How disgraced anti-vaxxer Andrew Wakefield was embraced by Trump's America

Twenty years after his discredited paper linked autism to the MMR jab, the doctor - who was struck off the medical register in the UK - has become a leading light in the US and frighteningly influential worldwide



▲ Andrew Wakefield and his then-wife Carmel in 2007, flanked by supporters ahead of an appearance before the GMC. Photograph: Daniel Berehulak/Getty



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<https://www.theguardian.com/society/2018/jul/18/how-disgraced-anti-vaxxer-andrew-wakefield-was-embraced-by-trumps-america>

Andrew Wakefield and the MMR vaccine



- In 1998 Wakefield claimed there was a link between the MMR vaccine and Autism
- This study was published in *The Lancet* by 12 authors

Problems with the study!

- Other researchers were unable to reproduce the findings.
- No ethical approval for this study (an old approval was used that related to a different study)
- Only 12 children involved, not selected randomly
- Undisclosed conflicts of interest - The research was partly funded by lawyers acting for parents who were involved in lawsuits against vaccine manufacturers (Conflict of Interest not disclosed!) *Brian Deer – Sunday Times Reporter*

Andrew Wakefield and the MMR vaccine



OUTCOME:

- The paper was fully retracted 12 years later in 2010!
- Wakefield is no longer allowed to practice medicine in the UK
- Millions spent repeating studies – no evidence found
- The anti-vaccination movement still going strong in today

Retraction Notice:

- Following the judgment of the UK General Medical Council's Fitness to Practise Panel on Jan 28, 2010, it has become clear that several elements of the 1998 paper by Wakefield *et al* are incorrect, contrary to the findings of an earlier investigation. In particular, *the claims in the original paper that children were "consecutively referred" and that investigations were "approved" by the local ethics committee have been proven to be false*. Therefore we fully retract this paper from the published record.

The effects of misconduct on society

THE IRISH TIMES

Doctors warn of further mumps surge as cases exceed 1,600

Students at increased risk of disease when schools and colleges reopen next week

© Tue, Aug 13, 2019, 16:44 Updated: Tue, Aug 13, 2019, 17:04

Paul Cullen Health Editor



theJournal.ie
READ, SHARE AND SHAPE THE NEWS

Irish measles cases rise over 200% as experts blame increase on misinformation about MMR vaccine

A new report has revealed that global rates of the disease are on the rise.

Apr 25th 2019, 8:30 AM 27,815 Views 137 Comments [Share](#) [Tweet](#) [Email](#) 3

Updated Apr 25th 2019, 5:20 PM

CASES OF MEASLES in Ireland more than doubled last year, according to a United Nations report which has revealed that outbreaks of the virus are on the rise globally.

According to the report by UNICEF, an estimated 169 million children missed out on the first dose of the measles vaccine between 2010 and 2017.



Image: Shutterstock/OneSideProFoto

It found that an increase in the number of unvaccinated children throughout the world has



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The effects of misconduct on society

GLOBAL CITIZEN.

Take Action Rewards Festival Impact

Girls & Women | Health | Education | Finance & Innovation | Food & Hunger | Water & Sanitation | Environment | Citizenship



HEALTH
Australia Will Fine Parents Every Two Weeks if They Don't Vaccinate Their Children

Parents will be forced to pay for their decision.

By [Madeleine Keck](#)

BBC Sign in

News Sport Weather Shop Reel Travel More

NEWS

Home | Video | World | UK | Business | Tech | Science | Stories | Entertainment & Arts | Help

World | Africa | Asia | Australia | Europe | Latin America | Middle East | US & Canada

Italy bans unvaccinated children from school

12 March 2019

f t e Share



GETTY IMAGES

The new law demands 10 compulsory vaccinations - and has proved controversial

The Dilemma Game App



Vote anonymously, see % of responses for each choice and read the opinion of an expert.

A screenshot of a dilemma question in the 'Group Game' section. The question is: 'Dilemma game account defend your choice'. It shows a poll with one response selected. The poll results are: 1 (blue) 2 (red) 3 (green) 4 (orange). The question text reads: 'The visitor A co-editor of the leading journal in my field approaches me as department ...'. Below this is a 'Results' section with three options:

- A** I say yes to the offer. The special issue is a unique chance to put my department on the map.
- B** I review the editor on his scientific merits and then decide to accept him as visiting professor.
- C** I decline the favour.

At the bottom, it says '288 512 contact the other co-editor of the ...'.

<https://www.eur.nl/en/about-eur/policy-and-regulations/integrity/research-integrity/dilemma-game>



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OÉ Gaillimh

22/02/2021

Room No: GMOS

Code: 101795



NUI Galway
OÉ Gaillimh

22/02/2021

Research Misconduct Vs. Questionable Research Practices

Research Misconduct

1. Fabrication of data – making it up

2. Falsification – manipulation, omission,
inaccurate representation

3. Plagiarism – stealing another person's
ideas

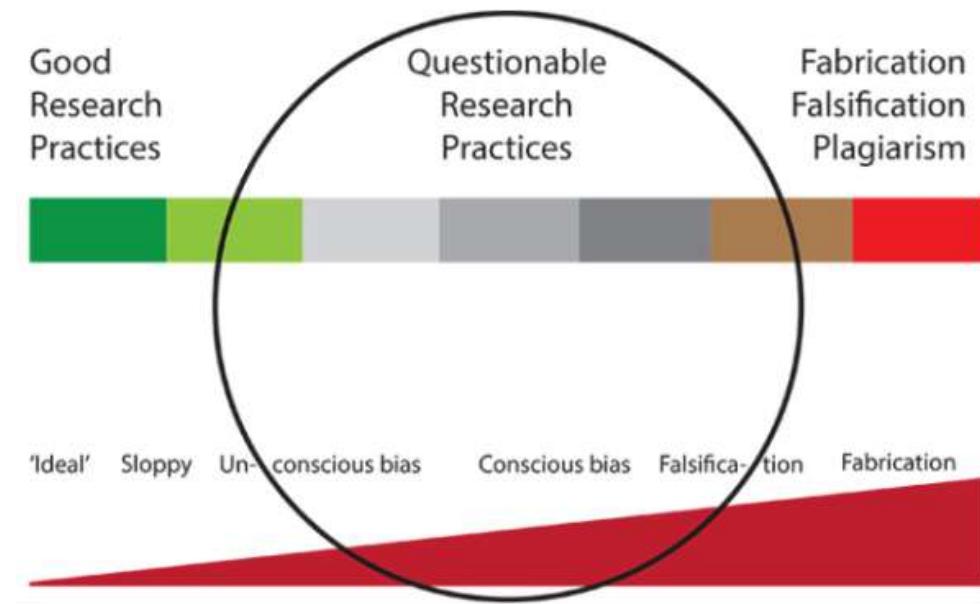
What drives people to commit misconduct?

What drives people to commit misconduct?



Real quotes from closed cases at The US Office of Research Integrity!

Questionable Research Practices



<https://www.h2mw.eu/redactionmedicale/2016/07/qrps-questionable-research-practices-plus-je-cherche-dans-les-articles-plus-je-trouve.html>

Questionable Research Practices

Neglecting negative outcomes

Questionable data interpretation

Exaggerating in Abstracts

Peer review abuse

Salami publishing

Removal of outliers

Inappropriate research design

Improper Authorship

Leaving out relevant controls

Inappropriate reuse of controls

<http://www.vib.be/en/news/Pages/Research-misconduct>

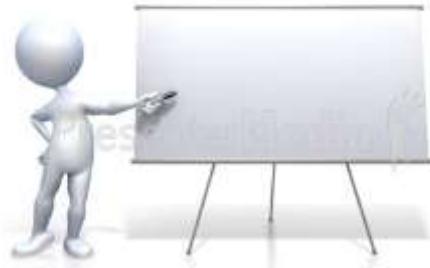
Who checks we are following the rules?



Who checks we are following the rules?



Supervisor, Colleagues, Co-authors



Publishers, Editors, Reviewers



Plagiarism
Image integrity checks
Raw data requests

The Research Community



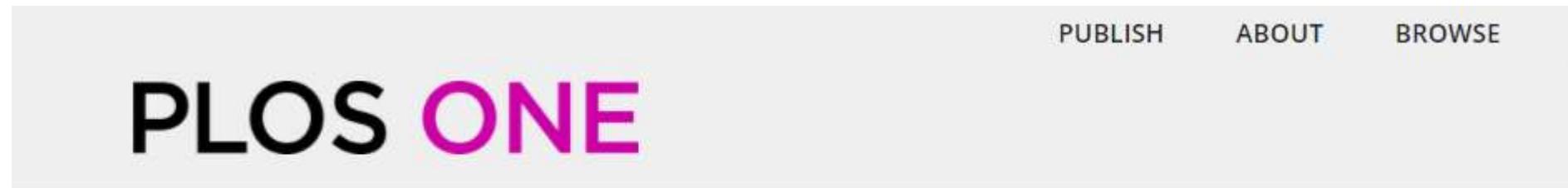
<https://pubpeer.com/static/about>

Funding Agencies



Training mandatory
Integrity audits at HEI
Data Provenance reviews

How often does Research Misconduct occur?



OPEN ACCESS

PEER-REVIEWED

RESEARCH ARTICLE

How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data

Daniele Fanelli

Published: May 29, 2009 • <https://doi.org/10.1371/journal.pone.0005738>

How often does Research Misconduct occur?

- Systematic review of 21 surveys on levels of misconduct over past 25 years
- Own behaviour
 - 1.97% admitted fabrication, falsification or data modification at least once
 - 33.7% admitted other questionable research practices

Fanelli, *PLOS-One* (2009)

How often does Research Misconduct occur?

- Systematic review of 21 surveys on levels of misconduct over past 25 years
- Own behaviour
 - **1.97%** admitted fabrication, falsification or data modification at least once
 - **33.7%** admitted other questionable research practices
- Witnessed in colleagues
 - **14.1%** witnessed fabrication, falsification or data modification at least once
 - **72%** witnessed other questionable research practices

Fanelli, *PLOS-One* (2009)

Authorship Case Study 1:



- “The Left-Out Author”
- <https://ori.hhs.gov/integrity-scientific-research-videos>
- Watch this short video from the US Office of Research Integrity and discuss in your group – What would you do?



Video 1 - The Left-Out Author

Missing authors and changes to author order, this video sets up a common authorship dilemma, and just how tricky it can be to resolve.

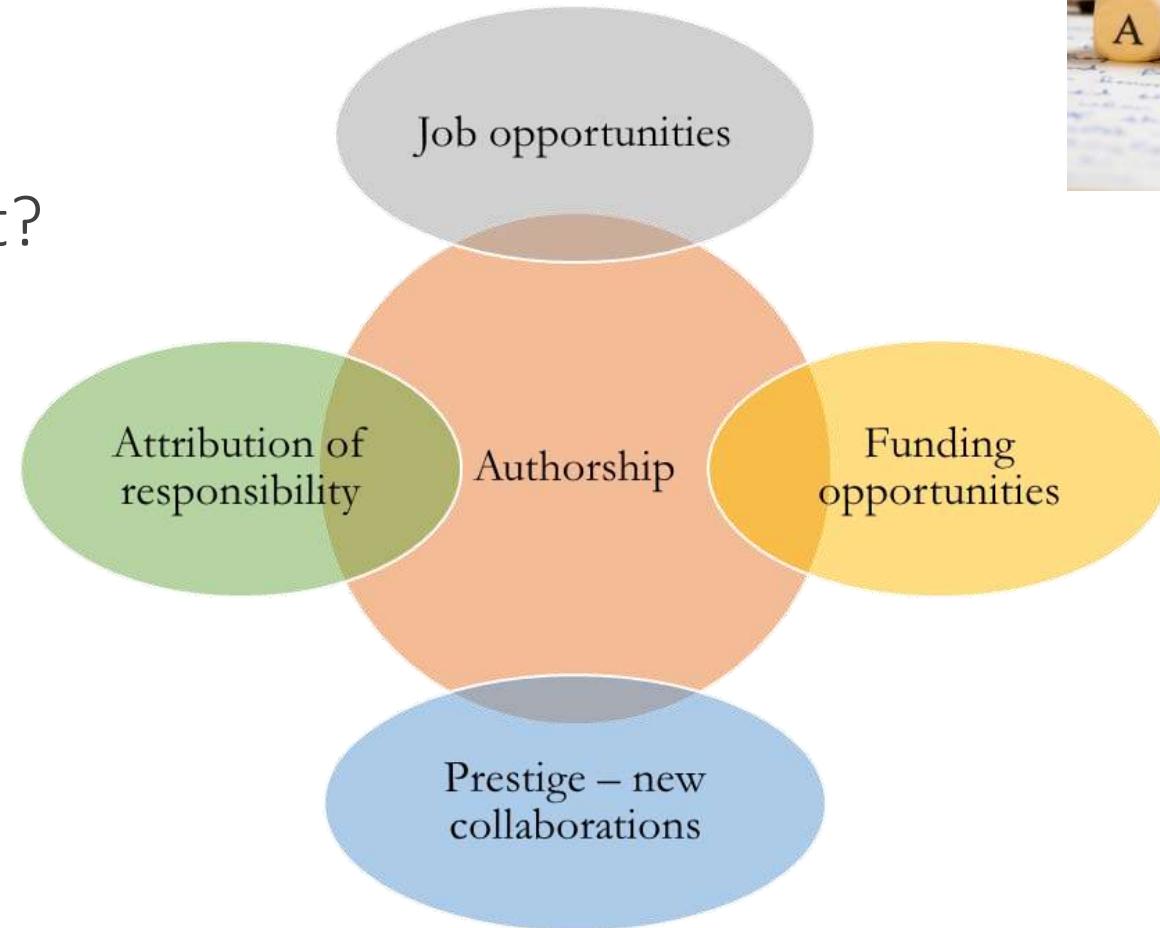
Authorship



- Why is it so important?
- Are there different rules in different fields of research?
- Who should be listed as an author and in what order?

Authorship

- Why is it so important?



Authorship

- Are there different rules in different fields of research?
e.g. Alphabetical, in order of contribution, solo author.



Authorship



- Who should be listed as an author and in what order?

Authorship provides credit for a researcher's contributions to a study and carries accountability.

Example of Author contribution statements-

Example:

T.J. and U.H. designed the study; T.J., E.A.M., M.I., and P.A.L. performed experiments; T.J., E.A.M., M.I. and S.M. collected and analysed data; M.B., K.F., N.C.D.P., and S.P.W. provided reagents; T.J., M.I. and U.H. wrote the manuscript; S.M., K.F., S.E.H., T.M. and S.P.W. gave technical support and conceptual advice.

Ref. Nature.com

Authorship – a major cause of dispute

- COPE recommends that researchers decide who will be an author and what order they will be listed in before they even conduct experiments, and that the group revisits the author list as a project evolves.
- A handshake isn't enough to seal the deal — researchers should keep author agreements in writing!

Ref: "Authorship: Who's on First?" <https://www.nature.com/articles/nj7417-591a>



Misconduct in Authorship

The author list should include **all** appropriate researchers and no others.

**GIFT
AUTHORSHIP**

**GHOST
AUTHORSHIP**

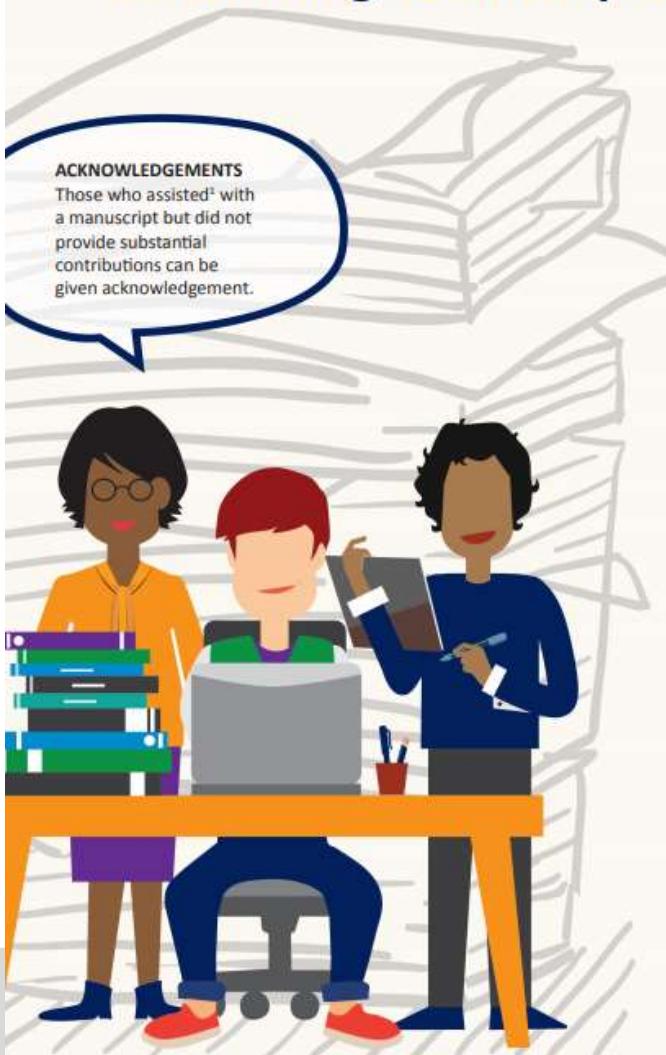
- More information on authorship here: International Committee of Medical Journal Editors www.icmje.org
- Also check for authorship policy in the journal in which you wish to publish

Authorship

- <https://ori.hhs.gov/infographics#authorship-practices>
- BE PREPARED
- DOCUMENT CONTRIBUTIONS
- BE CONSISTENT
- COMMUNICATE OFTEN
- APPROVE THE MANUSCRIPT

AUTHORSHIP PRACTICES TO AVOID CONFLICTS

Every field of study experiences conflicts with determining authorship on published papers



ACKNOWLEDGEMENTS

Those who assisted¹ with a manuscript but did not provide substantial contributions can be given acknowledgement.

Implementing the following suggestions may help avoid potential authorship disputes:

BE PREPARED

Establish written authorship agreements with all members of the lab and other collaborators before preparing a manuscript or before starting a project.

DOCUMENT CONTRIBUTIONS

Authors should list their substantial contributions to the design of the study; the acquisition, analysis, or interpretation of data; and the contribution to the writing of the final paper.

BE CONSISTENT

Have clearly written expectations for authorship on publications and follow them.

COMMUNICATE OFTEN

As the project progresses, the authorship agreement may need to be revisited.

APPROVE THE MANUSCRIPT

All authors should review manuscripts and approve the final version.

¹This may include people who provide support such as: editorial assistance (e.g., proofreading), limited data collection, supervision of research tasks without contribution to the collection, analysis, or interpretation of data, or the writing of the publication, and technical support.

Plagiarism Case Study 2:

- “The Ruined Internship”
- <https://ori.hhs.gov/integrity-scientific-research-videos>
- Watch this short video from the US Office of Research Integrity and discuss in your group – How can you avoid plagiarism?



Video 6 – Ruined Internship: The Consequences of Plagiarism

This video introduces the concept of plagiarism and the implications of plagiarism on the collegiate level.

Plagiarism Case Study 2

- <https://ori.hhs.gov/infographics#avoiding-plagiarism>

TIPS FOR AVOIDING PLAGIARISM

WHAT IS PLAGIARISM?

The appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

- 1 Always acknowledge the contributions of others in your work
- 2 Identify the citation source when paraphrasing or summarizing
- 3 Provide a citation when in doubt about facts or common knowledge
- 4 Always enclose verbatim text in quotation marks with an accompanying citation
- 5 Cite primary sources of information not secondary or tertiary

"Don't plagiarize. Express your own thoughts in your own words.... Note, too, that simply changing a few words here and there, or changing the order of a few words in a sentence or paragraph, is still plagiarism. Plagiarism is one of the most serious crimes in academia."¹

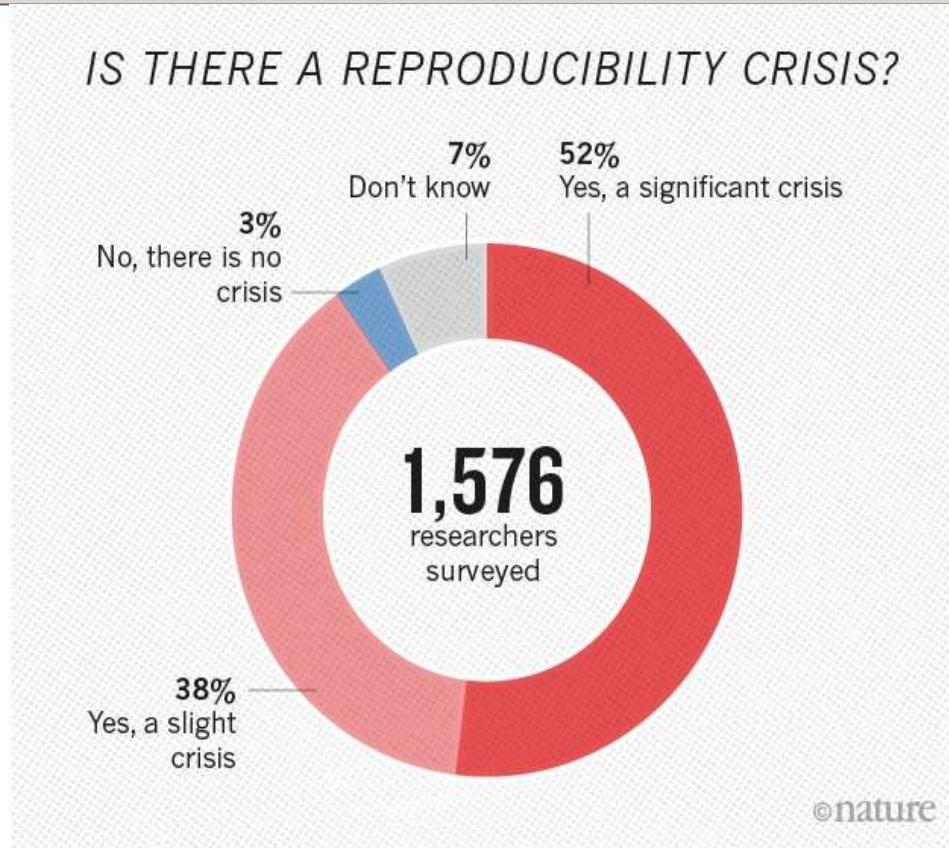
"You paraphrase appropriately when you represent an idea in your own words more clearly and pointedly than the source does. But readers will think that you plagiarize if they can match your words and phrasing with those of your source."²



Adapted from *Avoiding Plagiarism, Self-Plagiarism, and Other Questionable Writing Practices: A Guide to Ethical Writing* by Miguel Roig.

View 28 Guidelines to Avoid Plagiarism: <https://ori.hhs.gov/plagiarism-0>

Emerging Issues in Science



Nature 2016, Survey of 1576 scientists

<https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility>



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Emerging Issues in Science

HOW SCIENTISTS FOOL THEMSELVES — AND HOW THEY CAN STOP

Humans are remarkably good at self-deception. But growing concern about reproducibility is driving many researchers to seek ways to fight their own worst instincts.

COGNITIVE FALLACIES IN RESEARCH



HYPOTHESIS MYOPIA

Collecting evidence to support a hypothesis, not looking for evidence against it, and ignoring other explanations.



TEXAS SHARPSHOOTER

Seizing on random patterns in the data and mistaking them for interesting findings.



ASYMMETRIC ATTENTION

Rigorously checking unexpected results, but giving expected ones a free pass.



JUST-SO STORYTELLING

Finding stories after the fact to rationalize whatever the results turn out to be.



Emerging Issues in Science : Open Access

- Access is free – no subscription required – author pays fee to publish as open access
- “Predatory journals” taking advantage of this system – charging large fees after article is submitted – usually no peer-review process!
- Check if journal is listed in “Directory of Open Access Journals” – these have been vetted
- Check Beall’s List - librarian at University of Colorado (list taken down in 2017 but archived list available online)
- Check members of Editorial Board



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Prof. Anna O. Szust

<http://www.nature.com/news/predatory-journals-recruit-fake-editor-1.21662>

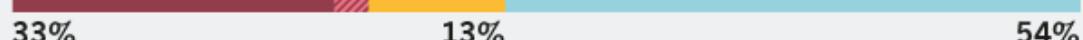
WHO EMBRACED THE FAKE?

Journals deemed predatory were much more likely to accept a fake, subpar candidate as an editor.

■ Accepted ■ Accepted, but later disputed ■ Rejected ■ No Response

PREDATORY TITLES

As assessed by librarian Jeffrey Beall



TITLES ON THE DIRECTORY OF OPEN ACCESS JOURNALS (DOAJ)

A whitelist for open-access journals



TITLES INDEXED BY JOURNAL CITATION REPORTS (JCR)

A whitelist that calculates impact factors



120 titles

©nature



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<https://www.nytimes.com/2017/03/22/science/open-access-journals.html>

Homework: Role Play

The Lab



Interactive Movie on Research Misconduct

<https://ori.hhs.gov/content/thelab>

PLAY FULL
VERSION 

EL LABORATORIO
PLAY SPANISH
VERSION 

繁體中文版
PLAY CHINESE
VERSION 

日本語版
PLAY JAPANESE
VERSION 



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<https://ori.hhs.gov/content/thelab>

Eric Poehlman



- US Physiologist, specialist in obesity and aging
- **The first academic in the United States to be jailed for falsifying data in a grant application**
- The crime? falsifying **17 grant applications** to the National Institutes of Health (NIH) for nearly **\$3 million**, and fabricating data in **ten** published articles, from years 1992-2000



The Whistleblower

Walter DeNino (24), Lab Technician, working on applying to medical school

Analyzing data – how fat levels in the blood change with age – expected to increase but did not

Poehlman brings files home, corrects “mistaken entries” – new analysis reveals increase in fat over time



Outcome: Jailed for 1 year and 1 day



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Image: Slideshare.net

Emerging Issues in Science : Publishing your Research



Figure 1: The most common approach taken by journals, in which only those experiments yielding positive results end up as publication material.

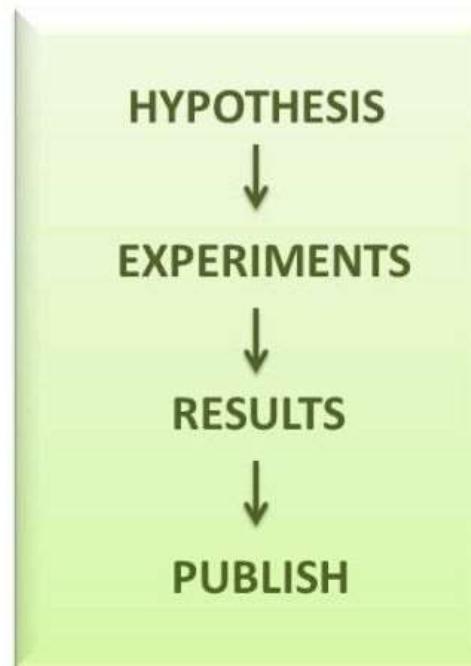


Figure 2: A more neutral approach, in which all results are published, as long as they are generated by well-carried out experiments based on sound hypotheses.

1. Skews research record
2. Wastes time and resources
3. Difficult to change the record
– conflicting studies harder to publish



Scientists offered €1,000 to publish null results

German research institute aims to reshape academic incentives with cash bonuses

February 12, 2020

By [Jack Grove](#)

Twitter: [@jgro_the](#)

A German research institute is offering scientists a €1,000 (£847) bonus if they publish null results or a replication study as part of its bid to reshape academic incentives.

The unusual offer made to the Berlin Institute of Health's 7,000 researchers is part of a programme to boost research transparency and confidence in science amid international concerns that the pressure to produce positive experimental results that are more likely to be published by leading journals drives some scientists to manipulate data.



Source: iStock

Source: [TimesHigherEducation.com](#)
Original Article: [PLOS Biology](#)



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Dr. Ruth Dooley- NUI Galway

This initiative in Research Integrity training for post-graduate students was pioneered nationally by The SFI Centre for Research in Medical Devices (CÚRAM).



Useful Links

[Case Study Videos](#)

<https://ori.hhs.gov/integrity-scientific-research-videos>

[Real Life Case Studies](#)



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6.2 IP Training Invitation



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement no. 860497.



GMOS-Train Training Course

IPR Management in the Changing World of Economic and Social Impact

TIMELINE:

Lectures: May 6th (3-6 PM); May 7th (3- 4:30 PM)

Individual/ Group Consultations: May 12th, May 13th, May 14th (3-6 PM)

Reporting: May 20th (3 -5:30 PM) ; May 21st (3-5:30 PM)

WELCOME TO JOIN!

ZOOM Meeting ID: 96704487593
<https://zoom.us/j/96704487593>



Dr Špela Stres

Head of the Centre for Technology Transfer and Innovation at JSI
Linkedin: <https://si.linkedin.com/in/spelastres>



IPR MANAGEMENT IN THE CHANGING WORLD OF ECONOMIC and SOCIAL IMPACT

Dr. Špela Stres, LLM, MBA

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Zoom: <https://zoom.us/j/96704487593?pwd=WGxmbXVtSlDtRXhadzMOTnZoZmM4UT09>

LinkedIn: <https://si.linkedin.com/in/spelastres>

COURSE WORK:

We will review the challenges of cooperation between SMEs and academic institutions. We will touch on the current legal and financial framework and make a situation analysis. We will review existing incentives and mention some of the essential intermediary institutions. Finally, we will also mention some success stories of collaboration between researchers and companies and solutions to improve the situation as seen by the innovation support environment. In the second part, we'll explain why everything (or nothing) starts with intellectual property. Part of the lecture will be devoted to discussing the situation in Slovenia, at the level of the European Commission and globally. We will discuss technology transfer vehicles and topics ranging from public research organizations to the economy, actual examples of collaboration through research contracts, spin-off and spin-out companies. We will also touch upon questions regarding policies and instruments for promoting innovation and entrepreneurship at the national and EU level, based on measuring innovation. We will discuss the purpose of the Quadruple helix (science, economy, society, government), what it means in the EU and what to change to create even better conditions for progress.

PRACTICAL PART:

The practical part will be focused on addressing concrete cases from student's present professional situation or cases they have come across.

TIMELINE:

May 6th and 7th – lectures (15h-18h, 15h-16h30)

May 12th-14th – individual/group consultations (individual arrangements during the 15h-18h slots of 20 minutes to be decided)

May 20th and 21th - reporting (15h-17h30)

REPORTING:

(Groups +) Topic by email: deadline 10.5.2020

Drafts of Reports by email: deadline 17.5.2020

Presentations of min 7 max 10 mins + discussion