

RCR Education Implementation: A Campus Perspective

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“Because NSF has not defined what constitutes appropriate training, that determination is left up to each individual institution. As a result, when we examined the training provided by the institutions we reviewed, we had no basis for concluding that the training provided was insufficient to meet the RCR training requirement, even though some of the approaches we found did little to ensure that students and postdocs were being adequately educated about the responsible conduct of research.”



T. Phillips et al., “America COMPETES at 5 years: An Analysis of Research-Intensive Universities’ RCR Training Plans” (2017)

“The NSF policy requires universities to develop RCR training plans, but provides no guidelines or requirements for the format, scope, content, duration, or frequency of the training, and does not hold universities accountable for their training plans. Our study shows that this vaguely worded policy, and lack of accountability, has not produced meaningful educational experiences for most of the undergraduate students, graduate students, and post-doctoral trainees funded by the NSF.”



Important Notice No. 140

Training in Responsible Conduct of Research: A Reminder of the NSF Requirement

August 17, 2017

“NSF’s Responsible Conduct of Research (RCR) requirement applies to the breadth of research disciplines the Foundation funds and the different educational levels of the students and post-doctoral researchers the agency supports. **The training should be effective and appropriately tailored to the specific needs and circumstances at each university.** Accordingly, it is the responsibility of each institution to determine both the focus and the delivery method for appropriate training.”



Effective: Education vs. Compliance

- RCR should not be just training and tracking
- Educational effectiveness can be measured
- Measuring effectiveness means identifying goals and objectives—something more than “risk assessment”

“RCR instructors are in some agreement about what should be taught in a class on the responsible conduct of research, but there is less clarity about what the goals and objectives of such instruction should be, or indeed, can be.” D. Plemmons and M. Kalichman, “Reported Goals for Knowledge to be Learned in Responsible Conduct,” *Journal of Empirical Research on Human Research Ethics* 2.2. (2007): 58.

Not a check-box: systemic and sustained



Guidelines for Integrity in Research and Creative Activities (MSU Provost's Task Force, 2004)

Faculty, staff, and students work in a rich and competitive environment for the common purpose of learning, creating new knowledge, and disseminating information and ideas for the benefit of their peers and the general public. The stature and reputation of MSU as a research university are based on the commitment of its faculty, staff, and students to excellence in scholarly and creative activities and to the highest standards of professional integrity.


As a partner in scholarly endeavors, MSU is committed to creating an environment that promotes ethical conduct and integrity in research and creative activities The primary responsibility for adhering to professional standards lies with the individual scholar. It is, however, also the responsibility of advisors and of the disciplinary community at large. Passive acceptance of improper practices lowers inhibitions to violate professional ethics.

With Guidelines for Graduate Student Advising and Mentoring Relationships

MSU Graduate School RCR Workshops

Coordinated by Dr. Stephanie Watts, NIH-BEST PI,
Professor Pharmacology and Toxicology, Assistant Dean, Graduate School

At the end of the workshop series, attendees will be expected to understand and be able to explain:

- MSU's rules concerning academic integrity, including possible disciplinary actions regarding allegations of academic or research misconduct;
 - MSU's requirements for training and oversight in the responsible and ethical conduct of research;
 - Where to find their department's or program's plan for training and oversight in the responsible and ethical conduct of research;
 - How to properly credit other's works in order to avoid accusations of plagiarism;
 - How to reason logically and critically evaluate ethical dilemmas and professional situations to guide responsible and ethical actions in the conduct of research/scholarship;
 - How their research/scholarship affects others, both professionally and personally; and
 - How to responsibly collaborate with others in research/scholarly teams.
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Michigan State, Penn State, Wisconsin:

Grad deans' joint PSI project to develop a means of assessing the institutional research integrity climate, based on 2006 Thrush/Martinson survey

SOuRCe: Survey of Organizational Research Climate

- Judge the impact of initiatives to sustain or improve the organizational environment for research integrity
- Monitor the organizational climate for research integrity over time

Offers snapshot of 7 dimensions of local research climate

Provides data at the institutional and unit level



MSU administered SOuRCe twice:

- 2009: to assess climate at the time that plans were implemented campus-wide in connection with the COMPETES Act
- 2014: to assess the effectiveness of the plans

Plans: discipline-specific (described as “anomalous” in Phillips, et al., 2017—only institution out of 103)



What we learned:

- Climate awareness measures fairly high in 2009 (due in part to conversation around COMPETES?)
- From 2009-2014, a statistically significant improvement in perceptions of:
 - Effectiveness of education
 - Commitment of advisors to talking with advisees about RCR
 - Ability of people in department to define misconduct
 - Socialization of junior researchers about RCR
 - Confidence in knowing how to report



What we learned:

- Some specific measures within colleges, while moving in the right direction, had not moved as significantly
- There was variation in disciplinary improvement—MSU’s discipline-specific approach

Follow up: inventory of plans in 2015

- Variation in tracking methods and consistency of tracking for those not federally funded
- What plans?
 - changes in personnel over time
 - “distant” conversation from 2009



What we concluded about “appropriately tailored”

- General *and* specific: what are you assessing?
- Joint responsibility: central *and* unit-level
- The conversation must be iterative

The conversation is as much a part of the education as the training plan

The conversation must involve stakeholders at all levels

There are best practices, but there is no fixed template



New MSU RCR plans in January 2017

- Result of iterative conversations among GS, units, governance, VP for Research, Provost
- Includes all graduate and graduate professional students (including online)
- Starts with common core (online modules)
- Staged by year
- Discussion-based requirements for all
- Annual refresher requirements for all doctoral and master's research students
- Integration into disciplinary courses and other activities
- Standardized tracking and reporting requirements



T. Phillips et al., “America COMPETES at 5 years: An Analysis of Research-Intensive Universities’ RCR Training Plans” (2017)

“Our findings indicate that the majority of research-intensive universities across the United States have implemented RCR training plans that fail to meet at least five of these best-practice criteria:

1. Non-instructor-led, online-only programs do not provide adequate instruction
2. Multiple formats of instruction are needed
3. Programs should be wide-ranging, cross-institution, with content that varies by disciplinary areas and career stage
4. Ethics education should not be administered in a single ‘dose’
5. PIs should be positively involved in RCR training activities.”



Examples:

Neuroscience: The Discussion based training requirement will be fulfilled for all Neuroscience Ph.D. students through a workshop activity at each of our biannual “Cross Campus Research Day” (CCRD) research retreats. The goal is to strengthen research interactions between faculty and students across multiple campuses. We will develop specific 1.5 hour workshops built around an RCR topic to be incorporated into the program of each CCRD event. Examples of possible discussion topics include, “Experimental design and statistical analysis planning before the experiment”, “Verification of biological reagents” and “Reporting scientific misconduct.” The workshops will ensure uniformity of discussion based training across all students and this will also facilitate reliable tracking of student participation in discussion based training.



Examples:

Math: For PhD students in the third and higher years of graduate study the guidance/thesis committee of each student has the responsibility to conduct discussions on the various aspects of RCR typically in the context of research activity. For example, plagiarism should be discussed in the context of writing a paper, referencing in the context of preparing a talk.

Chemistry: Starting in year 3, all doctoral students must complete 3 hours of annual refresher training. One group meeting will be set aside each semester to discuss RCR issues pertinent to the student's research group. Each research advisor will receive a reminder from the Graduate Office regarding their obligation to hold these meetings and they will be given a form to complete confirming completion of this training (one meeting during fall, spring, and summer semesters – 3 hours total).



Examples:

English

Three changes that the department will implement to make meeting the discussion and refresher requirements possible:

1. Every fall, the department and/or College of Arts and Letters will hold a 3-hour workshop on RCR.
2. Because it is a required course for all Master's and Ph.D. students, ENG 802 will incorporate at least 3 hours of discussion related to RCR over the course of the semester.
3. The Annual Progress Report will be amended to include a section on RCR, to be discussed with the advisor.



Continuing Challenges

- Education vs. compliance
- Everyone has to be involved
- Conversation needs to be periodic
- Regular assessment to document outcomes

