

# UW Biomedical Research Integrity Program (BRI)

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# Discussion Groups

Revised schedule for topics

You are still in the group dates/times for which you registered

You are now registered to Lecture 2

You will need to re-register for Lecture 3

Discussion groups for 2018 linked with:

- o Lecture 1 (authorship),
- o Lecture 2 (misconduct)
- o Lecture 4 (data)
- o Lectures 3 and 5 will not have discussion groups

**Attend when you have signed up!**

Gift card drawing for **in-person** attendees  
who complete online evaluations



The Winner from the Authorship Panel is....  
**Tigran Avoundjian**

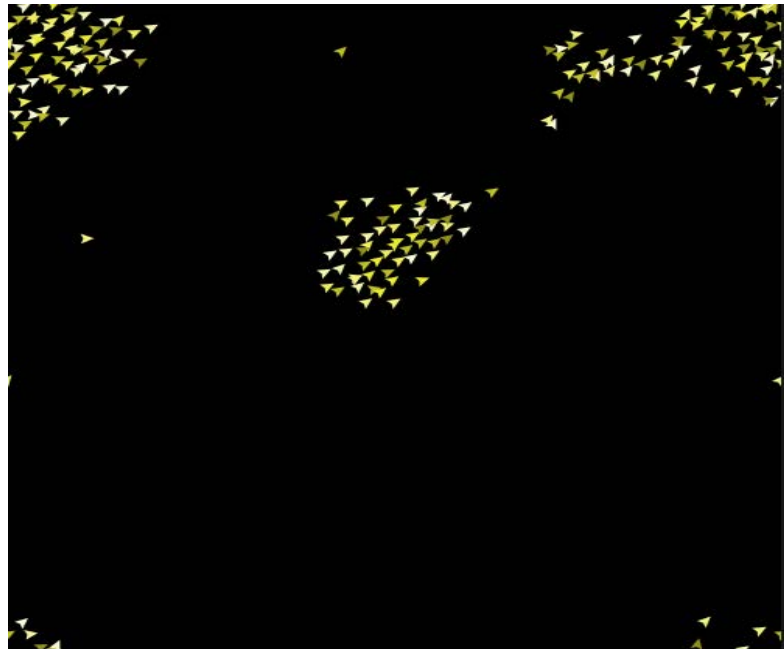
“We create culture in our moment by moment interactions with one another.”

- Teresa Posakony, Emergent Wisdom



“The most egregious thing we are taught is that we should just be really good at what’s already possible, to leave the impossible alone.”

- adrienne maree brown, Emergent Strategy



# Guest Speaker: Brian C. Martinson, PhD

- Director of Scientific Initiatives, Health Partners Institute, MN
- Research Scientist at Minneapolis VA
- PhD Sociology, Demography from UWisconsin-Madison
- Lead author on groundbreaking papers in research integrity.
- National Academies of Sciences panel (2012-2017) on *Fostering Integrity in Research*.



# Integrity of Science Requires Integrity of All:

Individual, Institutional, and Systemic Factors

Brian C. Martinson, PhD

Lecture for University of Washington and Fred Hutchinson Cancer Research Center – 2018 biomedical research integrity program, July 27, 2018

# Some learning objectives...

- ▶ Participants will come to understand that research integrity **MUST** be about more than just avoiding research misconduct or mistreatment of research subjects
- ▶ Participants will gain insight into why research integrity **MUST** include consideration of not only the individual researcher, but **ALSO** the working environment in which researchers perform their work



# What is Research Integrity?

“...upholding standards in research refers to the application of particular ethical (and personal) values. Values that cannot, and should not, be separated from the research enterprise. Taken collectively, these core values encompass the concept of research integrity...”

(Source: Irish Council for Bioethics. Rapporteur Group. Recommendations for Promoting Research Integrity. Dublin, Ireland: The Irish Council for Bioethics; 2010)

# What are these core values?

- ▶ Objectivity
  - (1) pose refutable hypotheses, (2) test the hypotheses with the relevant evidence, and (3) state the results clearly and unambiguously – Popper, 1999
- ▶ Honesty
- ▶ Openness
  - being transparent and presenting all the information relevant to a decision or conclusion

(NASEM Report, *Fostering Integrity in Research*, April 2017)

# What are these core values?

## ▶ Accountability

- members of the community are responsible for and stand behind their work, statements, actions, and roles in the conduct of their work

## ▶ Fairness

- making professional judgments based on appropriate and announced criteria, including processes used to determine outcomes

## ▶ Stewardship

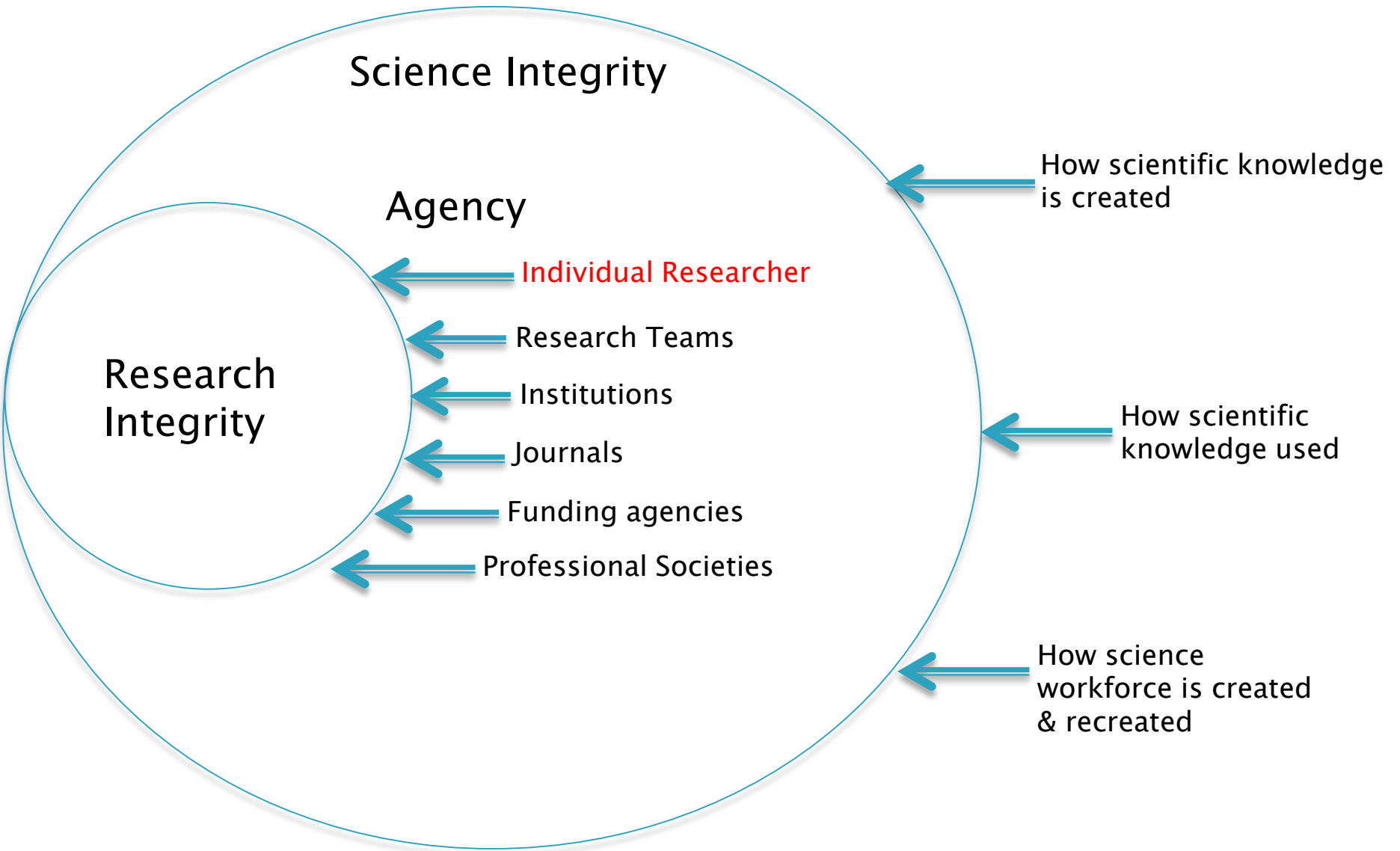
- being aware of and attending carefully to the dynamics of the relationships within the lab, at the institutional level, and at the broad level of the research enterprise itself

(NASEM Report, *Fostering Integrity in Research*, April 2017)

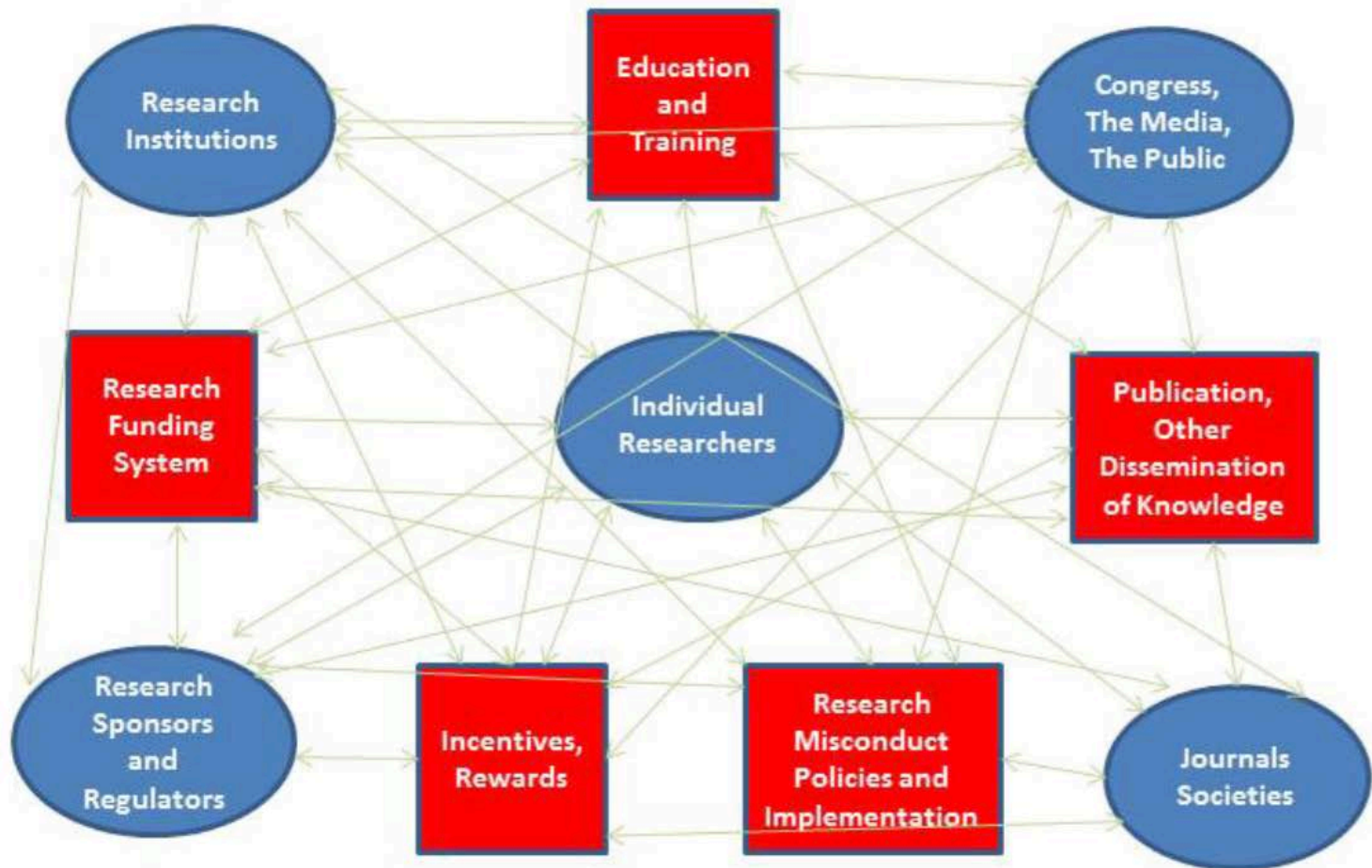
# Why is this important?

- ▶ ...research ethics is intended to include nothing less than the fostering of research that protects the interests of the public, the subjects of research, and the researchers themselves.

©1999–2016 Resources for Research Ethics Education – Research Ethics Program, UC San Diego – <http://research-ethics.net/introduction/what/#research-ethics>



(Shaw, D., 2018, The Quest for Clarity in Research Integrity: A Conceptual Schema, Science & Engineering Ethics, Published online March 28)



Research Enterprise Participants and Stakeholders



Research Enterprise Systems and Processes

(NASEM Report, *Fostering Integrity in Research*, April 2017)

# What do we mean when we say the words “research integrity?”

- ▶ More than simply compliance with regulations
- ▶ “norms for conduct that distinguish between acceptable and unacceptable behavior.” (Resnick, 2015, “What is Ethics in Research & Why is it Important?” NIEHS website)
- ▶ Ethical behavior in planning, conducting, reporting and reviewing science research
  - AND: in the funding, publication of, and eventual USE of science research
- ▶ Certainly includes necessary protections of human and animal subjects in research
- ▶ Responsible conduct by ALL parties involved in ALL aspects of research

# What do we mean when we say the words “Responsible Conduct of Research?”

## Research Misconduct (according to U.S. gov)

- ▶ “...is defined as fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.” (FFP for short)
- ▶ U.S. Federal Register on December 6, 2000: <http://ori.hhs.gov/federal-research-misconduct-policy>

## Responsible Conduct of Research (RCR)

- broadly defined as **the thoughtful and honest adherence to ethical, scientific, scholarly, and financial standards of conduct** in the promotion, design, conduct, evaluation reporting and reviewing of research.
- <http://grad.msu.edu/ric/>

**Ethical treatment of humans and animals as subjects of research?!**



# RCR/Ethics Education?

- ▶ Question: Have you had some type(s) of formal “ethics” training here at your institution?
- ▶ If so, what form(s) has it taken?
- ▶ What types of content was covered?
  
- ▶ Most universities use the CITI online training programs – primarily aimed at human subjects protections
- ▶ Sometimes supplemented with written publication “On Being a Scientist”

# Why do we need to have this discussion?!

- ▶ A premise of ignorance
- ▶ Misbehavior of scientists is grounded, in part, in ignorance of what constitutes proper, acceptable, normative behavior
  - “Not all faculty, and certainly not all students, arrive in the laboratory fully informed about the norms of science, the ethical requirements of research, or the policies and regulations that govern research...” (Paul Tate, from the website of the Council of Graduate Schools)

# A premise of intentional deceit

## Taiwan Defense Minister Resigns Amid Plagiarism Allegations

Posted by *Jonathan Bailey* on Aug 9, 2013 2:35:00 PM



In Taiwan this week, Defense Minister Andrew Yang *resigned from his post after allegations of plagiarism began to surface.*

According to reports, an article published under Yang's name in 2007 contained plagiarized material. However, according to Yang, the article was written by a friend who agreed to write the piece.

Yang apologized for the scandal and admitted his issues saying, "This is my personal mistake."



EDUCATION NOVEMBER 9, 2013 11:11 PM

## US says Anil Potti, former Duke doctor, falsified research

**HIGHLIGHTS**  
Federal government report finds 'research misconduct'  
Potti must have supervision in research for five years  
Patient calls sanction 'a tap on the wrist'



Dr. Anil Potti was a cancer researcher at Duke University. DUKE PHOTOGRAPHY - Duke

## Peer Review Scandal Takes Down Taiwanese Minister

By Yu-Tzu Chiu  
Posted 16 Jul 2014 | 18:05 GMT



Defense Minister Wei-ling Chiang resigned this week amid a publishing scandal involving a peer review ring involving a Taiwanese researcher.

# Academic Scandal Shakes Japan

By DAVID MCNEILL | THE CHRONICLE OF HIGHER EDUCATION JULY 6, 2014



Haruko Obokata, a researcher at the Riken Center for Developmental Biology, at a news conference in Osaka, Japan, in April. After having two articles published in the journal *Nature*, she was accused by an investigative panel at Riken of fabricating data and of plagiarism.

Credit Kimimasa Mayama/ European Pressphoto Agency

Published online 1 November 2011 | *Nature* 479, 15 (2011) | doi:10.1038/479015a  
Updated online: 1 November 2011  
Updated online: 8 December 2011

**News**

## Report finds massive fraud at Dutch universities

Investigation claims dozens of social-psychology papers contain faked data.

Ewen Callaway

When colleagues called the work of Dutch psychologist Diederik Stapel too good to be true, they meant it as a compliment. But a preliminary investigative report ([go.nature.com/tqmp5c](http://go.nature.com/tqmp5c)) released on 31 October gives literal meaning to the phrase, detailing years of data manipulation and blatant fabrication by the prominent Tilburg University researcher.

"We have some 30 papers in peer-reviewed journals where we are actually sure that they are fake, and there are more to come," says Pim Levelt, chair of the committee that investigated Stapel's work at the university.



Dutch psychologist Diederik Stapel.

*Persbureau van Eindhoven*

# What motivates misbehaviors?

- ▶ Depends on which behavior
- ▶ Ignorance may play a role in some
- ▶ Individual defects in moral reasoning or character – ethical decision making
- ▶ Avarice (greed) is the most usual suspect
- ▶ What else?
- ▶ Frustration of career ambitions?
- ▶ Perceptions of injustice in science?
- ▶ Problematic local environments?

## COMPETING INTERESTS

All of the authors have a financial interest in publishing this paper, insofar as this publication will make it more likely that they will keep their jobs, find new and higher-paying jobs, and be awarded research grants. Readers should consider that at many journals, and especially at high-impact journals such as this one, it is difficult or impossible to publish a paper which contains negative, inconclusive, or 'confusing' findings, while in there is no prejudice against findings which fail to replicate. This journal has a financial interest in publishing papers which attract citations, whether these citations be approving or critical ones.



**Neuroskeptic** @Neuro\_Skeptic · Jan 16

Imagine if papers came with truly honest disclosure statements.

↩ 12

↻ 795

❤ 920



# Research Integrity ≠ Absence of FFP

- ▶ Empirical research – primarily among biomedical researchers
  - ▶ Has documented high levels of undesirable research related behaviors<sup>(1-3)</sup>
  - ▶ Misconduct (FFP): 1% to 8%
  - ▶ Misappropriation: 10% – 25%
  - ▶ Circumventing federal regulations: 14%–18%
- 
- ▶ 1. B. C. Martinson, M. S. Anderson, R. De Vries, Scientists behaving badly, *Nature* 435, 737–8 (2005)
  - ▶ 2. B. C. Martinson, A. L. Crain, R. De Vries, M. S. Anderson, The Importance of Organizational Justice in Ensuring Research Integrity, *Journal of Empirical Research on Human Research Ethics* 5, 67–83 (2010)
  - ▶ 3. A. L. Crain, B. C. Martinson, C. R. Thrush, Relationships Between the Survey of Organizational Research Climate (SORC) and Self-Reported Research Practices, *Journal of Science and Engineering Ethics*, (online first, November 2012).

# Much Misbehavior ≠ Intentional Deceit OR Ignorance!

- ▶ “Neglect” was defined as having engaged in 1 or more of the following in the prior 3 yrs:
  - Inadequate record keeping related to research
  - Inadequate monitoring of research projects
  - Cutting corners in a hurry to complete a project
  - Circumventing or ignoring aspects of materials–handling research requirements
- ▶ 46.7% endorsed one of more of these items
- ▶ Of those admitting to any of these – more than half admitted to at least 2 of the 4, and nearly a quarter admitted to 3 of the 4.

(Crain, A. Lauren, Brian C. Martinson, and Carol R. Thrush. 2013. “Relationships Between the Survey of Organizational Research Climate (SORC) and Self-Reported Research Practices.” *Science and Engineering Ethics* 19 (3): 835–50)



# Sexual Harassment & Assault

## AGU Scientific Integrity and Professional Ethics

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### I. EXECUTIVE SUMMARY<sup>1</sup>

The purpose of the American Geophysical Union is to promote discovery in Earth and space science for the benefit of humanity. Scientific integrity and ethics are fundamental to scientific advancement and science cannot flourish without the respectful and equitable treatment of all those engaged in the scientific community. The AGU Scientific Integrity and Professional Ethics Policy is a set of principles and practices for professional behavior regarding the practice, learning, training, publishing, and communication of science which governs all AGU members, staff, volunteers, and non-members participating in AGU sponsored programs and activities. **The Policy has been revised to include a new code of conduct that broadens the definition of professional misconduct to include discrimination, sexual harassment, and bullying.** The revised Policy identifies standards for professional behavior and outlines processes for reporting and addressing violations.

<https://ethics.agu.org/files/2013/03/Scientific-Integrity-and-Professional-Ethics.pdf>

# Sexual Harassment & Assault

UW Medicine

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## Policy on Professional Conduct

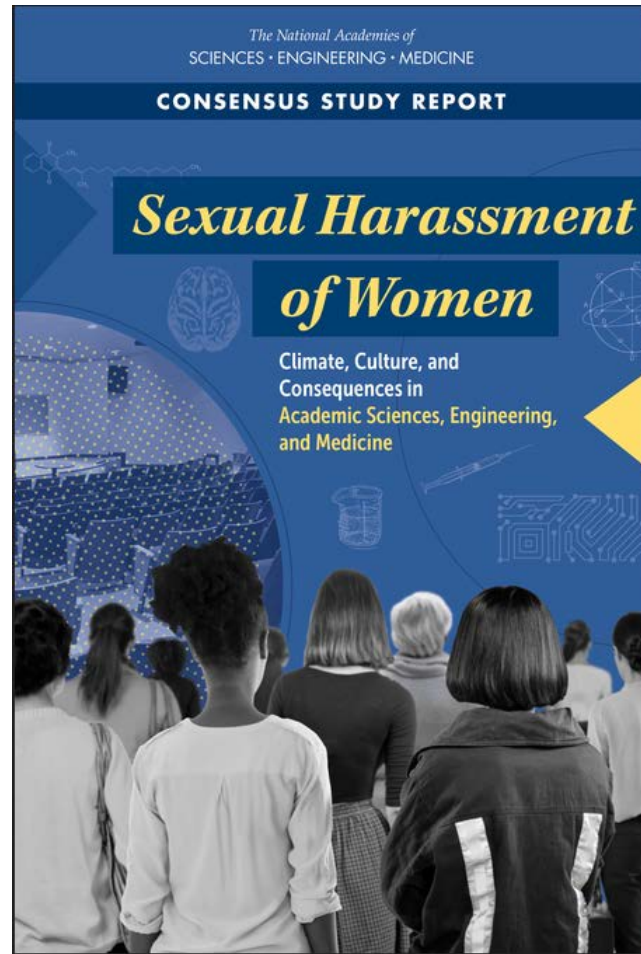
Questions, suggestions, and concerns regarding this policy are welcomed, and should be directed to the UW Medicine Continuous Professionalism Improvement Committee ([blackley@uw.edu](mailto:blackley@uw.edu)).

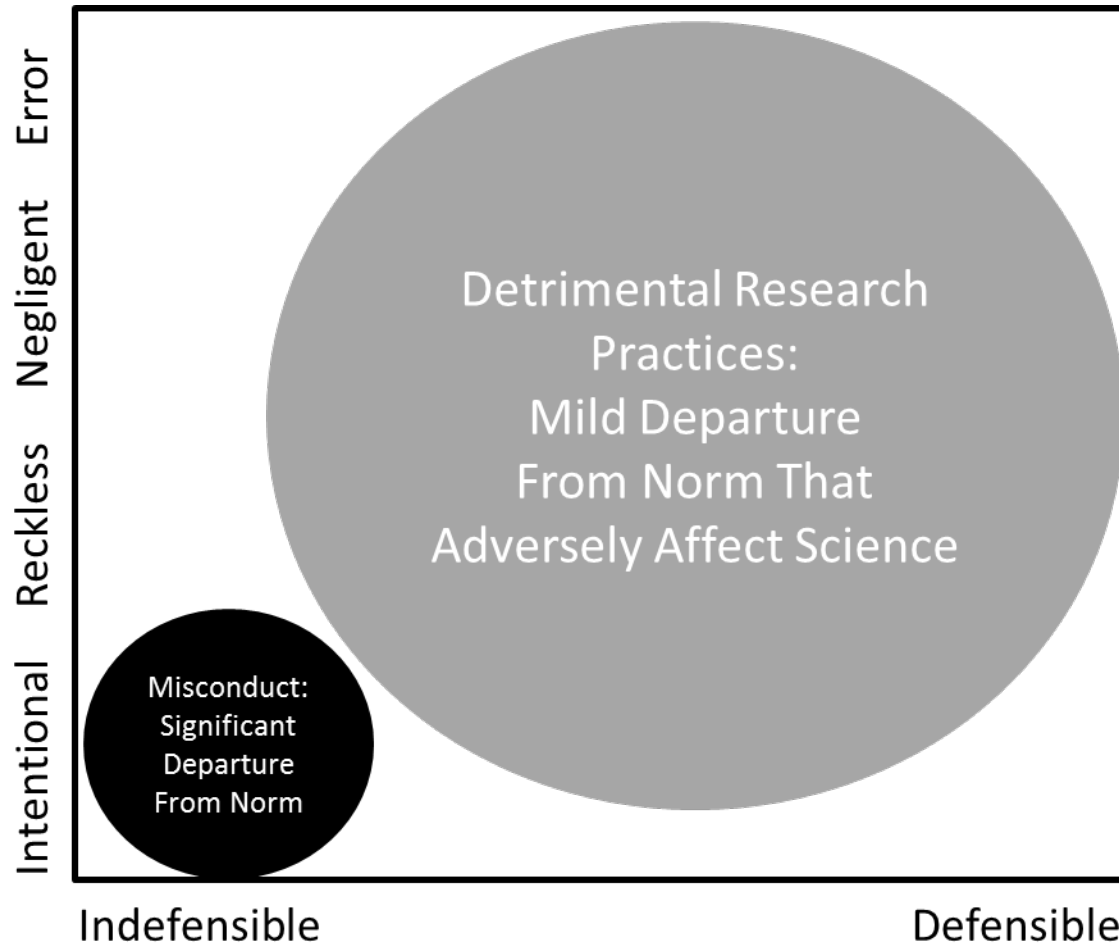
### Policy

*Unprofessional behavior* means behavior that violates laws or rules regarding **discrimination and harassment**, violates rules of professional ethics (including professionalism in clinical, educational, research or business practices), or is **disrespectful, demeaning, retaliatory, or disruptive**. Bullying is unprofessional **behavior that misuses power to control or harm others**.

<https://www.uwmedicine.org/about/policies/professional-conduct>

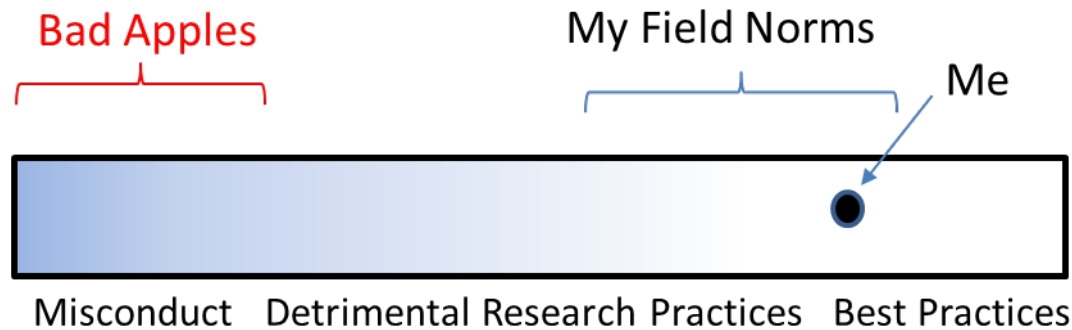
# Sexual Harassment & Assault





(Slide credit: Sara E. Wilson, University of Kansas)

# Rather than Binary... a continuum



- Forces opposing moving towards best practices:
- ▶ Lack of resources (money, time, institutional support)
  - ▶ Expectations (publish and procure (\$) or perish) and institutional environment
  - ▶ Lack of knowledge, education, skills

(Slide credit: Sara E. Wilson, University of Kansas)

# On the folly of hoping for “A” while rewarding “B” – Steven Kerr, 1995, Acad Mgmt Exec.

- ▶ As noted by Mary Devereaux:
  - “The predicament facing [ethics in the responsible conduct of research] is rather that we have failed to address the gap between the normative ideals of science and science’s institutional reward system.” (p. 167)
  - “The real threat to ethical conduct in science lies here—in the tension between the existing reward systems and the norms of science. (p. 168)

(Devereaux, M.L., 2014, Rethinking the Meaning of Ethics in RCR Education, *J Microbiol Biol Educ*, 15(2):165–8.)

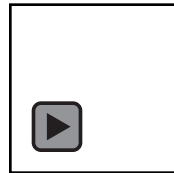
# On the folly of hoping for “A” while rewarding “B”

“A”	“B”
Collaboration & openness	Competition & “getting there first”
Objectivity of double-blind research	Peer review processes open to effects of reputation & established professional relationships
Open competition & meritocracy	Scientists typically not taught how to manage their own biases
Calls for increased entry & retention of women and underrepresented minorities in STEM fields	Assumptions about gender, ethnicity & race go unexamined

(Devereaux, M.L., 2014, Rethinking the Meaning of Ethics in RCR Education, *J Microbiol Biol Educ*, 15(2):165–8.)

# Toxic Environments

- ▶ NPR, All Things Considered, Richard Harris – April 14, 2017 – [“How A Budget Squeeze Can Lead To Sloppy Science And Even Cheating”](#)





# Evolving Thought...

# Evolving Evidence



# So, let's look upstream...

- ▶ Three “narratives” concerning undesirable behavior in science
- ▶ Individual impurity – “bad apples”
- ▶ Institutional issues threaten integrity
- ▶ Systemic issues threaten integrity

(B. Sovacool, Exploring Scientific Misconduct: Isolated Individuals, Impure Institutions, or an Inevitable Idiom of Modern Science?, *Journal of Bioethical Inquiry* 5, 271–282 (2008).)

# Bad Apples Narrative

- ▶ Explainable with a simple narrative of individual defect (greed, psychopathology, miscreants)
- ▶ Referencing rare “bad apple” scientists
- ▶ Fraud will ultimately always be rooted out because of the “self-correcting” nature of science itself
- ▶ “...the existing self-regulatory system in science is sound.” (p. 7)
  - *Responsible Science, Volume I: Ensuring the Integrity of the Research Process* (National Academy of Sciences, 1992)

# Rising tide of retractions...

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International weekly journal of science

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Proceedings of the National Academy of Sciences of the United States of America

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## Misconduct accounts for the majority of retracted scientific publications

Ferric C. Fang<sup>a,b,1</sup>, R. Grant Steen<sup>c,1</sup>, and Arturo Casadevall<sup>d,1,2</sup>

[+ Author Affiliations](#)

Edited by Thomas Shenk, Princeton University, Princeton, NJ, and approved September 6, 2012 (received for review July 18, 2012)

### Abstract

A detailed review of all 2,047 biomedical and life-science research articles indexed by PubMed as retracted on May 3, 2012 revealed that only 21.3% of retractions were attributable to error. In contrast, 67.4% of retractions were attributable to misconduct, including fraud or suspected fraud (43.4%), duplicate publication (14.2%), and plagiarism (9.8%). Incomplete, uninformative or misleading retraction announcements have led to a previous underestimation of the role of fraud in the ongoing retraction epidemic. The percentage of scientific articles retracted because of fraud has increased ~10-fold since 1975. Retractions exhibit distinctive temporal and geographic patterns that may reveal underlying causes.

### This Article

Published online before print  
October 1, 2012, doi:  
10.1073/pnas.1212247109  
PNAS October 1, 2012

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### This Week's Issue

September 25, 2012, 109  
(39)



### From the Cover

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# Problems with reproducibility...

**nature** International weekly journal of science

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Archive > Volume 483 > Issue 7391 > Comment > Article

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## Drug development: Raise standards for preclinical cancer research

C. Glenn Begley & Lee M. Mucke

**The Economist** | World politics | Business & finance | Economics | Science & technology | Culture | Blogs

**Unreliable research**

## Trouble at the lab

*Nature* **483**, 531–533 (29 March 2013)  
Published online 28 March 2013

**Scientists like to think of science as self-correcting. To an alarming degree, it is not**

Oct 17th 2013, 15:02 | From the print edition

"I SEE a train wreck looming," warned Daniel Kahneman, an eminent psychologist, in an open letter last year. The premonition concerned research on a phenomenon known as "priming".

# Narrative of Systemic Issues

- ▶ Pair of editorials by Casadevall and Fang – March 2012 – *Infection and Immunity*
- ▶ Responding in part to the rising rate of journal article retractions and
- ▶ Two highly publicized reports of industry-based cancer scientists being unable to replicate the vast majority of findings from numerous “landmark” preclinical cancer studies
- ▶ Casadevall and Fang called for structural, cultural and methodological reforms – specifically, biomedical science in the U.S.

1. A. Casadevall, F. C. Fang, Reforming Science: Methodological and Cultural Reforms, *Infect. Immun.* **80**, 891–896 (2012).

2. F. C. Fang, A. Casadevall, Reforming Science: Structural Reforms, *Infect. Immun.* **80**, 897–901 (2012).


# Narrative of Systemic Issues

- ▶ Systemic problems identified include:
  - Workforce imbalance vs. available funding – “pyramid scheme structure”
  - Increasing prevalence of “targeted research funding” vs. investigator initiated
  - A leaky “pipeline” of next generation of scientists
  - “Priority rule” and “winner–take–all” competition
  - Problems with overly conservative grant peer review
  - “Incentives in the current system place scientists under tremendous stress, discourage cooperation, encourage poor scientific practices, and deter new talent from entering the field.” (p. 891)

# Narrative of Institutional Issues

- 2002 IOM report, *Integrity in Scientific Research: Creating an Environment That Promotes Responsible Conduct*
- Explicitly recognized the role of the local environment – the lab, the department, the university – in shaping the behavior of scientists
- Environments can foster or undermine the integrity of behavior
- Important! Because the local environment is something over which institutional leaders have some control!



- ▶ Quality control problems in science vs. fraud
  - ▶ For several decades at least, we have strongly emphasized legal and regulatory mechanisms to ensure the integrity of research
  - ▶ This is well suited for addressing fraud-like behaviors (FFP) but less well suited for addressing the broader range of detrimental behaviors that damage the integrity of science
  - ▶ Legal and regulatory mechanisms are but one end of a spectrum of social control
  - ▶ Quality control in science requires use of a broader range of social-control mechanisms
- 

# Summing Up...

- ▶ Misbehavior in science has typically been seen as a failing of the individual
- ▶ Scientists' don't behave in a void
- ▶ "...science is, indeed, a profoundly social activity." –Jeremy Berg, Science, July 8, 2016
- ▶ Influenced by the situational imperatives of their positions within the structures of the science enterprise
- ▶ Incentives and disincentives to quality research exist at both systemic and institutional levels
- ▶ Structural & Institutional reforms needed
- ▶ But tending to the gardens of our own institutions is both important and possible!

# Fin

Brian C. Martinson, Ph.D.

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# Credit for video lecture: Go to quiz link

2018 UW Biomedical Research Integrity series, Lecture #2

Speaker: Brian C Martinson, PhD

Friday, July 27, 2018, Hogness Auditorium, HSB

PHS topic: research misconduct

To obtain video viewing attendance credit:

<https://catalyst.uw.edu/webq/survey/uwbri/358904>

Video for educational purposes only.

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# A decision making exercise

Moss is a researcher in the laboratory of Dr. Abrams, a well-known researcher in the field of economics. Moss is trying to develop a model to predict performance of stocks in the technology sector, but she is having difficulty analyzing and selecting trends to include in the model. She enlists the help of Reynolds, another experienced researcher working on a similar topic. With Reynold's help, Moss eventually analyzes and identifies some key trends, working them into a testable model. She also discusses some of her other research ideas with Reynolds. Two weeks later, Moss comes across a grant proposal developed by Reynolds and Abrams. She sees that it includes ideas very similar to those she discussed with Reynolds. She takes the matter to Abrams, who declines to get involved, saying that the two researchers should work it out on their own.

From: Mumford MD, et al., Validation of Ethical Decision Making Measures: Evidence for a New Set of Measures. *Ethics & Behavior*. 2006;16(4):319-345

1. Reynolds admits to Abrams that he used slightly modified versions of Moss's ideas. Abrams is upset with this, but Reynolds is a key person on the proposal team and the grant application deadline is soon. What should Abrams do? Which two of the following would be the best responses?

- a. Fire Reynolds from the lab on the grounds of academic misconduct.
- b. Leave Reynolds as first author on the proposal because he wrote up the ideas.
- c. Remove Reynolds from the proposal team, and offer Moss the position if she allows her ideas to be used.
- d. Ask Moss to join the grant team, placing her as third author on the proposal if she allows her ideas to be used.
- e. Acknowledge Moss in the grant proposal because the ideas were hers originally.
- f. Apologize to Moss and indicate that the proposal must go out as is to meet the deadline.
- g. Remove Moss's ideas from the proposal and try to rework it before the deadline.



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2. Moss is upset about Reynolds using her ideas and she decides to do something about it. Given that Moss works very closely with Reynolds and their boss Abrams, evaluate the likely success of the following plans of actions Moss can take. Which *two of the following would be the best responses?*

- a. Moss asks Reynolds to give her credit by putting her name on the grant proposal as well.
- b. Moss asks Reynolds about the incident and tape records his reaction to later show Abrams.
- c. Moss searches for annotated notes about her ideas that are dated prior to her conversation with Reynolds.
- d. Moss appeals for a “mock trial” for Reynolds to testify under oath to his superiors that the information was his.
- e. Moss searches for Reynold’s lack of understanding of the concepts he claims were his own by questioning him in front of other students.
- f. Moss attempts to sway other researchers to support her to Abrams.
- g. Moss visits Reynolds’ office in hopes of finding evidence that she contributed to the proposal.
- h. Moss asks Reynolds to write an account of their conversation on the day in question and shows her comparison account to him as evidence that he is using her ideas.

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