Reporting Misconduct / Responsible Authorship

Acknowledgments

“Reporting Misconduct” slides are taken from a Lecture in GRAD544, shared with me by Dr. Kathy Partin

“Responsible Authorship” slides are taken from an RCR lecture prepared by Dr. Ellen Fisher, with her permission (may not be reused without permission)

Recommended Resources

CSU Reporting Hotline: http://reportinghotline.colostate.edu/
Unreported Misconduct is Damaging

COMMENTARY

Repairing research integrity

A survey suggests that many research misconduct incidents in the United States go unreported to the Office of Research Integrity. Sandra L. Titus, James A. Wells and Lawrence J. Rhoades say it’s time to change that.

Misconduct jeopardizes the good name of any institution. Inevitably, the way in which research misconduct is policed and corrected reflects the integrity of the whole enterprise of science. The US National Academy of Sciences has asserted that scientists share an ‘obligation to act’ when suspected research misconduct is observed. But it has been unclear how well scientists are meeting that obligation. In the United States, the Office of Research Integrity (ORI) evaluates all the investigation records submitted by institutions and plays an oversight role in determining whether there has been misconduct at institutions that receive support from the Department of Health and Human Services (DHHS). The reported number of investigations submitted to ORI has remained low: on average 24 institutional investigation reports per year.

ORI focuses resources, not only on evaluating institutional reports of research misconduct but also on preventing misconduct and promoting research integrity through deterrent and education. To evaluate these initiatives, we investigated whether the low number of misconduct cases reported to ORI is an accurate reflection of misconduct incidence, or the tip of a much larger iceberg. The latter seems to be the case.

The 2,212 researchers we surveyed observed inconsistent definitions of misconduct or not accounting for duplicate reports of the same incident. So, we used the US federal definition of research misconduct — fabrication, falsification or plagiarism — in proposing, performing or reviewing research, or in reporting research results — and verified whether reports accurately fitted that definition. The possibility of duplicate reports of suspected research misconduct over the past three academic years to avoid inclusion of distant events and to have a consistent time parameter. We used frequent and varied reminders to secure a high response rate to the survey. Previous research has treated survey reports of misconduct as if the observer could make the determination that they had observed misconduct. Instead, we consider the observations to be ‘possible research misconduct’ and not all such observations will result in a finding of misconduct. In all we asked 4,298 scientists holding NIH extramural research funds at 605 institutions to respond to the survey so that our findings would be representative of a broad spectrum of research fields as well as varied sizes of institutions.

What scientists saw

In 2006, we asked participants to indicate the number of times they had observed suspected research misconduct in their own department in the past three academic years (2002–05). 2,212 scientists provided complete responses to questions concerning research misconduct (51% response rate). Of these, 192 scientists (8.7%) indicated that they had observed or had direct evidence of researchers in their own department committing one or more incidents of suspected research misconduct over the
CSU commitment to legal and ethical conduct

- “All members of the University community are expected to share in this responsibility and to help prevent, detect, and address violations.” - [http://reportinghotline.colostate.edu/](http://reportinghotline.colostate.edu/)
  - All employees and individuals associated with CSU should report observed, suspected or apparent Research Misconduct to their Department Head, Dean, the RIO and/or the Vice President for Research.

- “Consistent with this commitment, the University provides the Compliance Reporting Hotline for employees, students, and constituents to report issues, in good faith, regarding compliance with laws, regulations, and substantive University policies.”
  - [http://reportinghotline.colostate.edu/](http://reportinghotline.colostate.edu/)
  - May report anonymously

- If an individual is unsure whether a suspected incident falls within the definition of scientific misconduct, a call may be placed to one of these individuals to discuss the suspected misconduct informally.
What is reportable?

- Fiscal misconduct by University employees
- Abuse of time and other resources
- Violations of federal or state law or regulations
- Serious or recurring violations of University policy in the performance of University duties
- Research or scientific misconduct
- Waste of University resources, funds or property
- Serious or recurring abuse of University authority
- Public safety issues
- Animal Care and Welfare Concerns

The following are examples of issues that are **not appropriate** for reporting through the Reporting and Compliance Hotline mechanisms:

- Course/teaching evaluations
- Employee evaluations
- Immediate threats to persons or property (please contact the police immediately)
- Personal opinions of faculty or staff
- Salary administration
- Any in-progress crime, and any crimes against persons such as assault, threats, etc. These should be reported to the CSU Police Department immediately.
How to proceed...?

- The good news is that most incidents of seeming misconduct, turn out not to be: **Talk with someone you trust who would know**
  - If the concern is someone in your group, talk to the head of the group
  - If the concern is about your mentor, find a senior faculty member in the department who you can trust, and talk with her/him.
  - Dr. Kathy Partin can be consulted ANYTIME, anonymously, and she will help talk you through the issue and give you free advice (Dr. Partin: 491-1563)
  - The “official” route is through your department head, Wade Troxell, or Hank Gardner.

- Most of the questions fielded by RICRO or in the RCR courses are about
  - authorship/credit disputes
  - mentor-student relationships (unfairness allegations)
  - Rarely are the allegations actually falsification, fabrication or plagiarism (FFP)
    - BUT, if you do become aware of actual FFP, you are urged to at least make an anonymous call or hotline report.
Whistleblowing

- Your right to blow the whistle is protected by the US Constitution and upheld by state regulations.

- Whistleblowing, particularly when vulnerable subjects or federal funds are involved, **is the right thing to do and is expected from you**.

- Blowing the whistle has some risk…
  - Although you can report anonymously, it is rare that a trainee who goes forward truly remains anonymous. As a result, you will likely need help to decide whether to go forward or not. As already noted, most potential misconduct cases are not.
  - However, CSU does take huge efforts to be sure grad students who make allegations are protected, and usually someone in the system (see contacts at end) can help resolve the situation.
Additional information about the process at CSU

- The following slides show the process of investigating allegations of misconduct within CSU, tips for avoiding MiS issues, and estimates of the costs associated with MiS cases.
QUIZ:
Graduate students who are accused of data falsification are protected from the CSU Research Misconduct policy, and instead these allegations are considered violations of the Academic Integrity sections of the Student Code and are always processed through the Office of Conflict Resolution.

A. True
B. False
Who is covered by the CSU MiS policy?

All members of the CSU academic community, including academic faculty, students, administrative-professionals, state classified personnel, and postdoctoral trainees, can report or be named a respondent.

Situations involving graduate and undergraduate students as respondents would by covered by this policy *only to the extent that federal funds are involved* and the sponsor of those funds requires procedures which the VPR does not deem to be met by existing campus procedures for dealing with student misconduct (e.g., Academic Dishonesty proceedings).
QUIZ:
The person at CSU directly responsible for monitoring the research misconduct process is:

A. President (Tony Frank) and/or Provost (Rick Miranda)
B. Vice President for Research (Bill Farland)
C. Research Integrity Office (Hank Gardner)
D. University Grievance Officer (Kirk Hallahan)
E. The Dean of your college and/or Department Head of your department
Research Integrity Officer (RIO)

Dr. Hank Gardner

- Associate Vice President for Research
- Research Integrity Officer
  › Primary contact for departments and deans with questions about potential misconduct issues
  › Represents CSU with the Public Health Service (PHS) Office of Research Integrity (ORI)
    http://ori.hhs.gov/
  › Manages the CSU MIS process to meet institutional, state and federal standards
The Role of Department Heads

- The Department Head of the respondent's department is often the person to whom concerns are first expressed and must convey that information to the Dean (who contacts the RIO) as soon as possible.

- The RIO shall keep the Department Head informed of the inquiry and investigation proceedings simultaneously with the Dean.

- In cases in which the Department Head must recuse himself or herself, the Dean shall designate a substitute for the particular case.
QUIZ:
If a tenured faculty member is found guilty of research misconduct at CSU they will most likely immediately:

A. Be debarred from federal funds
B. Be fired
C. Quit
D. Be sent through the faculty disciplinary process (E.15)
E. Be named in a press release issued by CSU

Answer: D, disciplinary process as outlined in the Faculty & Staff Manual
QUIZ:
A finding of “research misconduct” must be proven by what level of evidence?

A. 33%
B. 51%
C. 80%
D. 99%
E. 100%

Answer: 51% (a “preponderance of evidence”)
Research Misconduct Process

Informal

- Complainant(s) produce Allegation(s) against a Respondent(s)
- That allegation is reported to the Dean, who performs a Pre-Inquiry review for jurisdiction and credibility
- The RIO, in consultation with the Dean, initiates an Inquiry

Formal

- A convened Inquiry faculty committee recommends to the VPR that they think an Investigation is warranted
- If the VPR concurs, the RIO convenes an Investigation faculty committee, whose final report goes to the VPR

Formal

- Appeals of the findings of the final report go to the Provost
- A finding of misconduct is reported to ORI; the RIO then works with the Dean regarding any sanctions (may involve AP manual)
Pre-Inquiry Review: Jurisdiction & Credibility

In the Pre-inquiry stage the RIO, in consultation with the Dean and/or Department Chair assess:

- whether there is **sufficient and credible evidence**, 
- whether federally supported research is involved, and 
- if the allegations fall with the definition of Research Misconduct such that an Inquiry should be conducted.

This is an informal, preliminary step to determine if a concern or allegation is entirely **frivolous and devoid of reason to pursue**, if it should be referred to another office for resolution or if it should be referred to an Inquiry Committee for further fact finding and evaluation.
Inquiry and Investigation

- **Inquiry**: Faculty panel determines, based on records and interviews, that “there is smoke”.

- **Investigation**: Second faculty panel determines, based on the preponderance of the evidence, that misconduct either did or did not occur, and if so, by whom.

Determinations are forwarded to VP for Research for a final decision as to whether an act constitutes misconduct.
Investigation Determinations

1. The matter constitutes Research Misconduct. A finding of Research Misconduct requires that
   a) there is a significant departure from accepted practices of the relevant research community;
   b) the misconduct was committed intentionally, knowingly, or recklessly; and
   c) the allegation has been proven by a preponderance of the evidence, i.e. it is more likely than not.

Note: “preponderance of evidence”: not 100% proven
Investigation Determinations

2. The matter does not constitute Research Misconduct for one of the following reasons:
   a) it is more probable than not that no Research Misconduct occurred, i.e. the allegation has not been proven by a preponderance of the evidence;
   b) sufficient credible evidence is lacking to make a determination that Research Misconduct occurred; or
   c) the matter is a result of honest error or differences of opinion.
Sanctions and Recommendations

- May be referred from “Research” to “Academic” disciplinary processes, based on terms of employment as outlined in AP Manual (E.15 proceedings).
- Require significant role of the Dean in monitoring remediation activities.
- All determinations and sanctions are still confidential!
- Unless, PHS/NSF publish their findings (e.g., http://ori.hhs.gov/)
How could a misconduct case impact a university like CSU?


- For a specific investigation for which costs were estimated for all phases of the review process, direct cost estimates approached $525,000.
  - Investigation costs:
    - Pre-inquiry ($1,000)
    - Inquiry ($23,000)
    - Investigation ($514,000)
  - Remediation costs
    - Loss of current grants ($283,000)
    - Withdrawal of pending grants ($615,000)
    - Loss of one renewal cycle ($363,000)
  - Intangible costs

- For an individual country, the total costs associated with the review of all cases of scientific misconduct, both reported and not reported to the Office of Research Integrity, are likely to be exponentially higher.
What can a faculty advisor do to deter misconduct?

- Communicate expectations and consequences at the beginning of a mentoring relationship
  - New model of co-signed “contracts”
  - Many MiS allegations are really authorship disputes!
- Meet with trainees regularly
- Track timelines and benchmarks for progress
- Document conversations
- Review primary data records regularly
- Review data with FFP (Falsification, Fabrication, and Plagiarism) in mind
- Get help sooner versus later
What can a student do to avoid allegations of misconduct?

- Know expectations and consequences
  - G&PB and departmental guidelines
- Meet with advisor regularly
- Keep fastidious records; document physical results as well as intellectual progress
- Hold advisory committee meetings regularly
- Get help from Graduate Coordinator or trusted senior faculty member
CONTACTS

- Dr. William Farland, VP for Research
  - William.Farland@Research.ColoState.edu
- Dr. Hank Gardner, RIO, Associate VPR
  - Hank.Gardner@Research.ColoState.edu
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  - Robert.Ellis@ColoState.edu
Moving on to Publication Issues
Electronic Theses and Dissertations (ETD)

- From CSU Graduate School (http://graduateschool.colostate.edu/current-students/thesis-dissertation/index.aspx):
  “Submit your thesis/dissertation electronically to ProQuest/UMI through the Colorado State University Libraries Electronic Thesis and Dissertation (ETD) Submission website by the published deadline date of your graduating term. Step-by-step instructions for the electronic submission process are provided at the ProQuest/UMI website.”

- From http://lib.colostate.edu/etd (FAQ):
  “The move to electronic theses and dissertations creates unparalleled opportunities for wide and timely dissemination of the research of CSU graduates, creating greater opportunities for your scholarly work to be recognized by others. You are therefore encouraged to make your ETD available worldwide. However, there may be a number of reasons that you would like to restrict access to your work, including patent pending, data sensitivity, and pre-publication concerns.

  …but this also creates new issues to be dealt with!”
It is important that you make an informed decision about the terms of access to your ETD. In particular, you need to learn about two issues:

- If your ETD contains articles that were published in scholarly journals or elsewhere, you need to make sure that the terms of access you stipulate with the CSU Digital Repository and ProQuest/UMI are compatible with the permissions granted by those journals or other entities. Don’t assume that articles you have published can be placed in your ETD and then made available online.

- If you plan to publish some or all of your ETD, you need to find out whether the journals and publishers who would be likely to publish your work regard an electronically accessible thesis or dissertation as a prior publication.
Electronic Theses and Dissertations

- **Question 1**: I have published several papers, and now I would like to include them in my dissertation. How do I go about this?

- **Answer**: *(from brochure, CSU_ETD_Copyrights.pdf)*

  “If you gave away your copyright when you had an article published prior to submitting your ETD, you have a number of options. Discuss these with your committee and possibly with your publisher.

  1. Cite that publication in your references.

  2. If the publisher has the article online, link or point to it (though the publisher may have protected for paying subscribers who are the only ones allowed access).

  3. If the publisher gives a signed release, include the publication in your ETD as allowed in that release. Include the letter giving permission in your ETD.”
From Prof. Peter McMurry, University of Minnesota, Editor-in-Chief, *Aerosol Science and Technology*, published by Taylor & Francis:

- “AAAR owns the copyright to AST papers and we allow students to publish papers in their theses.”

- AST "Information for Authors" states: "The copyright for articles published in AST is owned by AAAR. The Author Rights section of the Taylor and Francis website [http://journalauthors.tandf.co.uk/preparation/copyright.asp](http://journalauthors.tandf.co.uk/preparation/copyright.asp) lists the rights that authors retain with regard to the use of their published articles. Note that most uses require explicit acknowledgement of prior publication in AST. Authors should consult the Taylor and Francis website for details. **These rights include the right of students to include their published articles in their theses, with the proper acknowledgement.**"
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Electronic Theses and Dissertations

- **Question 2**: I have completed my dissertation, and want to turn several chapters into manuscripts for submission to a refereed journal. How do I go about this?

- **Answer**: *(this is less clear than Question 1!)*

From Prof. Michelle Wilde, CSU Libraries:

“The question involves publishing an article from information that is included in a thesis/dissertation deposited with the library. **This is more of a question for the journal in which a student plans to publish.** The acceptability of this can vary by discipline, and there can be many other reasons that someone would want to limit access to their dissertation or thesis. To accommodate these situations, **the Libraries offers authors the opportunity to embargo or restrict public access to their dissertation/thesis for a year.**”
Embargo Request (CSU)

- Authors must fill out a short, one-sheet form to request the embargo. The form asks the author to provide basic information about the thesis/dissertation and to provide a justification as to why the embargo is necessary. The form must be signed by the advisor, and embargo requests will be reviewed by the Vice Provost for Graduate Affairs. This form is available on the Graduate School web page about Thesis & Dissertation Electronic Submissions:
Publishing implications of electronic publication of theses and dissertation material

Students and their mentors should be aware that posting of theses and dissertation material on the Web prior to submission of material from that thesis or dissertation to an ACS journal may affect publication in that journal. Whether Web posting is considered prior publication may be evaluated on a case-by-case basis by the journal’s editor. If an ACS journal editor considers Web posting to be “prior publication”, the paper will not be accepted for publication in that journal. If you intend to submit your unpublished paper to ACS for publication, check with the appropriate editor prior to posting your manuscript electronically.
“This is the first time your question has arisen, so I don't actually know the answer for certain. … Because it is impractical to seek out a legal opinion every time a question arises, we often make ad hoc decisions. I am confident that if a student were to contact us indicating that her/his thesis is copyrighted and available on line, and that large portions of a submitted paper are included in it, we would still consider the paper for archival publication in AST. …I believe full disclosure is critically important.” (Peter McMurry)
In submitting the manuscript, the authors certify that:

- They are authorized by their co-authors to enter into these arrangements.

- The work described has not been published before (except in the form of an abstract or proceedings-type publication – including discussion papers – or as part of a published lecture or thesis), that it is not under consideration for publication elsewhere, that its publication has been approved by all the author(s) and by the responsible authorities – tacitly or explicitly – of the institutes where the work has been carried out.

- They secure the right to reproduce any material that has already been published or copyrighted elsewhere.

- They agree to the following license and copyright agreement
Copyright

Prof. Michelle Wilde:
“..there is a question of copyright. Students have to complete a deposit agreement when they submit a thesis or dissertation that essentially gives the library permission to put a copy of the dissertation/thesis in the digital repository. However, students retain the copyright to their own work.

The ETD FAQ has a good explanation of this:

Why am I asked to complete a deposit agreement for the CSU Digital Repository during the ETD submission process?
All students submitting an ETD at Colorado State University are asked to read and complete a deposit agreement for the CSU Digital Repository. Basically, your agreement is a non-exclusive transfer of ownership of a single copy of your ETD to the CSU Libraries. It allows the Libraries to make your ETD available according to the release option you choose during ETD submission, and to make backup copies of your ETD or migrate it to future file formats as necessary for preservation purposes. Students retain the copyright to their own work.”
“The right to share with colleagues print or electronic ‘preprints’ (i.e., versions of the article created prior to peer review) of an unpublished Article, perhaps in the form and content as submitted for publication; always providing that the editorial policy of the journal concerned allows this within its policies on prior publication, the right to post such a 'preprint' on your own website, or on your institution's intranet, or within the Institutional Repository of your institution or company of employment, on the following condition, and with the following acknowledgement: This is a preprint of an article submitted for consideration in the [JOURNAL TITLE] © [year of publication] [copyright Taylor & Francis]; [JOURNAL TITLE} is available online at: www.tandfonline.com with the open URL of your article, which would be the following address;


Where the paper ISSN is in format of xxxx-xxxx. An example of this is: http://www.tandfonline.com/openurl?genre=article&issn=1470-1200&date=1999&volume=24&issue=3&spage=231;
Next Issue:
Publishing a Journal Article

Acknowledgments

Nearly all of the following slides are taken from an RCR lecture prepared by Dr. Ellen Fisher, with her permission (may not be reused without permission)
Graduate Student Concerns

- What does it take to get your name on a paper?
- Do you deserve to be the first author?
  - And what exactly does that mean?
- What kinds of publications can a student author?
- Can an undergraduate be a coauthor?
- Who owns the copyright for your work?
- What is self-plagiarism?
- How important is “Impact Factor”?
- Why do people talk about “MPU’s” (minimal publishable units)?
A disclaimer...

- Publication practices vary according to discipline
  - Can even be different between sub-disciplines

- Your mentor/advisor/PI should be your first source of information. Your committee can also advise you.
The Importance of Publishing

- Researchers have a responsibility to publish.
- Scientific literature is not a description of all one’s research activities; just those that tell a publishable story.
- Publications are the currency for academic success.
- Rules of authorship are not black and white.
- Students must learn the rules for any given lab/setting!
Ethical Issues in Publishing

- Other (reviewer bias, submission irregularities)
- Conflicts of Interest
- Plagiarism
- Data Fabrication
- Human Welfare Concerns
- Duplicate Publications
- Authors Disputes
- Redundant Publications
- Animal Welfare Concerns


Advances in Physiology Education

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Choosing a Journal
Impact Factor of Journals

- “A measure reflecting the average number of citations to articles published in science and social science journals” (Wikipedia)
  - The number of articles published that year by the journal
  - The number of times the articles were cited by other articles
  - The ratio of the number of citations to the previous 2 years of the journal/ the number of articles in those years

- CSU Libraries is the place to go to learn more
  - Web of Science
    - Journal Citation Reports Cited Reference Search

- Really varies dramatically by field!
What’s the JIF for *Nature*?

![Impact Factor Trend Graph: NATURE](image-url)

*Impact Factor -- see below for calculations*

The journal impact factor is a measure of the frequency with which the "average article" in a journal has been cited in a particular year. The impact factor will help compare it to others in the same field. For more bibliometric data and information on this and other journal titles click on the "Return to Journal" button.

NOTE: Title changes and coverage changes may result in no impact factor for one or more years in the above graph.

**2009 Impact Factor**

Cites in 2009 to articles published in: 2008 = 28896  
Number of articles published in: 2008 = 899  
2007 = 31100  
2007 = 841  
Sum: 59996  
Sum: 1740  
Calculation: Cites to recent articles = 59996  
Number of recent articles = 1740  

Impact Factors:

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**2008 Impact Factor**

Cites in 2008 to articles published in: 2007 = 25365  
Number of articles published in: 2007 = 841  
2006 = 31311  
2006 = 962  
Sum: 56676  
Sum: 1803  
Calculation: Cites to recent articles = 56676  
Number of recent articles = 1803  

**2007 Impact Factor**
### Impact Factor: Some Journals in Atmospheric Sciences

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Impact Factor is Not Everything

- There are many objections to the system
  - High impact journals publish letters and opinions that are very controversial and thus get high citation rate
  - They publish “review” articles that are very different than primary research articles
  - Journals could tend to publish only in “hot new areas” instead of all disciplines if they are chasing impact factor

- There are other systems to rank journal impact
  - PageRank (the algorithm Google uses to rank websites)

- No matter how you rank the journal, the ultimate decider for many career advancement steps will be the number of articles you publish, their quality, and how they are cited.
MPU’s and Total Citations

- **Minimal Publishing Units**: the littlest amount of data that would allow paper to be published
- Differs for different journals: some very high impact journals have very low MPU requirements
  - Example: *Nature*
- A good CV may have a spectrum of different journals with different MPUs:
  - A few high impact
  - A few low impact (why is this important?)
  - The majority in good trade journals with >6 figures of data, that tell a complete story, and will be cited by most papers in the field as having made an important step forward.
Who is an Author?

- Look at the list of potential authors and you make the decision as to whether each individual deserves authorship.
Authorship

- Who should be listed as an author?
  - Lab chief
  - Thesis advisor
  - Technician
  - Postdoctoral Fellow
  - Graduate student
  - Undergraduate research assistant
  - Glassware washer
  - Departmental colleague
  - Colleague at another university
  - Graduate committee member
  - Friend and fellow graduate student
  - Staff scientist
When is authorship determined?

- Responsible authorship begins before writing a manuscript (or doing the research...)
  - Up front communication
- It includes a
  - Sound hypothesis, good scientific study design,
  - Prior approval by IRB/IACUC/IBC/RCO (if applicable)
- It requires an understanding, in advance, of what authorship expectations exist in that laboratory
- Authorship practices must conform to editorial rules

Resource: Information for Authors:
http://www.sciencemag.org/site/feature/contribinfo/index.xhtml
Authorship Rules

SUBMISSION REQUIREMENTS AND CONDITIONS OF ACCEPTANCE

Authorship All authors must agree to be so listed and must have seen and approved the manuscript, its content, and its submission to Science. Science will send an email to all authors to confirm receipt of each paper. Submission of a paper that has not been approved by all authors may result in immediate rejection without appeal. Any changes in authorship must be approved in writing by all the original authors. All authors of accepted manuscripts are required to **affirm and explain their contribution to the manuscript**, agree to the conditions of publication including the availability of data and materials, and declare any conflicts of interest. The senior author from each group is **required to have examined the raw data** their group has produced. Specific information will be sent to most authors at the time of manuscript revision.

Science 1 January 2010:
Vol. 327, no. 5961, p. 12
DOI: 10.1126/science.1185963

EDITORIAL

Promoting Scientific Standards
Bruce Alberts

Bruce Alberts is Editor-in-Chief of Science.

The scientific enterprise is built on a foundation of trust. As Kenneth Shine and I emphasized 15 years ago in this journal, if science is to flourish and attain its appropriate role in aiding human progress, "It is incumbent upon all of us in the scientific community to help provide a research environment that, through its adherence to high ethical standards and creative productivity, will attract and retain individuals of outstanding intellect and character to one of society’s most important professions."

Journals such as Science occupy a special place in the maintenance of scientific standards. As an influential gatekeeper to the peer-reviewed literature across the natural and social sciences, what Science decides to publish helps to define scientific excellence for scientists. And with remarkable frequency, the broader media uses our selections to decide which scientific advances to convey to
Example from *PNAS* article:

**Predicting global atmospheric ice nuclei distributions and their impacts on climate**

P. J. DeMott\textsuperscript{a,1}, A. J. Prenni\textsuperscript{a}, X. Liu\textsuperscript{b}, S. M. Kreidenweis\textsuperscript{a}, M. D. Petters\textsuperscript{a,c}, C. H. Twohy\textsuperscript{d}, M. S. Richardson\textsuperscript{a,e}, T. Eidhammer\textsuperscript{a,f}, and D. C. Rogers\textsuperscript{g}

*PNAS* | June 22, 2010 | vol. 107 | no. 25 | 11217–11222

Definition of authorship in AGU Publications (as of May 2006)

“To protect the integrity of authorship, only individuals who have significantly contributed to the research and preparation of the article should be listed as authors. All of these coauthors share responsibility for submitted articles. While not all coauthors may be familiar with all aspects of the research presented in their article, each should have in place an appropriate process for reviewing the accuracy of the reported results. A deceased person who met the criteria described here may be designated as an author. The corresponding author accepts the responsibility of having included as authors all persons who meet these criteria for authorship and none who do not. Other contributors who do not meet the authorship criteria should be appropriately acknowledged in the article. The corresponding author also attests that all living coauthors have seen the final version of the article, agree with the major conclusions, and have agreed to its submission for publication.”
“Rules” on Authorship

- What are the criteria for authorship?
  - Varies (widely) from field to field
  - Social sciences vs. physical sciences (Subfields also differ)

- General guidelines
  - A significant intellectual contribution to the research AND
  - An ability to describe and defend the content of the paper at some reasonable level

- Excludes
  - Honorary authorship
  - Authorship by someone who simply provides a chemical or runs an assay

- Acknowledgments vs. authorship
Who Gets to be **First** and Why?

- Many fields
  - Earlier a name appears, greater implied contribution
- Conventions differ greatly among disciplines and groups
  - Greatest name recognition listed first
    - Sometimes seen in synthetic organic chemistry
  - Research leader's name is always last
    - Physical chemistry
  - Supervisors' names rarely appear on papers
    - Some medical/biochemical research,
    - Some social sciences (anthropology)
  - Professor's name **always** appears on papers coming out of the lab
    - Most chemistry research, often in experimental (cognitive) psychology
  - Authors listed alphabetically
    - High energy physics/genomics
    - Cantor's dilemma (Carl Djerassi)
Peer Review

- The concept of peer review based upon the idea that, because of specialization, peers with similar expertise are often the best judges of the quality of work.
- Peers can assess originality, methodology and context.
- Peers can spot inconsistencies and often improve data presentation and interpretation.
- Peers are the most likely to plagiarize.
Peer Review Process

- A submitted manuscript is seen by a senior editor and assigned to a managing (or associate) editor.
  - Triage – first pass on decision regarding appropriateness
  - Choice often based on field/subfield; sometimes not

- Managing editor
  - Assigns 2-3 external peer reviewers, anonymous to author

- Reviewers submit a written document that addresses originality, research design, interpretation, suitability for journal and writing style, with recommendation
  - Accept as is
  - Accept with major/minor revisions
  - Reject
Peer Reviewer Responsibilities

- Respond within the allocated timeframe
- Be competent
- Be impartial
- Keep all information confidential
- Provide constructive criticism
- Be honest
- Write reviews as though your identity might be revealed
By the way …

“FYI, when articles are submitted to AST we first put them through a plagiarism checker. It does some magic to find strings of text in the paper that match strings of text in the ether. It is not unusual to find that papers include sections from the authors' work (conference abstracts, conference papers, authors' web site, etc). If this work has not previously been published in a journal, then I don't object. However, we occasionally find extended and unattributed excerpts from papers published by other authors. In that case we reject the paper.” –Peter McMurry
Potential Problems with Peer Review

- Bias (discipline, training, gender)
- Virtually impossible to reproduce data
- Dogma (new conclusions are risky)
- COI (financial and profession)
- Lack of expertise
- Mistakes can still happen
- Authors can always find another journal....
Summary

- You need to publish
  - Wisely and in good journals
  - Build a strong CV, with history of productivity
- If you like to write there are many possibilities
- If you are going to publish with others,
  - Get the details straight before writing the first draft
  - Be ready for the need to modify the agreement
- Understand the rules of the game
  - What’s SOP in your field
- Get help sooner versus later
Case Studies for Consideration
Vignette#1: The Grant Application

- Don is a first-year graduate student applying to the National Science Foundation for a pre-doctoral fellowship. His work in a lab where he did a rotation project was later carried on successfully by others, and it appears that a manuscript will be prepared for publication by the end of the summer. However, the fellowship application deadline is June 1, and Don decides it would be advantageous to list a publication as “submitted.” Without consulting the faculty member or other colleagues involved, Don makes up a title and author list for a “submitted” paper and cites it in his application.

- After the application has been mailed, a lab member sees it and goes to the faculty member to ask about the "submitted" manuscript. Don admits to fabricating the submission of the paper but explains his actions by saying that he thought the practice was not uncommon in science. The faculty members in Don's department demand that he withdraw his grant application and dismiss him from the graduate program.

The Grant Application (con’t)

- After leaving the university, Don applies for a master's degree, since he has fulfilled the course requirements. Although the department votes not to grant him a degree, the university administration does so because it is not stated in the university graduate bulletin that a student in Don's department must be in "good standing" to receive a degree. They fear that Don will bring suit against the university if the degree is denied. Likewise, nothing will appear in Don's university transcript regarding his dismissal.

- Do you agree with Don that scientists often exaggerate the publication status of their work in written materials?
- Do you think the department acted too harshly in dismissing Don from the graduate program?
- Do you believe that being in “good standing” should be a prerequisite for obtaining an advanced degree in science? If Don later applied to a graduate program at another institution, does that institution have the right to know what happened?

Dr. Ishil Ghandi is a visiting postdoctoral researcher in the laboratory of Prof. Anna Meinhold. Dr. Ghandi is interested in gaining experience in Prof. Meinhold’s laboratory so that she can return to her home institution and hopefully acquire a permanent position there. She is very interested in publishing several papers so as to increase her chances of landing a position. She completes a portion of one project, writes up a manuscript with two figures containing rudimentary statistical analysis of her results and demands that it be sent to *Nature*, a journal with a very high IF. Prof. Meinhold is reluctant to submit this work to *Nature* because she feels it has little chance of being accepted as it is perhaps not the best venue for the work. Meinhold suggests additional data and an alternate journal with a lower IF. This option visibly agitates Dr. Ghandi.

- What are Dr. Meinhard’s options? Dr. Ghandi’s?
- Does attempting to publish in a higher IF journal present an ethical problem?
- Should impact factor be a deciding element in where one publishes? Are there extenuating circumstances?
- How does “MPU” factor into the decision?
- How would you resolve this issue?
Case Study: Reviewer Responsibilities

- Dr. Gomez is reviewing a paper for an American psychology journal. As he reads the paper, it begins to seem very familiar. He looks in his files and finds a recent article by the same authors published in a conference proceedings in a supplement to a European Journal (published in Spanish). This published article is virtually identical to the review. The same data are presented in the figures and tables, the same conclusions are drawn, and even the wording of the text is virtually identical in the two papers.

- What should Dr. Gomez do?
- Were the authors wrong to attempt to republish their data in a more widely read medium (in English)?
- What are the responsibilities of the reviewer? Of the editor?
- How does one handle appropriately a situation which could well develop into an allegation of scientific misconduct?

Adapted from: http://ori.dhhs.gov/education/products/yale/