Ethics in Research

R Gilman

Why be ethical? How to be ethical Case studies / examples

Why be Ethical?

Better ethics leads to better science.

We rely on the work of many others, and we need to trust them to get things right.

You want to have a good reputation, so that people want to work with you, and trust what you say.*

It is okay if people make mistakes, but not if they are unethical.

*Trust, but verify.

Statement 19.1 Guidelines on Ethics

As citizens of the global community of science, physicists share responsibility for its welfare. The success of the scientific enterprise rests upon two ethical pillars. The first of them is the obligation to tell the truth, which includes avoiding fabrication, falsification, and plagiarism. The second is the obligation to treat people well, which prohibits abuse of power, encourages fair and respectful relationships with colleagues, subordinates, and students, and eschews bias, whether implicit or explicit. Professional integrity in the conception, conduct, and communication of physics activities reflects not only on the reputations of individual physicists and their organizations, but also on the image and credibility of the physics profession in the eyes of scientific colleagues, government, and the public. Physicists must adopt high standards of ethical behavior, and transmit improving practices with enthusiasm to future generations.

https://www.psi.ch/en/integrity

Research Integrity

Integrity in research at the research institutions PSI, EMPA, Eawag, WSL Truthfulness, openness, self-criticism, reliability and fairness are the basis for credibility and acceptance of science.

As researchers we are committed to these values and follow the corresponding rules.

Why ethics matter in science

«It takes 20 years to build a reputation and 5 minutes to ruin it. If you think about that, you'll do things differently.» Warren Buffett

Rutgers School of Graduate Studies website

<u>https://gsnb.rutgers.edu/code-responsible-conduct-and-</u> professionalism-graduate-education

We expect and encourage:

- Honesty and integrity
- Respect and tolerance
- Sensitivity to differences among individuals
- Professionalism
- Attention to goals and responsibilities
- Timely and constructive feedback
- Acceptance of constructive feedback

Inappropriate behaviors:

- Mistreatment, abuse, bullying, or harassment, whether by actions or language
- Unprofessional criticism
- Requests for personal services
- Assigning tasks as punishment or retribution
- Sexual assault or sexual harassment
- Discrimination
- Indifference to inappropriate behaviors that are witnessed

How to be ethical: School of Graduate Studies pamphlet – Academic Integrity: Issues for Graduate Students

Plagiarism is the representation of the words or ideas of another as one's own in any academic work.

To avoid plagiarism, every direct quotation must be identified by quotation marks, or by appropriate indentation, and must be cited properly according to the accepted format for the particular discipline.

Acknowledgment is also required when material from any source is paraphrased or summarized in whole or in part in one's own words. To acknowledge a paraphrase properly, one might state: to paraphrase Plato's comment... and conclude with a footnote or appropriate citation to identify the exact reference.

A footnote acknowledging only a directly quoted statement does not suffice to notify the reader of any preceding or succeeding paraphrased material.

Information that is common knowledge, such as names of leaders of prominent nations, basic scientific laws, etc, need not be cited; however, the sources of all facts or information obtained in reading or research that are not common knowledge among students in the course must be acknowledged.

In addition to materials specifically cited in the text, other materials that contribute to one's general understanding of the subject may be acknowledged in the bibliography.

Two levels of violations are recognized by the Academic Integrity Policy–separable and nonseparable. For graduate students <u>nearly</u> <u>all violations are considered separable</u>.

Sanctions for separable violations include, but are not limited to:

- A grade of XF (disciplinary F) for the course.
- · Disciplinary probation.
- Dismissal from a departmental or school honors program.
- Denial of access to internships or research programs.
- Loss of appointment to academically-based positions.
- Loss of departmental/graduate program endorsements for internal and external fellowship support and employment opportunities.
- Removal of fellowship or assistantship support.
- · Suspension for one or more semesters.
- Dismissal from a graduate or professional program.
- Permanent expulsion from the University with a permanent notation of disciplinary expulsion on the student's transcript.*

*from the *Rutgers University Academic Integrity Policy* academicintegrity.rutgers.edu If you are not wholly familiar with conventions of citation, purchase a reference guide that is standard for your discipline. Among the most widely used guides are:

The Chicago Manual of Style (17th edition). Chicago: University of Chicago Press, 2017.

MLA Handbook (8th edition). New York: Modern Language Association of America, 2016.

Publication Manual of the American Psychological Association (6th edition). Washington, DC: American Psychological Association, 2009.

If you have questions about academic integrity, get them answered *before* jeopardizing your career. Speak to your faculty adviser, your graduate program director, or one of the deans of the School of Graduate Studies (848-932-7747).

June 2018

RUTGERS School of Graduate Studies

Academic Integrity: Issues for Graduate Students



How to be ethical: School of Graduate Studies pamphlet – Academic Integrity: Issues for Graduate Students

Academic Standards

All graduate students have a responsibility to understand and to uphold the standards of the academic community. Without a commitment from all members of the community to work honestly and fairly, intellectual inquiry will suffer. A high standard of honesty and integrity is expected of you—as a student, as a researcher, and as a teacher.

Because academic integrity is such a basic element in the scholarly enterprise, it is useful to review the expectations of the institution and of your colleagues in relation to your academic work and your teaching responsibilities. It is the responsibility of every student to understand these standards thoroughly and to act in accordance with them.

This brochure outlines the expectations the university has for its graduate students. In addition, most disciplines have a code of conduct by which their members are expected to abide. Graduate students are expected to be aware of the University's policy and of their discipline's ethical code and act accordingly. Failure to comply with these codes is grounds for dismissal from a graduate program.

The Policy on Academic Integrity is online at http://academicintegrity.rutgers.edu. Please review it. All work submitted in a graduate course must be your own.

It is unethical and a violation of the Academic Integrity Policy to present the ideas or words of another without clearly and fully identifying the source. Inadequate citations will be construed as an attempt to misrepresent the cited material as your own. Use the citation style preferred by your discipline.

Students may never:

- Quote or paraphrase another, including material from the Internet, without complete citation;
- Cite a source that has been identified through a secondary source but has not been consulted;
- Collaborate with others on assignments or exams without the explicit permission of the instructor;
- Use materials during an exam that have not been sanctioned by the instructor of the course;
- Look at or copy the work of another student during an exam;
- Submit the work completed in one class to fulfill an assignment in another without the consent of the instructor.

As a Student

Your Responsibilities

Data must be accurate and complete. Appropriate credit should be given to all who contribute to a project.

The following actions would, in most cases, constitute a violation of the researcher's ethical code:

- · Falsify/fabricate data or results;
- Selectively withhold data that contradicts your research;
- · Misuse the data of others;
- Present data in a sloppy or deceptive manner;
- Fail to maintain accurate laboratory notebooks;
- Fail to credit authors appropriately. <u>All</u> contributors should be acknowledged;
- Sabotage/appropriate the research of another;
- Misuse research funds or university resources for personal use;
- Develop inappropriate research/industry relationships for personal gain;
- Fail to comply with federal and/or Rutgers guidelines for the treatment of human or animal subjects.

As a Researcher

All teachers have a responsibility to their students to:

- Have or acquire the knowledge to teach assigned courses and the teaching skills to facilitate learning;
- Inform students of their expectations and requirements at the beginning of the semester;
- Evaluate student performance in a fair and timely manner;
- Treat all students fairly;
- · Avoid sexual relationships with students;
- Insure that while their teaching may be informed by their personal beliefs,it should not be controlled by them;
- Keep all information about students confidential; inform others only on a need-to-know basis.

As a Teacher

Citations from the pamphlet

Students may never:

- Quote or paraphrase another, including material from the Internet, without complete citation;
- Cite a source that has been identified through a secondary source but has not been consulted;

Research from the pamphlet

The following actions would, in most cases, constitute a violation of the researcher's ethical code:

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- Fail to maintain accurate laboratory notebooks;
- Fail to credit authors appropriately. <u>All</u> contributors should be acknowledged;

- Sabotage/appropriate the research of another;
- Misuse research funds or university resources for personal use;
- Develop inappropriate research/industry relationships for personal gain;
- Fail to comply with federal and/or Rutgers guidelines for the treatment of human or animal subjects.

Research Comments

- If you falsify or fabricate results, either
 - -it is interesting and you will be caught when people cannot reproduce it, or
 - -it is uninteresting and insignificant, and no one cares about it.
- Experimenters are (IMHO) not great at estimating systematic uncertainties – often experimental results disagree by more than expected from claimed uncertainties. You can be wrong without there being an ethical scandal. Sometimes, despite our best efforts, we do not yet know how to extract a result correctly.
- The paper should clearly state what was done, at a level sufficient that others in the field can (in principle) reproduce it. But note that if you read papers from the past, sometimes the common understanding is not there and the results cannot be reproduced.

Advertising

- •At some level we are all salespeople.
- A certain amount of opinion goes into selling our science this is really interesting!
- It is okay to make reasonable projections, even though sometimes things do not work out. ("It will take me a month to do that.")

Authorship

- Authorship has perhaps been the most common ethical issue I have encountered.
- Generally, anyone who contributes significantly should be an author, but there is not a general standard for significant.
- Large collaborations often make well defined (if somewhat arbitrary) rules for authorship.

Research – Authorship

• CRediT (Contributor Roles Taxonomy) – e.g., <u>https://www.elsevier.com/</u> authors/journal-authors/policies-and-ethics/credit-author-statement



INDUSTRY UPDATE

(wileyonlinelibrary.com) doi: 10.1002/leap.1210

Received: 10 October 2018 | Accepted: 13 November 2018

How can we ensure visibility and diversity in research contributions? How the Contributor Role Taxonomy (CRediT) is helping the shift from authorship to contributorship

Liz Allen^{0,1*} Alison O'Connell,² and Veronique Kiermer³





A. O'Connell



Key points The structured (

- 2014, is now use couple of years.
- CRediT responds
- tributions and is Whilst initially in is increasingly be
- The structured Contributor Role Taxonomy (CRediT) taxonomy, introduced in 2014, is now used in over 120 journals and set to grow substantially in the next couple of years.
- CRediT responds to calls for greater transparency and recognition of author contributions and is increasingly being used to investigate authorship.
- Whilst initially implemented in the life sciences, identification of contributorship is increasingly being seen as important in all disciplines.

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Key points

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Conceptualization	Ideas; formulation or evolution of overarching research goals and aims
Methodology	Development or design of methodology; creation of models
Software	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components
Validation	Verification, whether as a part of the activity or separate, of the overall replication/ reproducibility of results/experiments and other research outputs
Formal analysis	Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data
Investigation	Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection
Resources	Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools
Data Curation	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later reuse
Writing - Original Draft	Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation)
Writing - Review & Editing	Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre-or postpublication stages
Visualization	Preparation, creation and/or presentation of the published work, specifically visualization/ data presentation
Supervision	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team
Project administration	Management and coordination responsibility for the research activity planning and execution
Funding acquisition	Acquisition of the financial support for the project leading to this publication 14

https://www.psi.ch/sites/default/files/import/pa/MediaBoard/ Integritaet_in_der_Forschung_PSI_Broschuere_Richtlinie.pdf

Reputation is the most valuable asset of every researcher. The assessment of the performance and the quality of a researcher is primarily based on his or her publications and their impact. A fair publication practice is therefore of central importance for all researchers.

A person is considered as an author of a scientific publication if he meets all of the three following criteria:

a. Personally providing either a significant contribution to the planning, to the execution, to the supervision or to the interpretation of a piece of research,

- b. participating in the drafting of the manuscript, and
- c. approving the final version of the manuscript.

Authorship

Contributors who only partially meet the three criteria set above should be mentioned in the "Acknowledgements" section of the publication.

PSI staff members participating in external research projects on one or more of the large facilities at PSI, and who fulfil the criteria for authorship, are entitled to be considered as authors in scientific publications.

A managing function, or providing financial, logistic or organisational support for a research project, does not, of itself, entitle a person to appear as an author.

Honorary or courtesy authorship is not acceptable.

Authorship and the order of authors must be discussed and agreed upon at an early stage with all those involved.⁵ Before starting collaborations responsibilities and procedures for giving credits and for publishing should be agreed upon. The two major criteria for setting the order of authors are transparency and fairness, as best realised by listing the specific contribution of each author (contribution).

https://www.psi.ch/sites/default/files/import/pa/MediaBoard/ Integritaet_in_der_Forschung_PSI_Broschuere_Richtlinie.pdf

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Case studies

Ethics can be difficult

- Please watch (youtube, 2.5 minutes) The Good Place Trolley Problem: <u>https://www.youtube.com/watch?v=JWb_svTrcOg</u>
- Should Chidi have switched tracks?
- Was it ethical for me to use a Good Place video posted by a 3rd party? (Who may benefit financially from our watching it?)
- It is unusual for us to have life and death issues, but we always have to make choices:
 - Is my time better spent working out the last details of X, or are they minor enough that I should go on to Y?
 - Should I work on lots of smaller easier things, or on one really hard thing?
 - Should I take my name off the paper?

Errors, ethical violations, or unresolved?

(Please read the linked web pages.)

- Schon organic semiconductors: <u>https://en.wikipedia.org/wiki/Schön_scandal</u>
- Pons and Fleischmann cold fusion: <u>https://en.wikipedia.org/wiki/Cold_fusion</u>
- OPERA experiment faster-than-light neutrinos: <u>https://en.wikipedia.org/wiki/Faster-than-light_neutrino_anomaly</u>
- •LSND sterile neutrinos:

https://en.wikipedia.org/wiki/Liquid_Scintillator_Neutrino_Detector

•Light-quark pentaquarks:

https://en.wikipedia.org/wiki/Pentaquark

"The first claim of pentaquark discovery was recorded at LEPS in Japan in 2003, and several experiments in the mid-2000s also reported discoveries of other pentaquark states.^[5] Others were not able to replicate the LEPS results, however, and the other pentaquark discoveries were not accepted because of poor data and statistical analysis."

Authorship

- Please read about the papers of F. D. C. Willlard: <u>https://en.wikipedia.org/wiki/F._D._C._Willard</u>
- Ethical thoughts?
- I might tell some stories of stuffed owls being authors, inappropriate acknowledgments, poorly named computer codes, and more, if there is time.

Helping others—and myself Moamen M. Elmassry

Science, Vol. 368, Issue 6496, pp. 1282, 12 Jun 2020 DOI: 10.1126/science.368.6496.1282

- During my first year of grad school, a faculty member asked whether I'd be interested in analyzing data for one of his projects. I enjoyed new computational challenges, so I agreed to do the analyses on top of my normal Ph.D. work. Then, 1 year later, the same faculty member met with me and asked a series of questions posed by reviewers of the paper he had written. I was flustered—I had no idea that a manuscript had even been submitted to a journal—but I answered his questions. Later, though, I got up the courage to drop by his office and find out whether I was listed as a co-author, or even acknowledged, on the manuscript. He said no, acting as though the question itself was inappropriate. The experience led me to rethink my approach to collaborations.
- Thoughts?

Three theorists walk into a bar ...

- A says we should look at something, and goes to the bathroom.
- B and C calculate it and write the paper, all while A is in the bathroom. They do not include A as an author.
- Ethical thoughts?

Three theorists walk into a bar ... v2

- A says we should look at something, and goes to the bathroom.
- •B and C work on this full time for 6 months, with A not contributing anything more than "Sounds good!" B and C write the paper. They do not include A as an author.

• Ethical thoughts?

Some personal stories ...

At one point as a graduate student

- I was requesting much of the available beam time for some experiments at an accelerator facility. Experiments are justified to a review committee, which made decisions.
- I noticed a competitor requested some time, but it seemed not enough. I checked and realized a mistake he made in his time request – it was a factor of 5 small.
- I told the group leader, the technical adviser to the committee. He told me to let the competitor have some time.
 I keep quiet. I do not know if he told the review committee.
- The competitor ran the experiment, got poor statistics, no meaningful result, and no paper.
- Ethical thoughts? (for the competitor, for me, for the manager and maybe the committee?)

The article with a mistake

- Theorist C told me that A wrote an article, and B wrote a comment that A got something wrong. But A suppressed the comment appearing in print, so C lost respect for A.
- Ethical thoughts?

Note: usually editors send comments to the author for review before deciding on publishing or not. As a student I had one critical comment rejected as the PRL was too long in print, so the comment was not interesting any more. Twenty years ago I wrote a comment on a P. Anderson Physics Today column "Brainwashed by Feynman". It was rejected, without any reason given. I think it was too small a point to bother publishing. (The N. Isgur comment published expanded on Anderson's point with an amusing story that also showed Feynman understood the problem.)

Bad results

 One person I worked with had a preliminary analysis result where, after subtracting the background from the signal + background, the signal was negative. The signal should have been ≥ 0. Ethical thoughts?

• One person I worked with commented that he had been part of a collaboration doing standard-model tests. They had published 25 results, all within 1σ of the standard-model prediction. He left the collaboration. Ethical thoughts?

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Unreproducible Research

- Two times in my career I tried to reproduce published theory calculations and could not. The theorists said the codes used to generate the calculations in the articles no longer existed. They did not consider the old research interesting any more. Eventually we gave up.
- In one case I worked with a theorist on a review article. In one calculation we looked at, the algebra seemed correct in the limit 5/7 = 1. It seemed good enough for what was being done.
- Ethical thoughts?

Social Sciences

ISSN Online: 2326-988X ISSN Print: 2326-9863

 $\sqrt{}$ OA Journal $\sqrt{}$ Peer Review $\sqrt{}$ Paper Publication (50-90 Days)

Note Rutgers view: good for faculty to serve on editorial boards.

• Ethical thoughts?

Dear Gilman, Ronald A.,

Warm Greetings from the editorial assistant.

Your article published in *AIP Conference Proceedings*, which is titled *Drell-Yan program at SeaQuest.*, has impressed us a lot. It has attracted attention from researchers specializing in social sciences.

Submit Your Research Paper to the Journal

With the aim to promote the development of the academic community, *Social Sciences* can make specialists in the related fields closer to the latest scientific research. In view of the advance, novelty, and potential extensive applications of your innovation, we sincerely invite you to send other unpublished articles of relevant fields to the journal. Further research on the topic of this article will also be welcomed.

For more information, please click the link below:

http://www.socialsciences.mobi/submission/yLmbZ

Join Our Editorial Board/Reviewer Team

On behalf of the journal's Editorial Board, we also would like to invite you to join us as a member of the editorial board/reviewer team of *Social Sciences*. With your academic background and rich experience in this field, we believe you are the suitable person for the position. We believe that scholars in your field will benefit a lot from your position as the editorial board member/reviewer.

Dear Friend and Colleague, Gilman, Ronald

Hope, this mail finds you well and in good health. I am writing you in regards to the proposal of mutual cooperation on the field of publication. These days I have checked your scientific profile (apparent scopus link to me) and noticed that you are quite successful in publication of your own manuscripts in Scopus/ WOS indexed journals. Furthermore, I suppose, that you have some manuscripts that were sent to the journals but not accepted yet. In this case, you might be interested to add a co-author to such manuscripts and get some profit. I cooperate with many professors from different universities of the United

Arab Emirates, China, Viet Nam, Russia, Ukraine, Kazakhstan. Some of them are ready to be the co-authors of the manuscripts like yours. If you are interested in this, please, let me know. I will forward all required information to you and answer all your questions.

I would be glad to assist you as well as to the mentioned professors.

P.S. Sorry for bothering you if you find this letter useless. Take care and be safe. Strong health to you and your family.

Regards,

Ksenia Badziun,

Chief Editor, International Publisher Ltd.

(apparent linkedin link to me) kseniabadz@gmail.com

• Ethical thoughts?

zoltan matey <zoltanmatey31@yahoo.com>

Fw: have all the particle accelerators switched off

To: ompi_director@physics.carleton.ca <ompi_director@physics.carleton.ca> & 36 more

have all the particle accelerators switched off

originator souls are able to track matter flows

in varoius naturally occuring forms, but the unnatural ones are maybe not tracked so correctly such as particle beams wich instead collide with souls as

those have a high speed, but i doubt near speed of light speed or i doubt near limitation speed speed

this sounds strange because you are used to souls belonging to other dimension, however souls and originator souls are both in this 3 dimensions but acting on the message level so particle message speed is what those have without concerning mass

but the highspeed beams of particles do hit the soul constructs because there is touch interaction in between the two (such as flow tracking flow following)

•Ethical thoughts? (What are my ethical obligations here?)



November 27, 2019 at 12:56 PM Details

sf-list@santilli-foundation.org @



To: sf-list@santilli-foundation.org,

RMS Foundation Do antimatter asteroids pose a threat?

Reply-To: board@santilli-foundation.org, sf-list@santilli-foundation.org

This message is from a mailing list.

Unsubscribe 📀

Do Antimatter Asteroids Constitute A Threat To The Security of the U.S.A. and It's Allies?

https://globenewswire.com/news-release/2017/10/26/1154302/0/en/Are-Antimatter-Asteroids-Partially-Responsible-for-the-Recent-Rapid-Wildfires-in-California-Asks-Dr-Santilli-of-Thunder-Energies-Corporation.html

TARPON SPRINGS, FL. 10/25/17. Dr. Ruggero M. Santilli, Chief Scientist of Thunder Energies Corporation, a publicly traded company with stock symbol (OTC:TNRG), suggest that small antimatter asteroids annihilating in our atmosphere should be considered, among other possibilities, as possible origin of at least some of the recent rapid wildfires in California that have caused the death of 42 fellow Americans (<u>http://www.thunder-energies.com/index.php/ct-menu-item-18/11-articles/17-article-8</u>).

Dr. Santilli states: "Some or the peculiarities of the recent wildfires in California are the following: the rapidity of their occurrence such to prevent at times residents to leave their houses; the burning of cars at such a temperature to melt their metals while trees nearby were scorched but unburden; the apparent detection of fireballs coming from the sky; and other unusual occurrences (http://www.nbcbayarea.com/news/california/2017-California-Wildfires-Brush-Fires-420888223.html). Small matter asteroids cannot explain these peculiarities since, following an

• Ethical thoughts? (What are my ethical obligations here?)

Blacklight power

- <u>https://www.businesswire.com/news/home/20140114005647/en/BlackLight-Power-Inc.-Announces-the-Game-Changing-Achievement-of-the-Generation-of-Millions-of-Watts-of-Power-from-the-Conversion-of-Water-Fuel-to-a-New-Form-of-Hydrogen</u>
- "Our safe, non-polluting power-producing system catalytically converts the hydrogen of the H2O-based solid fuel into a non-polluting product, lower-energy state hydrogen called "Hydrino", by allowing the electrons to fall to smaller radii around the nucleus"
- •At one point I was asked to referee one of their papers...

• Ethical thoughts? (What are my ethical obligations here?)

Parting words

Better ethics leads to better science.

We rely on the work of many others, and we need to trust them to get things right.

Your reputation is important, physics is a small community.

Be good to your colleagues. They might be on your review committee some day. Or you might want to work with them some time.

It is okay if people make mistakes, but not if they are unethical.