Arizona State University's Institutional Training Plan for the Responsible Conduct of Research

Developed by

The Office of Knowledge Enterprise Development

The Office of Research Integrity and Assurance

and

The ASU RCR Faculty Advisory Group

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Background

The responsible and ethical conduct of research (RCR) is critical for excellence, as well as public trust, in academic research. Consequently, education in RCR is considered essential in the preparation of future scientists and engineers. Section 7009 of the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act (PL 110-69) requires that ''each institution that applies for financial assistance from the [National Science] Foundation (NSF) for science and engineering research or education describe in its grant proposal a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate students, graduate students, and postdoctoral researchers participating in the proposed research project.'' (NSF 10-1 January 2010; AAG Section IV B)

In responding to this requirement, the NSF published a revision to the NSF Proposal & Award Policies and Procedures Guide (PAPPG) requiring that beginning January 4, 2010, institutions must certify, at the time of proposal submission, the institution has a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate students, graduate students, and postdoctoral researchers who participate in NSF-funded projects.

Purpose

The purpose of this document is to outline the Arizona State University (ASU) plan for implementing NSF's requirements for providing training to undergraduate, graduate, and postdoctoral researchers in the responsible and ethical conduct of research.

ASU Policy for the Responsible Conduct of Research

RCR is a widely accepted set of ethical and professional standards for conducting research. ASU is committed to maintaining the integrity fundamental to research activities through the responsible and ethical conduct of its faculty, staff, and students.

ASU promotes excellence in research and supports scholars from all fields. ASU is committed to the highest quality education for all students and scholars, and RCR instruction is essential to producing the best scientists and researchers for the future. To further this commitment, ASU will implement an institutional plan for RCR training so that all ASU students and postdoctoral researchers supported by sponsored projects can benefit from RCR training. In addition, this requirement will apply to all fields of research, not exclusively the physical and natural sciences and engineering.

Institutional Responsibilities

According to NSF,

> *"An institution must have a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students, and postdoctoral researchers who will be supported by NSF to conduct research."* As noted in the NSF PAPPG Chapter II.C.1e, institutional certification to this effect is required for each proposal.

Training plans are not required as part of a proposal submission, but rather as an institutional certification with the proposal submission to NSF. Institutions have been advised by NSF that the plans are subject to review upon request and audits are expected.

> *"The institution must identify the persons responsible for overseeing compliance with the RCR training requirement and must verify that appropriate training was provided."*

> *"Institutions are responsible for verifying that undergraduate students, graduate students, and postdoctoral researchers supported by NSF to conduct research have received training in the responsible and ethical conduct of research."*

NSF PAPPG *"Chapter II.C.1.e, Proposal Certifications, has an entirely new proposal certification added regarding responsible conduct of research. When submitting a proposal to NSF, the Authorized Institutional Representative (AOR) is required to complete a certification that the institution has a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students, and postdoctoral researchers who will be supported by NSF to conduct research. While training plans are not required to be included in proposals submitted to NSF, institutions are advised that they are subject to review upon request."*

Institutional RCR Training Plan

ASU will meet the NSF requirements for RCR training by requiring all students and postdoctoral researchers supported by sponsored projects, regardless of sponsor, to receive and participate in RCR training. Support in the context of this plan means salary support received from external sponsors. However, the time spent by an ASU student or postdoctoral researcher for RCR training may not be charged directly to an award. ASU believes that RCR training can be implemented through many educational avenues and will use a three-phase approach that meets the needs of students and postdoctoral researchers based on the career stage of the individual.

> Phase I: All undergraduate students, graduate students, and postdoctoral researchers will participate and complete the Collaborative Institutional Training Initiative (CITI) online training (www.citiprogram.org) for RCR based upon their field of research and

career level. This training will provide a foundational basis for RCR by encompassing its topical elements. This training must be completed within 60-days after award activation

Phase II: Students and postdoctoral researchers will be provided opportunities throughout the year to expand their RCR training through interactive events and activities (i.e., workshops, symposia, or classes). Postdoctoral researchers will be required to attend at least 1 interactive event within their first year of employment. Phase II participation will be mandatory for postdoctoral researchers and at Principal Investigator (PI) discretion for undergraduates and graduate students.

Workshops are available during the academic spring and fall semesters. Postdoctoral researchers whose deadline completion falls out outside the spring and fall academic scheduling may request a waiver for the in person requirement. This allows the individual to watch a video of one of the workshops and provide a written summary (approximately 1 page) of lessons learned to earn credit for attending the session. Requests for a waiver must be co-signed by the requestor's principal investigator and must be submitted to the RCR coordinator or Assistant Director in the Office of Research Integrity and Assurance for review and approval. The request for waiver should include a description of why attending an in person workshop attendance was not possible. Other requests for waiver will be considered by ORIA on a case-by-case basis.

Phase III: All students and postdoctoral researchers on sponsored projects will have the opportunity to continue their education in RCR topics specific to their research setting. As part of ongoing educational activities the PIs are encouraged to hold interactive discussions during laboratory meetings. The Office of Research Integrity and Assurance will make continuing education resources available. The goal of Phase III is to bring RCR concepts into the daily research routine.

The Office of Research Integrity and Assurance (ORIA) is designated as the unit responsible for overseeing institutional compliance with the NSF RCR educational requirements. ORIA is also responsible for:

- Monitoring training activities;
- Verifying that undergraduate students, graduate students, and postdoctoral researchers supported by NSF research or educational projects have completed training in the responsible and ethical conduct of research for Phase I and all postdoctoral researchers have completed Phase II training. PIs are encouraged to provide RCR mentoring in the research setting and are responsible for the records of training activities they provide;
- Monitoring completion of the required training activities and maintaining documentation for all **regular** undergraduate student, graduate student and postdoctoral employees. Verification of training may not be available for all phases of training for short term employees (those student and postdoctoral researchers whose appointment is less than 12 months).
- Establishing and providing administrative support for the ASU RCR Steering Committee and the Faculty Advisory Group;

- Developing assessment tools to evaluate the implementation plan and effectiveness of RCR training and educational initiatives; and
- Building collaborations with faculty members and units that promote RCR core competencies.

The Office of Research and Sponsored Projects Administration (ORSPA) is the Authorized Organizational Representative (AOR) for certifying that the Institutional RCR Training Plan is in place at the time of proposal submission.

The Plan's goals will be to foster and integrate RCR education at the highest standard of ethical and professional conduct for the culturally diverse and transdisciplinary research community at ASU. The plan is intended to provide flexibility in content and delivery and to address the varying needs of different disciplines and career stages. This plan is a living document and as such the Institutional RCR Plan will be regularly assessed and monitored as educational outcomes are evaluated and best practices are increasingly developed to advance RCR education at ASU.

ASU will flow down RCR training requirements to all subaward recipients on NSF awards.

RCR Content Areas

1. Publication Practices and Responsible Authorship
2. Conflicts of Interest
3. Data Acquisition, Management, Sharing and Ownership
4. Collaborative Research
5. Mentor and Trainee Responsibilities
6. Peer Review
7. Research Misconduct
8. Animal Welfare*
9. Human Subjects Protection*
10. Responsible and Safe Laboratory Practices**

Please note:
*Individuals involved in studies of animal or human subjects require additional specific training for certification in these areas as prescribed by federal regulatory requirements and policies of the Institutional Animal Care and Use Committee (IACUC) and Institutional Review Board (IRB), respectively, before they can participate in the research.
**Responsible and Safe Laboratory Practices is an ASU-specific addition to the RCR content.

RCR Resources Available

An abundance of RCR resources exists and many professional societies have adopted policies or best practices that might be usefully considered. In addition, research is illuminating existing practices surrounding ethical issues and providing an evaluation of pedagogical innovations in ethics education.

To meet the need for RCR resources, NSF has funded two beta sites to begin to provide an interactive community online resource on ethics education in science and engineering.

> Online Ethics Center
> > http://www.onlineethics.org/
> Ethics in Science and Engineering National Clearing House
> > http://www.umass.edu/sts/digitallibrary/

ASU will develop and provide RCR resources to its research community including case studies, workshops, seminars, lectures, and videos. The ORIA will develop web based resources for use in Phase III continuing education opportunities.

Many opportunities also exist within colleges, departments, centers, and laboratories for faculty to promote RCR education through activities that already routinely occur in a research or classroom setting:

- Ethics coursework
- Research methods courses
- Informal or formal meetings
- Departmental meetings
- Training sessions offered by the IRB, IACUC, and Institutional Biosafety Committee
- Experiential research programs for graduate and undergraduate students
- Laboratory discussions with research participants
- Orientation sessions for postdoctoral fellows, graduate students, and graduate assistants
- Departmental activities such as dissertation groups, seminar series, and discussion groups
- Institution-wide lecture or discussion series
- Professional development programming offered by the graduate school
- Activities sponsored by graduate student and postdoctoral organizations
- Feature articles on RCR issues in the campus newspaper or departmental newsletter
- Collaboration with graduate program coordinators to promote RCR training

RCR Program Assessment

The ASU implementation plans for the RCR educational program will be continually evaluated based on meeting the stated goals of the plan. The goals are intended to be practically focused on skill development coupled with dissemination of shared knowledge and experience. Additional goals of the program are to:

- Serve as a catalyst for questioning decisions, practices, and processes related to the responsible conduct of research with the objective of strengthening individual and group decisions.
- Promoting skill development by:
  - Recognizing and defining the ethical issues involved in research and educational training activities

- o Understanding stakeholder perspectives
- o Identifying conflicting ethical values
- o Revising options, plans, and actions based on lessons learned and best practices of stakeholders and of colleague institutions
- o Engaging in ongoing collaborations with stakeholders to strengthen outreach and increase training capabilities

Each year, the RCR Steering Committee will review the status of the Institutional RCR Training Plan based on input from the Faculty Advisory Group and report on the status of the Plan. Evaluations and recommendations will be submitted by ORIA, through the Director, Office of Research Integrity and Assurance to the Assistant Vice President for Operations, Office of Knowledge Enterprise Development.

Acknowledgement

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