# Response to NSF's request for public comment on RCR requirement

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By members of the initiatives, "Model Curriculum for Land Grant Universities in Research Ethics" (LANGURE) and "Extend and Assess Research Ethics Education" (EAREE)

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We write in response to NSF's request for public comment on proposed required training in responsible conduct of research. We report on lessons we have learned from our collective years of research in applied ethics and teaching research ethics in the classroom and online. We conclude with a recommendation.

## 1. Introduction

We are the PIs, co-PIs, Institutional Leaders and senior collaborators on two current NSF-funded EESE projects.

First, the Model Curriculum for Land Grant Universities in Research Ethics (LANGURE, 2005-10) is a faculty and graduate student-led initiative to create a model doctoral-level intervention in research ethics education. LANGURE is an interdisciplinary consortium of six land grant universities—Wisconsin, Purdue, Iowa State, Hawaii, NC A&T and NC State—and three historically Black colleges and universities: NC Central and Fayetteville State, in addition to NC A&T (which is both an LGU and an HBCU). LANGURE members researched, tested, and in 2007 put online a one-credit graduate course, the Open Seminar in Research Ethics (OSRE). As OSRE is the centerpiece of LANGURE and EAREE, we explain it in detail below.

Second, the Extend and Assess Research Ethics Education (EAREE, 2007-10) project is the nation's first to offer a standardized, interdisciplinary, inter-institutional, communally-oriented collaborative online course in research ethics on all of the doctoral-degree granting institutions in a state university system. EAREE is implementing and evaluating OSRE at the seven doctoral-degree granting institutions of the University of North Carolina. In addition to conducting a scientifically controlled longitudinal study of the course's effectiveness, EAREE will also establish a template by which other state systems might adopt OSRE.

We, the 44 undersigned, work on LANGURE or EAREE—or both—and collectively represent hundreds of years of research experience and ethics teaching. We understand and agree with the reasons for the America COMPETES Act (42 U.S.C.l 1862o-1) and commend NSF for its forward-looking EESE program; for proposing to require education in research ethics for all undergraduates, graduate students, and postdoctoral researchers it supports; and for committing resources to the initiative. We especially appreciate the objective of developing an online digital library of best practices; we will argue that OSRE should be the lynchpin of this collection.

We hope NSF will carefully examine OSRE as it represents a comprehensive, efficient, and effective intervention. Freely available online to all institutions, OSRE is a low-cost beta-tested method by which to achieve NSF's goals. We turn now to a brief historical analysis.

## 2. What's wrong with "RCR training"

"RCR training" designates the strategy currently in place at many research institutions. We informally refer to it as the National Institutes of Health (NIH) model because it aims primarily to respond to problems that have arisen in the course of NIH funded research.

The primary aim of RCR training is to convey knowledge of and evoke compliant behavior with policies and regulations. In this model, young researchers are often required to attend a series of lectures by local or national experts on each of NIH's "core topics." The lectures explain professional rules and regulations. So, the head of the IRB visits to explain the rules regarding use of human subjects; then the IACUC chair discusses the use of animals, after which the sponsored program director discusses intellectual property. And so on down the line of prescribed topics. To the extent that ethical principles and decision-making procedures are introduced, they are either briefly surveyed at the beginning of the course or occasionally alluded to in the course of this or that person's lecture. Result: relevant policies and regulations are covered, but students gain little sense that they are part of a community of moral discourse. A community of scholars who know they can rely on each other for guidance.

The received method is based on the intuition that if students know the rules, they will follow them. The organization of lectures is either topical (following the historical order in which they became problems and were subsequently added to NIH's core list) or temporal (following the order of planning, conducting, and reporting research).

Insofar as the received "RCR training" paradigm lacks philosophical rigor and intellectual cohesion, it tends to reinforce the idea that ethics is a matter of following rules established by authorities. It may also tend to reinforce the idea that the professions are narrow fields in which experts become proficient in a particular method but do not have responsibilities beyond their technical area. To think of research ethics as rule-following, however, is to reinforce an impoverished notion of the professions. The professions at their best are vibrant critical moral communities of discourse. Each individual professional must know how to reason well, behave conscientiously, and exercise independent judgment. For professionals are the first-line conscience of society, especially when society faces new, perhaps even dangerous, ethical questions. Even when there are no rules, professionals must know how to figure out what to do.

## 3. The OpenSeminar in Research Ethics approach

We have become convinced that the received approach is ineffective at best and self-contradictory at worst. When NIH began requiring RCR training decades ago, it did not provide benchmarks by which the success of efforts could be evaluated. Consequently, it is disquietingly unclear what works and does not work in this critical area. We note, for example, that the number of RCR training programs overall is increasing, as is the absolute number of graduate students so "trained." The obvious expectation, therefore, would be that the number of research

misconduct reports would decrease. However, to the contrary, the number of institutions reporting misconduct cases to the NIH's Office of Research Integrity continues to increase each year.

At OSRE, we take an approach with three significant points of departure from the received model.

First, whereas RCR training aims at *compliance with rules*, OSRE aims to *welcome students into the community of scholars* who know how to think systematically when they encounter a new ethical challenge or a question for which there is as yet no policy. We aim to nurture interests in critical inquiry and self-motivated responsible behavior, believing that individuals invested in and closely supervised by their communities will not only follow rules they have autonomously adopted for themselves. They will also be prepared critically to examine and perhaps on occasion revise such rules.

Second, while the typical received course usually features a series of experts who appear in class, give a 45 minute lecture on regulations in their area (human subjects, use of animals, research misconduct, conflict of interest, etc.), and then disappear, our course relies on a single instructor, or a very small team of instructors, attending every class. Our primary goal is to help students form relationships with peers and mentors in their home disciplines. We have set up a virtual community so that they may efficiently find researchers with similar interests even if they work at other institutions.

Third, whereas the received approach relies on a hodge-podge of 11 "core topics" in RCR training, our course emphasizes the coherence of a philosophical approach to research ethics. The received topics developed historically as one new issue after another presented itself to the research community. But the conceptual content of the topics heavily overlap and sometimes recommendations in one area conflict with rules in another area. Recently, Nicholas Steneck established some coherence in the topics by placing them in the various stages a graduate student must follow in planning, conducting, and then reporting their research (Introduction to the Responsible Conduct of Research, Revised edition, Washington, DC: Office Research Integrity, 2004). We believe there is an even better way to organize and present the material. The coherence of education on the OSRE model is philosophical; we start with egoistic self-interest; expand the moral circle to include one's group; and then all persons and sentient beings.

The OSRE model aims, as we say, first and foremost to *welcome junior researchers into academic communities*, hone their skills of critical inquiry, encourage them to support and hold each other accountable while cooperating to resolve complex, constantly changing, ethical questions. Drawing on insights from educational psychology, evolutionary biology, and the moral development literature, we begin by confronting the students' apathy, their usually unspoken but deeply felt question, "Who cares?" To answer this challenge, we start off discussing narratives of students harmed by misconduct, appealing directly to our students' own self-interests. Therefore, OSRE is an integrity- rather than compliance-based model.

We find students quickly come to care about doing the right thing when they see that doing wrong may seriously harm them. From this motivational beginning point, we then show why prudence also dictates that students understand and follow professional codes. From there, it is not a difficult step to remind them of their own values: that the moral circle extends beyond their group to all persons and, indeed, perhaps all sentient individuals and even all of nature.

We are convinced we serve our graduate students best by treating them as young scholars. If our hypothesis is correct, RCR training across the disciplines must: (1) be thoroughly revised; (2) Build trust and respect among peers and mentors; (3) Empower students to pursue their work with personal integrity; and (4) Stimulate them to raise broader ethical questions about their social responsibility.

**4. How much ethical theory is needed, and how should it be taught?**

The academic research community prizes independent judgment and critical thinking. Nascent professionals must not only learn the current regulations governing their field; they must also catch the enthusiasm of professionals thinking rigorously and self-critically about their work. How can we motivate young professionals to assess the rules they are following? To prepare for the potential consequences of whistleblowing? Or to prepare for the consequences of knowingly disobeying a professional rule if it entails actions that offend one's deepest sensibilities?

Excellence in research is not an act, as Aristotle might say, but a habit. It requires the exercise of emotion as well as reason. It is not sufficient to know what rule applies in each case. One must also want to observe the rule, that is, one must actually try to follow it. Actions stem from desires, and desires from emotions. Thinking about harms--to human beings, to animals, to the environment--stimulates the emotions. The importance of harm--injury, whether physical or psychological--is often overlooked as a moral tutor. Focusing on harm can help us to achieve the ambitious objectives of this short course. In a mere fourteen hours of student contact, we hope not simply to help students memorize their professional codes of conduct. We hope to help them feel the human impulse--the concern and care for victims--that lies underneath the code. We aim both to inform and help develop each person's resolve to act wisely, courageously.

How can a mass-enrolled 1.0 credit introductory course begin to make headway on such ambitious objectives? Ethics education is most productive when it engages what Hume called the sympathies, feelings, including feelings of revulsion at acts of hatred and violence. Our course uses case studies of harm to research subjects (Nazi research on prisoners, Tuskegee non-treatment of syphilis, abuse of monkeys, etc.) to motivate our students' sympathies with the sufferings of those harmed in research. In a Humean approach, ethics education focuses on empirical and psychological—rather than metaphysical and theological—considerations. What factors incline us toward, or restrain us from, misbehavior and cheating? By building a new course responsive to these considerations we believe we will do a more effective job helping students cultivate the three sensibilities most effective in restraining misbehavior: recognition of the dignity of persons; empathy with the suffering of sentient beings; and a deep sense of membership in a moral community.

Motivation is critical; genuine interest in a subject provides impetus to discover the principles that explain revulsion at research misconduct. Discovering the underlying ethical principles will allow us to solve other, analogous, cases. So we begin with "heels," individuals who have clearly harmed others through their research misconduct. Our goal is not to provide extensive historical analyses of these cases but rather to evoke deep personal investments in preventing future harmful research. When the course is taught by an instructor who consistently ties various speakers and topics to the underlying four ethical principles, student's emotions can be appropriately stimulated, nourished, and directed by reason. By focusing on the suffering of victims of research misconduct, students see immediately that ethics matters, that respect for others is critical, and that ethical reflection must be systematic and principled.

Our experience suggests that students taught professional codes as abstract rule-following lack the historical context and emotional investment needed to penetrate the codes to their underlying principles. Students who on their own come to see that professional codes matter as responses to harmful actions learn to care about the rules and adopt them more robustly as their own. The reason is not necessarily because they agree with all the rules, but rather because they resonate with the ethical commitments the rules express. For these reasons, OSRE presents case studies intended to evoke emotions in order to nurture the virtues of honesty, respect, beneficence and conscientiousness.

When combined with guiding principles, right emotions will sustain students through the difficult times when they must blow a whistle, object to a practice, or refuse to act on a policy they find immoral. And they will be prepared furthermore, to deal with the more mundane, pesky, everyday--but still objectionable--issues found in poor research design, misinterpretation of data, or projects with few redeeming social benefits.

By taking primary aim at the development of our students' moral sensibilities and emotions as well as critical reasoning skills, OSRE strives to hone both reason and practice.

**5. What challenges do institutions face in meeting NSF's new requirement?**

Today's research institutions must teach research ethics in a culture with four overarching features. The culture tolerates cheating; inherits traditions of abuse of human and animal subjects; favors a technical conception of education; and induces apathy in students. In addition to these larger cultural challenges are four specific problems for institutions:

a. Lack of human and financial resources to teach research ethics
b. Lack of experience teaching a humanities subject to researchers in science and engineering
c. Lack of inter-institutional collaboration in an area where universities must pool resources if they are going to address (a) and (b).
d. Need to cover common core topics with all students while also providing discipline-specific discussion of the varying social duties of researchers in different fields

The OpenSeminar in Research Ethics (OSRE) addresses each of these challenges as follows:

a. A self-guided freely available online course that can be organized and implemented by existing personnel trained in ethics on each university campus
b. Narratives and case studies designed to welcome & empower students
c. The OpenSeminar software, designed to allow instructors at universities around the world to collaborate by sharing pedagogical resources
d. Active learning sessions in large lectures to cover core topics
e. Break-out sessions held in departmental seminar rooms to cover discipline-specific social responsibilities of researchers and underline the commitment of each department to ethics education.

Interventions in research ethics must be sensitive to the differences in cultures between fields. Discussion of the use of animals in research is critical for those studying the life sciences but not for the majority of civil engineers. OSRE's modular approach allows us to customize the course for each group of students without sacrificing the benefits of a common core required of all.

We believe ethical theory, principles, and methods should be thoroughly integrated into the curriculum. OSRE devotes about 25% of the semester to ethical reasoning and decision-making. Our approach is novel and perhaps controversial.

**6. What role should PIs play?**

PIs should not be expected to assume the entire burden of education. Ethics is an academic discipline with a long and distinguished history. Scholars explicitly trained in moral philosophy should be the leaders of ethics education efforts on campus, and collaborate with PIs. We want to stress this point. It seems some of the mistakes made in the name of RCR training may have been made because philosophers with explicit training in ethics were not part of the curriculum development teams. In LANGURE and EAREE, senior philosophers with Ph.D.s in ethics and years of experience in the ethics classroom lead the teams crafting the curricula and, in most cases, teaching it in face-to-face settings.

**7. How might online resources be most effective?**

We recommend that a senior ethicist direct the OpenSeminar to guide students' reading and provide a forum for face-to-face discussion. Class sessions provide opportunities for discussion of case studies and for meeting peers and mentors in each student's discipline. OpenSeminar also introduces students to the Facebook group on Research Ethics. When young researchers become members of a research community they know where to go for help when crises arise.

**8. How might training be verified?**

OSRE has recently reached an agreement with CITI to collaborate on an instance of OSRE being placed on the CITI site. This version will allow institutions to establish a secure interface between their student databases and OSRE, thus permitting them to certify that each student has completed all of the assigned OSRE modules.

**9. How do institutions build support for a required course in research ethics?**

Our strategy in LANGURE has been to work from the bottom up and the top down.

From the bottom up, we met at NC State University with graduate students, graduate faculty, and directors of graduate programs to discuss the needs of doctoral students in research ethics education. We worked with the University Graduate Students' Association (UGSA), which passed a resolution asking the university to require 1 credit of research ethics education of all doctoral students. We met with Directors of Graduate Programs to build support for the requirement and, as new departments added a requirement, other departments were encouraged to follow—or explain why their students do not need ethics education. Finally, we assisted the UGSA in its approach to the NC State Faculty Senate for endorsement of its UGSA resolution.

From the top down, we worked on each LANGURE campus with the Dean of the Graduate School, the Associate Deans for Graduate Education in each College, the Vice Chancellor for Research, and the Provost to build support for the initiative. LANGURE was fortunate to have on each of our campuses the support of the Provost, Vice Chancellor for Research, and Dean of the Graduate School. Administrative support is critical; if administrations do not support the idea of a required research ethics course, it is unlikely that any faculty effort would succeed in establishing one.

**10. Recommendation**

As OSRE is an open source, flexible, library developed over many years by dozens of researchers in all of the fields NSF supports, OSRE is positioned to serve as the centerpiece of the digital resources NSF offers research institutions. OSRE can facilitate further collaborative development, and will evolve over time as new partners adopt and improve it.

- **THEREFORE, we strongly recommend that NSF review the evaluation data on OSRE when available with an eye on adopting OSRE as NSF's model curriculum in research ethics education.**

Signed,

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