

4-1-2000

Rightdoing and Misconduct in Research

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Recommended Citation

Ruffy, Rebeca and Kriesberg, Nell, "Rightdoing and Misconduct in Research" (2000). *Ethics in Science and Engineering National Clearinghouse*. 299.

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Rightdoing and Research presents the major issues concerning research integrity and misconduct; we intend this to be more of a reference handbook than the other modules in the series. Our faculty expert for this module is Becky Rufty, the Graduate School. Concepts of Rightdoing and integrity are discussed, and we expand the discussion with several key articles in the evolution of research ethics literature. Ethical concerns about ambiguity and trust are explored, as is the idea of micro and Macroethics. We focus on the resources at NC State University for promoting research integrity, as well as national guidelines. We present a Case Study from the Association for Practical and Professional Ethics. In the Study Question we focus on misconduct challenges. As usual, we close with a sampling of further resources.

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1) Introduction

“Rightdoing” as a reasonable possibility.

Over the last several years, questions have been raised about Robert Millikan’s Nobel Prize winning research. Apparently, Millikan failed to report every single drop recorded in his famous electron charge experiments. In his crucial work proving that the electron carried a fixed charge, he took the liberty of discarding those drops that “didn’t fit the pattern.” Was Millikan guilty of misconduct or brilliance? Did he see the underlying pattern--the expected shape--or did he nudge a bit?

Designing a good experiment is similar to composing a good sonata: the goal is to express something timeless. There is a saying in science that the true theory is the elegant theory. In doing research, whatever the discipline, the goal is similar: to end up with a crystal clear presentation that is truthful to the reality.

Nowadays, with large group collaborations and complex techniques available, an enormous background of knowledge to work from, and a multiplicity of rules to follow, it might seem that doing science is no longer about the seamless, elegant experiment done in the privacy of the laboratory. Likewise, we hear so much about misconduct that we seem to be surrounded by it. It is a challenge to step back and focus on Rightdoing. The negative does seem to rate a bigger press story, but is it the whole truth? Should we really be “disaster-driven?”

Michael Pritchard of Western Michigan University has coined the word “Rightdoing.” When he teaches classes in research ethics he emphasizes the ongoing, participatory nature of research collaboration. He believes that focusing on the exemplary, instead of the negative, will lead more naturally to integrity in research.

“For many, the idea of ethics education for engineering and science students is limited to concerns about wrongdoing, and seemingly insoluble dilemmas. These are important concerns; but, as I shall argue, they constitute only a small part of our broader ethical interest in *responsible* scientific and engineering practice. ...It is helpful to think of a spectrum of responsibility, ranging from the minimally acceptable to the exemplary. Engineering and scientific misconduct falls below the threshold of what is minimally acceptable...In addition to clearcut instances of wrongdoing (e.g. fabricating data), there are clearcut instances of ‘rightdoing’ as well.”

Michael S. Pritchard, “Teaching Ethics in Engineering and the Sciences: Accentuating the Positive.”

[The ten most important things to know about research ethics](#)

1. Be honest.
2. Be fair.
3. Do no harm.
4. Do good research.
5. Know and follow the rules.
6. Bad rules should be changed, not broken.
7. Be a good citizen.
8. When in doubt, ask questions.
9. Listen to the still, small voice of your conscience, especially when it is threatened to be overwhelmed by the loud, insistent voice of stress.
10. If you suspect unethical behavior, proceed cautiously.

Kenneth D. Pimple

Interestingly enough, the issue of research integrity has *itself* become the focus of research. Beginning in 2002, [The Office of Research Integrity \(ORI\) has sponsored a Research on Research Integrity program](#) as well as a bi-annual conference. In the last several years, not only has research into the components of research integrity expanded, but the field of integrity in research has increasingly taken in a variety of disciplines instead of being focused more narrowly on science and medicine.

On the ORI website you can view [Potential Research Topics](#) that range from questions about training, informal vs. formal practices, self-regulation and questions about factors in the research environment that promote Rightdoing vs. those that promote misconduct. Looking over their list, what do you think the ten most important questions are?

The idea of integrity

Integrity in research literally means reporting the whole experiment. We recall Jim Wilson's presentation of Richard Feynman's "Cargo Cult Science" and his exhortation "to not fool yourself." (See Module II, *Responsible Authorship and Peer Review*) If you think some of the data points are noise, report them anyway with a comment or footnote. Here we see the idea of Rightdoing as a "condition of wholeness."

Integrity- as per the [American Heritage Dictionary](#)

"Adherence to a code or standard of values"

"A condition of wholeness, completeness"

From the Latin:

"integritas" = "soundness"

If we change our focus from "avoiding misconduct" to "striving for the exemplary" we actually shift our psychological state. Thinking about what promotes moral conduct is more motivating (and perhaps inherently more interesting) than focusing on what we "should not do." You can see this at work in Ken Pimple's list on the previous page. Rather than: "do not be dishonest," he says: "be honest." This might seem an unimportant difference, but if we are thinking about the research endeavor as an ongoing social process, planning to aim for the right or good is more encouraging than planning to avoid the wrong or the bad. This idea of striving for integrity relates to Virtue Ethics, the idea that we are basing our actions on 1) working for balance and 2) striving for a virtuous character.

A second term used throughout this report, "integrity," is more difficult to define. Integrity is a measure of wholeness or completeness. When applied to professional behavior, it is essentially a measure of the degree to which someone's (or some institution's) actions accord with ideal or expected behavior. However, the ideals or expected behaviors for professional conduct are complex, not always well defined, and subject to change or reinterpretation. I have, therefore, adopted a fairly inclusive definition of integrity and assumed that it can be thought of as a measure of the degree to which researchers adhere to the rules or laws, regulations, guidelines, and commonly accepted professional codes and norms of their respective research areas.

Nick Steneck, [Assessing the Integrity of Publicly Funded Research](#), from the Proceedings of the First ORI Conference on Research on Research Integrity, 2002

2) Overview readings

Harold Hillman, in his article, [Honest Research](#), comments, "Academics have an extra responsibility because they are believed to be objective seekers after truth, not influenced by commercial motivation, self interest or ambition. In other words, they and the public both believe that academics have intellectual integrity and steps should be undertaken to ensure that this belief is correct."(p. 49)

Hillman emphasizes that honesty in research is throughout the *entire* endeavor, from the beginnings of the research protocol, including all the steps and supervisory tasks (as well as being supervised) along the way, right through the publication process.

"The task of a research worker is extremely difficult and complex. It is very stressful to maintain intellectual honesty as one proceeds with a research project although it can be an axiom that intellectual honesty will lead to important new discoveries. This would be much aided if logic were taught as an important subject in all academic syllabuses. Intellectual honesty and the exercise of logic should be regarded as necessary elements of professionalism in the pursuit of knowledge."

Hillman, Harold. "[Honest Research](#)," [Science and Engineering Ethics 1](#) (1995): 58.

In another well known article, important in the history of the development of research ethics as an area of study in applied ethics, Paul J. Friedman emphasizes those areas where we need to focus on as being particularly challenging in terms of Rightdoing.

Research Activities in which Practical Ethical Problems Arise (see article for complete chart)

- Data
- Recording and retaining experimental data
- Replication (avoid "cutting corners" or taking shortcuts)
- Selecting data for publication or presentation
- Analysis, including statistics
- Sharing of data and research materials
- Ownership of records and ideas
- Graduate and postdoctoral student rights
- Results
- Statistical analysis not done or reported
- Premature use in grants (unconfirmed or best results quoted)
- Anticipation of results in abstracts (reported experiments not completed)
- Exaggerating significance of results (public or scientific deception)
- Self-deception ("mythical thinking") about results or their significance

Friedman, Paul J. "[Introduction to Research Ethics](#)." [Science and Engineering Ethics 2.4](#) (1996): 456.

Misconduct is a deviation from integrity, or action that in some way compromises either honesty or soundness or established values or codes. In the box below are some definitions from [Responsible Science: Ensuring the Integrity of the Research Process](#), published by National Academy Press. We have included the “Executive Summary” as a reading for this section. This book sets forth the Standard Operating Procedures for research integrity. This is a book that expresses a national goal for our country’s research community.

Defining Terms—Articulating a Framework for Fostering Responsible Research Conduct

“The panel defined the term ‘integrity of the research process’ as the adherence by scientists and their institutions to honest and verifiable methods in proposing, performing, evaluating and reporting research activities...”

Misconduct in science is defined as fabrication, falsification, or plagiarism, in proposing, performing, or reporting research. Misconduct in science does not include errors of judgment; errors in the recording, selection, or analysis of data; differences in opinions involving the interpretation of data; or misconduct unrelated to the research process. Fabrication is making up data or results, falsification is changing data or results, and plagiarism is using the ideas or words of another person without giving appropriate credit...

Questionable research practices are actions that violate traditional values of the research enterprise and that may be detrimental to the research process. However, there is at present neither broad agreement as to the seriousness of these actions nor any consensus on standards for behavior in these matters.

Questionable research practices include activities such as the following:

- Failing to retain significant research data for a reasonable period;
- Maintaining inadequate research records, especially for results that are published or relied upon by others;
- Conferring or requesting authorship on the basis of a specialized service or contribution that is not significantly related to the research reported in the paper;
- Refusing to give peers reasonable access to unique research materials or data that support published papers;
- Using inappropriate statistical or other methods of measurement to enhance the significance of research findings;
- Inadequately supervising research subordinates or exploiting them; and
- Misrepresenting speculations as fact or releasing preliminary research results, especially in the public media, without providing sufficient data to allow peers to judge the validity of the results or to reproduce the experiments.

[Responsible Science: Ensuring the Integrity of the Research Process, Volume 1](#)
Washington, DC: National Academy Press, 1992. 4-6,

Research climate and the idea of integrity continued

As part of the Research on Research Integrity project, the Institute of Medicine (IOM) and the National Research Council (NRC) put together another online book published by The National Academies Press with the goal of addressing the topic of climate. Many of the people working on this text are well known in the research ethics community and this book created a great deal of discussion when it was published.

The relevance of integrity to Virtue Ethics is seen in the quote at the informational page for this book: "Many people say that it is the intellect which makes a great scientist. They are wrong: it is character." -- Albert Einstein

The concept of integrity in research cannot, however, be reduced to a one-line definition. For a scientist, integrity embodies above all the individual's commitment to intellectual honesty and personal responsibility. For an institution, it is a commitment to creating an environment that promotes responsible conduct by embracing standards of excellence, trustworthiness and lawfulness and then assessing whether researchers and administrators perceive that an environment with high levels of integrity has been created. (Executive Summary, [Integrity in Scientific Research: Creating an Environment That Promotes Responsible Conduct](#), p. 4)

One of the points emphasized in this book is how openness on all levels promotes a climate of integrity: this relates back actually to the idea that good research is *transparent*. The authors depict an "open-systems model" of the institution as the organization to strive for. (The image here is from p. 7 of the [Executive Summary](#)) This relates back to Michael Pritchard's point earlier: that the research community is about activity, it is a process. How does your research department or group reflect, or not reflect this dynamic model? What are your institution's strong and weak points? What do you think needs changing?

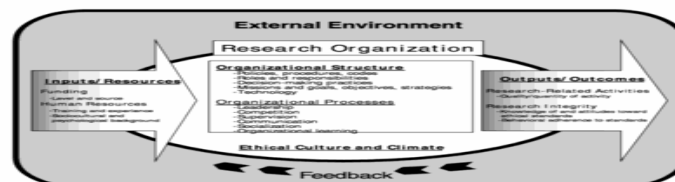


FIGURE 1 Open-systems model of the research organization. This model depicts the internal environmental elements of a research organization (white oval), showing the relationships among the inputs that provide resources for organizational functions, the structures and processes that define an organization's operation, and the outputs and outcomes of an organization's activities that are carried out by individual scientists, research groups or teams, and other research-related programs. All of these elements function within the context of an organization's culture and climate. The internal environment is affected by the external environment (shaded area; see Figure 2 for further detail). The system is dynamic, and, as indicated by the feedback arrow, outputs and outcomes affect future inputs and resources.

3) Applied Ethics: Trust and The Ambiguity of Research, Trust and Micro and Macroethics.

We see that the official definitions of misconduct distinguish between “honest error or honest differences in interpretations or judgments of data.” (The Federal Register, 54:32446-32451, August 8, 1989) Scientific research is not a linear process with clearly demarcated stepping-stones; getting your feet wet often means muddy, unclear water. Because of the inherent ambiguity and creativity that goes into research in any discipline, trustworthiness is key for everyone involved at every step of the process. Not only must colleagues trust each other, the public must trust the researchers.

Frederick Grinnell notes that given the necessary ambiguity in research, trust is at the center of the research endeavor. Grinnell discusses the inherent challenge of distinguishing creativity and insight from fabrication—in this case, not falsely representing data, but subtly shaping it. Frontier research necessarily brings with it a certain level of uncertainty; it is work in progress, and therefore is not yet in a proven state. Continually, researchers have to use their experience, judgment and insight to separate out data from noise. Thinking back to Friedman’s list of research activities that are particularly challenging, we recall that he mentions “anticipation of results” and “self-deception about results” as two particularly sensitive areas.

“Promoting responsible conduct of science requires a clear description of what doing science entails. Science is traditionally presented as a linear methodological process carried out by objective observers, a view that fails to adequately take into consideration the ambiguity inherent in carrying out and reporting research and the intellectual commitments of investigators necessary for carrying out these activities. The presence of ambiguity has confounded attempts to reach consensus on how to define misconduct in science.”

Grinnell, Frederick. “[Ambiguity, Trust and the Responsible Conduct of Research.](#)” Science and Engineering Ethics, 5 (1999): 211.

Thought Question:

Think about a recent project you worked on—was it a simple linear process? How did you plan out your research project? Were the goals specifically articulated or was the work more open ended? Who decided what data was “good” and what data was “noise”?

The idea of micro and macroethics

Along with the themes of integrity and Rightdoing, another set of ideas has increasingly come under discussion in research ethics, that of the distinction between micro and Macroethics. Microethics refer to those activities that occur between individuals, and this has historically been a major focus in ethics training. Macroethics refers to activities that involve larger group and societal interactions. Given the increasingly complex role of research in our society, it makes sense to enlarge our exploration of research integrity to take in macroethics.

As an example, suppose we are working on a project measuring changing acidity levels in a series of lakes. The objective reporting of data to a research supervisor would be an example of Microethics. But when we begin to consider the larger responsibilities of the research group to scientific knowledge, to the industries located near the lakes and to the public, this is Macroethics.

This idea of a dual level of ethical concern is an expansion on the idea of integrity: but we can see how Virtue Ethics continues to be part of the picture. In addition, the Kantian approach of fulfilling obligations applies, as does the Utilitarian stance of looking at the consequences as our means for defining "right action." Increasingly, researchers are thinking about the macro ethics aspect of integrity in their work. Interestingly enough, this again brings up the issue of ambiguity: using the above example of the research into acidity levels, can we be 100% sure of the exact role of industrial waste in the changing acidity of a lake system? And this brings up as well another critical issue in research: should we publish our results before we are 100% certain of the whole picture? What is Rightdoing here?

In a provocative article, Brad Allenby, discusses the challenge of adjusting our ideas about individual responsibility and integrity if we are to adequately include macro ethical issues. Macro ethics usually involves complex systems—the internet and the environment are two that Allenby mentions. How are we to think about personal integrity in this larger context?

"In short, Macroethics is the study of ethical systems appropriate to complex adaptive systems, in particular, those global integrated human/natural systems that are characteristic of the anthropogenic Earth. This is the 'macroethical gap,' for how to formulate ethical structures adequate for such challenges has yet to be effectively addressed...Thus the choice of the process by which the individual becomes engaged in dialogue with the system...is what becomes ethically critical...Free will and ethical responsibility in complex systems such as the Everglades thus becomes less of a point function, and more of a networked function spread over multiple spatial and temporal scales. Just as quantum mechanics did not obsolete Newtonian physics, but relegated it to a limited space (e.g. interaction of macro bodies), the traditional concept of free will is thus not obsolete, but is a bounded part of a much more complex, systems-based phenomenon."

Allenby, Brad. [Micro and Macroethics for an Anthropogenic Earth](#)." Professional Ethics Report, AAAS, Spring 2005. p.1-2.

4) Working with institutional guidelines at NC State University

What specifically are the guidelines for the Responsible Conduct of Research (RCR) at North Carolina State University? There are three generally accepted areas for RCR guidelines, covering differing aspects of the relationship between the researchers and the institution. First, there is the fostering of a climate of integrity. Second there is a clear definition of policies surrounding misconduct. Thirdly, there is the specific role that the administration takes in investigations concerning misconduct and in continuing education and training.

The first place to go for orientation concerning Research Integrity at NC State University is the [SPARCS Scientific Integrity homepage](#). You will see that they have addressed all three of the areas for RCR: climate, policies and institutional involvement with training and education.

Here you will see the people to contact with any questions or concerns. Study the [Procedures for Posterity in Scholarship](#) guide: this simple step by step listing of important steps in the research process is pithy, practical and critical.

You will also see a series of links to NC State University policies and guidelines, such as:

- [Documentation Rules at NC State - Maintenance of Scholarly Data and Ownership](#)
- [Reporting Research Misconduct-A supplement to Regulation duct](#)
- [Plagiarism- Special Resources on the topic of Plagiarism](#)
- [Responsibility – PI responsibilities for all lab activity](#)
- [Presentation – Research Integrity, Can you stay awake?](#)
- [Policy on Misconduct – NC State’s Regulations](#)

You will also find research ethics in the news, and a listing of important resources for your self-study program. Check with your supervisor as to which resources are most important in your department for you to read first.

In terms of setting the climate, which includes education and conversation, there is the [Research and Professional Ethics homepage](#) here at NCSU. Here you will find a great number of resources for self-study and continuing education.

Goals of the NC State Ethics Initiative

- ❖ Recognize ethical issues and understand how they differ from other kinds of issues.
- ❖ Reason about ethical issues and apply appropriate ethical concepts.
- ❖ Act in a morally responsible manner.
- ❖ Know the ethical responsibilities appropriate to research in a given field.
- ❖ Use critical thinking skills when faced with issues in research ethics.

Becky Rufty, Associate Dean of the Graduate School,
Director of the Research Ethics Initiative

For specific rules and regulations, the North Carolina State University [Sponsored Programs and Regulatory Compliance](#) site is the place to go. Here you will see links to the Institutional Animal Care and Use Committee (IACUC) site and the Institutional Review Board for Human Subjects (IRB) Site, which are the local university overseers of research integrity when issues involving either human or animal subjects arise.

The other site to review is that of the [Legal Affairs Department](#) which will give you specific legal guidelines for a variety of situations you might encounter.

In general, as a land grant university, NCSU follows [federally mandated guidelines for research integrity](#). Aside from these federal guidelines, the specific funding agency—quite often this means the National Institute of Health (NIH) or the National Science Foundation (NSF) – that is sponsoring the particular research also has a set of guidelines that must be followed.

A useful informational site from NIH is [A Guide to Training and Mentoring in the Intramural Research Program at NIH](#).

A useful informational site from NSF is the [Grant Policy Manual](#).

The fourth link (aside from the REI, the IACUC, and the IRB) that is listed on the NCSU Regulatory Compliance page is to another federal agency that we have mentioned already, the [Office of Research Integrity \(ORI\)](#). This is probably one of the first places to go to “get the sense of the meeting.” They have a valuable online newsletter to keep you up to speed as to the latest

news and conferences as well as step by step guidelines for how to go about misconduct investigations.

There is another aspect to research integrity that relates to institutional climate and this is what David Auerbach, of the NC State Department of Philosophy and Religion, calls "Research Etiquette." At the June 2001 Summer Research Ethics Institute for Faculty Development at NC State he noted, "There are levels of conduct beyond the official codes that are specific to the research enterprise. These relate to intra-lab protocols and conventions."

This is along similar lines to the phrase "accepted practices" in the ORI guidelines on research integrity. Not every single situation can be (or should be) spelled out; not only does that limit creativity, but also goes against the grain of most professionals in any discipline. Just as institutions have expectations of their faculty, researchers have the responsibility to the institution, (and to their colleagues in general) to act in an ethically responsible manner. As Joe Herkert pointed out in Module V, [*Professional Responsibility and Codes of Conduct*](#), there needs to be a balance between specific rules and the flexibility for people to make independent decisions.

Dealing with misconduct and related information

Situations involving possible misconduct are extremely challenging.

Becky Rufty, Associate Dean of the Graduate School, notes that in all investigations, a balance must be kept between protecting the integrity of the research on one hand, and the careers and reputations of researchers on the other. Prompt, confidential and fair processing of allegations is necessary so as to protect the innocent and minimize any harm from public exposure.

The NC State University homepage for [Responding to Allegations of Research Misconduct](#) will give you specifics to follow as well as information about definitions of misconduct and a description of rights and responsibilities of people involved with research integrity at NC State University.

5) Case Study

This case study is from the collection published by the [Association for Practical and Professional Ethics \(APPE\)](#), posted by the [Online Ethics Center hosted by the National Academy of Engineering](#). The case, [Truth or Consequences](#) is about possible misconduct in a research lab.

We will present a summary of the Case Study here in the box to the right, but reading the original Case Study, Discussion Questions and Commentaries will enable you to go more deeply into the issues. You will find that with this case, as well as with most case study scenarios, there are two levels of questions and/or concerns; firstly there will be the specific dilemmas in terms of human subjects in this particular situation and then secondly, the deeper, more complex societal implications to ponder.

Peter and Sally are graduate students in Dr. Larsen's lab: both need an outstanding publication to assure them of a good post-doc job. After much effort, Peter finds he has created a knock-out mouse that shows promise in terms of information about cellular activity. Dr. Larsen assigns Sally to work with him on another part of the project. They do not have a great number of mice to use in their work, thus, the blood samples are exceedingly precious. Sally presents some questionable data to Peter: her results are not recorded in detail in the lab notebook. Peter suspects that she has not really gotten the results she reports. What should Peter do?

This case brings up two major ethical themes that we've discussed previously: honesty and trust. Clearly these two values are closely related, you cannot have one without the other. A sub-theme of the case involves record keeping: how do we tell the difference between sloppy data reporting and an attempt at deception? This case also brings out the issue of ambiguity in research: again, how do we tell the difference between creative intuition vs. biased data reporting? This case also poses the problem of working collaboratively – what are best practices and how do we establish them?

There are also the deeper issues to consider, for example, what about the very real pressure to publish "positive results" in the highly competitive world of research? What about the reality that student workers are "encouraged" to make great discoveries? And what are the obligations in these situations, to colleagues, to a supervisor, to the public, to science?

Suggested Methodology:

Access the original Case Study and read it thoroughly, including the Discussion Questions. As we have done in the other modules in this series, review [Tom Regan's Check List](#) from page 4 of Module 1. Doing this will enable you to see the inter-relationship of research ethics in general to the context specific concerns of human participants in research.

For example, the "*responsibility for and leadership of the performance of the study*" – how does that link to Regan's point 8: "*Are any duties of justice involved? If so, who has what rights? Against whom?*"

Cast a wide net in your thinking in terms of Regan's *Morally Relevant Questions*.

Again, as in previous Case Studies,
What seems to you to be *resolved* in your own mind?
What seems to you to be *unresolved* in your own mind?
What do you find challenging to *articulate*?

Now review the [Commentary by Karen Muscovitch](#) that accompanies this case. Reading his ideas when you have already struggled with this case will add to your ability to become articulate with the ethical issues and help you work on areas that are still unresolved and will help you articulate the deeper issues of this case. One of the realities of both case studies and real life situations that involve moral dilemmas is that you might have decided on how to go forward, and yet still feel the pull of the dilemma or find that there are still areas that feel unresolved to you.

6) Study Question: Why does misconduct happen?

Relationships “gone south”

Given the high price of paying for an act of misconduct, why would someone chance it? Many people cite the difficulty of tenure situations as one problem. Others feel the collaborative nature of many current research teams sets up inherent difficulties. If the group works as a team on all stages, is it easy (or even possible?) to draw lines between who owns what idea? Many projects extend over long time periods, people change jobs, change relationships. Can we say that ethical misconduct is about faulty interpersonal relationships? Or is this too simplistic?

“Despite the diversity of the initial complaints, ranging from exclusion from authorship to fabrication of data, ethical analysis showed that each of these cases resulted from the breakdown of formerly productive collaborative research efforts. In each instance, we were struck by an almost inescapable parallel to the events associated with rancorous divorces and their subsequent property and custody disputes. This insight facilitated evaluation of the complex interactions between the participants as well as the levels of ethical misconduct apparent in the behaviors of the participants.”

Little, Doric and Martin Raynor. [“Ethical Evaluation of Misconduct Cases.”](#) [Investigating Research Integrity, Proceedings of the First ORI Research Conference on Research Integrity, ORI, 2001, 2002.](#)

The link will bring you to the entire proceedings, scroll to this presentation via the bookmarks on the left.

Clarifying the difference between ambiguity and misconduct

How do we tell the difference here? Who do you trust to go to, without getting into misconduct charges, when you want to have a private discussion about something going on that makes you uncomfortable? At North Carolina State University, allegations of research misconduct involving tenure track or visiting faculty members, post-doctoral research associates, graduate students, undergraduate students or staff should be directed to the senior administrator responsible for research programs within each college, school or unit. Mindful of this thin line between insight, creativity, “fudging,” hope and enthusiasm, it is particularly important to first talk with your direct supervisor or another close faculty member

The idea of talking things over when uncomfortable is part of the ongoing process of clarifying the constant ambiguity of the research process. People say philosophy is about the gray areas and science about the black and white. But this isn't really so. Although there may be several right answers to a moral dilemma, there usually is an unmistakable wrong one. Since ethics is about human behavior, it makes sense that it should also be about interactions. A good first step, in most any questionable situation, is to have a conversation.

"We propose that a person be designated to whom a researcher could, in the strictest confidence allowed by law, voice concerns or express dilemmas related to research practice without fear of automatically triggering a formal administrative process. The opportunity to meet at an early stage with an impartial listener who is knowledgeable in the responsible conduct of research in order to sort out feelings, evidence, or context has significant appeal."

Fischbach, Ruth L. and Diane C. Gilbert. [*The Ombudsman for Research Practice: A Proposal for a New Position and An Invitation to Comment.*](#) *Science and Engineering Ethics*, 1.4 (1995): 395.

In an editorial in [Science and Engineering Ethics](#), Stephanie Bird, one of the co-editors, made an interesting distinction between the manner in which NSF and NIH approach misconduct issues. She noted that NSF emphasized the rules approach while NIH focused on collegiality. She calls the latter a "scientific dialogue model."

Which approach seems more useful and which schema does NCSU fit into? How does David Auerbach's comment fit in here? Which approach do you think is better in dealing with that thin line between research ambiguity and misconduct?

"By contrast, [to human subjects issues] in the misconduct arena, additional challenges for reaching consensus were posed by philosophical differences between the approaches taken by the National Institutes of Health (NIH) and the National Science Foundation (NSF) in handling misconduct cases. The NIH approach was more collegial, adopting a 'scientific dialogue model'. ["Misconduct in Science: Controversy and Progress."](#) *Science and Engineering Ethics*, 5. 2 (1999): 132.

7) Resources

Articles

Browning, Tyson R. [*"Reaching for the "Low Hanging Fruit: The Pressure for Results in Scientific Research—A Graduate Student's Perspective."*](#) *Science and Engineering Ethics*, 1.4 (1995): 417-426.

Clemmons, Sonya, [Scientific Integrity and Ethics: a Dilemma](#), May 30, 2003

Collwell-Chanthaphonh, Chip and T.J. Ferguson, [Virtue Ethics and the Practice of History: Native Americans and Archeologists along the san pedro valley of Arizona](#), March 2003

Gunsalus, C.K. ["How to Blow the Whistle and Still Have a Career Afterwards."](#) *Science and Engineering Ethics*, 4.1 (1998): 51-64.

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[Ch 6: Research and Uncertainty](#)

Websites

American Association for the Advancement of Science has a homepage for the first World Conference on Research Integrity: [Research Integrity: Making the Right Choices](#).

[Council of Graduate Schools Responsible Conduct of Research](#) initiative has information about their program; see their [Resources](#) page for a wide variety of hyperlinks.

Duke University, [The Kenan Institute for Ethics Academic Integrity](#) webpage.

The first place to go to for continuing education is: The Office of Research Integrity (ORI) since they have a wide range of RCR online resources, training sites and links to articles. View their [Responsible Conduct of Research Resources on Misconduct](#). You can also view their entire published proceedings of past research conferences on research integrity as well as see general listings about [information on past conferences](#).

[Michigan State University Graduate School Newsletter on Research Integrity](#)

University of California, San Diego, The Research Ethics Program, has posted a resource page on [Ethics and Morality resources](#) as well as one for [Misconduct](#) as part of their larger [Research Ethics Program](#).

U.S. Department of Health and Human Services [Ethical Dilemmas in Research Integrity](#). This is an interactive website where you can post your responses to the ethical dilemmas presented.

Western Michigan University runs [The Center for the Study of Ethics in Society](#).