



**PLAN TO MEET THE NATIONAL SCIENCE FOUNDATION'S
EDUCATIONAL REQUIREMENT FOR TRAINING AND
OVERSIGHT IN THE RESPONSIBLE CONDUCT OF
RESEARCH**

**Developed by the Office of Sponsored Programs
Reporting to the Vice President-Research & Technology Transfer
2014**

I. BACKGROUND

Section 7009 of the America COMPETES Act of 2007 (*America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education and Science*) directed that the National Science Foundation (NSF) require that each institution that applies for financial assistance from the Foundation for science and engineering research or education certify that the institution has a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate and graduate students, and postdoctoral researchers who will be supported by NSF.

In responding to this requirement, the NSF published a revision to its *NSF Proposal & Award Policies and Procedures Guide* requiring that for all proposals with a submission deadline on or after January 4, 2010, institutions must certify that the institution has a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate and graduate students, and postdoctoral researchers who are supported by NSF. This notice is available at <http://edocket.access.gpo.gov/2009/E9-19930.htm>.

NSF has modified its standard award conditions to clearly stipulate that institutions are responsible for verifying that undergraduate students, graduate students, and postdoctoral researchers supported by NSF to conduct research have received Responsible Conduct in Research (RCR) training. According to the NSF implementation guidelines individual proposals *are not expected* to include the institution's plan or describe the way in which RCR education will be offered; however, institutions will be expected to provide a copy of their implementation plan upon request.

II. PURPOSE

The purpose of this document is to provide a plan for how Nova Southeastern University (NSU) will implement NSF's requirements for providing training to undergraduate and graduate students, and postdoctoral researchers in the responsible conduct of research. This plan is intended to meet the *minimum baseline requirements* of Section 7009 of the America COMPETES Act of 2007. Therefore, colleges, centers, divisions, institutes, departments, programs, or principal investigators are encouraged to provide training that goes beyond the minimum baseline requirements, such as workshops, seminars, curriculum, videos, web pages, etc. This is discussed further in Section VI.

III. POLICY STATEMENT

All Nova Southeastern University (NSU) undergraduate and graduate students and post doctoral researchers who participate in NSF funded research or educational projects must fulfill educational requirements related to the responsible conduct of research.

As stated in its Research Misconduct Policy, the university strives to provide an open and stimulating environment where creativity and individual thought flourish and where a faculty member may work independently and productively. All members of the NSU research community, including students and postdoctoral researchers, are expected to adhere to the highest ethical and professional standards in their research and scholarly activities. In this regard, the institution is committed to supporting responsible conduct in research. (<http://www.nova.edu/cwis/vpaa/policies/misconduct.html>).

IV. WHAT IS RESPONSIBLE CONDUCT OF RESEARCH (RCR)?

According to Nickolas H. Steneck, in ORI's *Introduction to the Responsible Conduct of Research* (Revised August, 2007), RCR is not a method that can be followed; it is an overall philosophy of creating and maintaining an environment that conforms to the highest ethical standards, fosters intellectual honesty and integrity, and encourages scientific advances of the highest quality. These concepts must be incorporated into every aspect of research and scholarly activity.

Steneck describes this best by stating that: *There is no one best way to undertake research, no universal method that applies to all scientific investigations. Accepted practices for the responsible conduct of research can and do vary from discipline to discipline and even from laboratory to laboratory. There are, however, some important shared values for the responsible conduct of research that bind all researchers together, such as:*

- *HONESTY*— conveying information truthfully and honoring commitments,
- *ACCURACY*— reporting findings precisely and taking care to avoid errors,
- *EFFICIENCY*— using resources wisely and avoiding waste, and
- *OBJECTIVITY*— letting the facts speak for themselves and avoiding improper bias.

Any action that violates these principles is not responsible conduct and can result in:

- General loss of society's trust in the research enterprise;

- Termination of a research project;
- Dismissal of a researcher found to have acted irresponsibly; and
- In extreme situations, debarment of the institution from receiving Federal research funds.

V. WHAT ARE THE RESPONSIBLE CONDUCT OF RESEARCH (RCR) CONTENT AREAS?

According to NSF direction, each institution is responsible for the content requirements of its RCR training program. NSF believes that the research community, encompassing both individual researchers and institutions, is best placed to determine the content of RCR training without a need for NSF-specified standards. Given this directive, NSU recognizes that the Department of Health and Human Services (DHHS)-Office of Research Integrity (ORI) supports several programs designed to promote education and training in the responsible conduct of research that include the following nine core instructional areas:

1. Data Acquisition, Management, Sharing, and Ownership

Accepted practices for acquiring and maintaining research data and proper methods for record keeping and electronic data collection and storage in scientific research, including topics such as, defining what constitutes data; keeping data notebooks or electronic files; data privacy and confidentiality; data selection, retention, sharing, ownership, and analysis; data as legal documents and intellectual property, including copyright laws.

2. Conflict of Interest and Commitment

The definition of conflicts of interest and how to handle conflicts of interest, including such topics as, types of conflicts encountered by researchers and institutions; conflicts associated with collaborators; publication; financial conflicts; obligations to other constituencies; and other types of conflicts.

3. Human Subjects

Issues important in conducting research involving human subjects, including topics such as, the definition of human subjects research; ethical principles for conducting human subjects research; informed consent; confidentiality and privacy of data and patient records; risks and benefits, preparation of a research protocol; institutional review

boards; adherence to study protocol; proper conduct of the study; and special protections for targeted populations, e.g., children, minorities, and the elderly. Information regarding NSU's Institutional Review Board for Human Subjects may be accessed at <http://www.nova.edu/irb/index.html>

4. Research Involving Animals

Issues important to conducting research involving animals, including topics such as, definition of research involving animals; ethical principles for conducting research on animals; Federal regulations governing animal research; institutional animal care and use committees; and treatment of animals.

5. Research Misconduct

The meaning of research misconduct and the regulations, policies, and guidelines that govern research misconduct in PHS-funded institutions, including topics such as fabrication, falsification, and plagiarism; error vs. intentional misconduct; institutional misconduct policies; identifying misconduct; procedures for reporting misconduct; protection of whistleblowers; and outcomes of investigations, including institutional and Federal actions. Information regarding NSU's policies and procedures related to research misconduct may be accessed at <http://www.nova.edu/cwis/vpaa/policies/misconduct.html>

6. Publication Practices and Responsible Authorship

The purpose and importance of scientific publication, and the responsibilities of the authors, including topics such as collaborative work and assigning appropriate credit, acknowledgments, appropriate citations, repetitive publications, fragmentary publication, sufficient description of methods, corrections and retractions, conventions for deciding upon authors, author responsibilities, and the pressure to publish.

7. Mentor/Trainee Relationships

The responsibilities of mentors and trainees in pre-doctoral and postdoctoral research programs, including topics such as the role of a mentor; responsibilities of a mentor; conflicts between mentor and trainee; collaboration and competition; selection of a mentor; and abusing the mentor/trainee relationship.

8. Peer Review

The purpose of peer review in determining merit for research funding and publications, including topics such as, the definition of peer review, impartiality, how peer review works, editorial boards and ad hoc reviewers, responsibilities of the reviewers, privileged information and confidentiality.

9. Collaborative Science

Research collaborations and issues that may arise from such collaborations, including topics such as setting ground rules early in the collaboration, avoiding authorship disputes, and the sharing of materials and information with internal and external collaborating scientists.

VI. DELIVERY METHODS

In compliance with the Federal regulation, NSU requires all NSF-sponsored undergraduate and graduate students, and post-doctoral researchers (whether on a new or continuing appointment) to complete RCR training. NSU has determined that the primary delivery method for this training will be on-line modules developed by the Collaborative Institutional Training Initiative (CITI). The CITI course is designed to provide a comprehensive basic course in the responsible conduct of research, which meets federal mandates for ethics training and education. It is discipline specific and may be fully customized for a particular research community (biomedical, social behavioral, physical sciences, and humanities). The course materials are organized as:

- An introduction to each topic;
- Basic foundation text and quiz questions for each topic area; and
- Case studies and quiz questions for each topic area.

A rigorous review of the required materials and completion of the quizzes will likely require about 30-45 minutes per topic. Instructions for registering and accessing the online CITI course are attached as **Appendix A**.

To pass this course, participants must complete all required modules with a combined score of 80 or better. A certificate of completion is generated for each individual successfully completing the online training and reports of completion are generated by CITI to NSU's Office of Sponsored Programs. The training certification expires every three (3) years.

VII. OTHER RCR TRAINING OPPORTUNITIES

According to Julie Simpson, Manager, Research Conduct and Compliance Services, University of New Hampshire, numerous opportunities exist within colleges, universities, medical schools, and research institutes to promote responsible conduct of research education through activities that already routinely happen in those organizations. Some of these opportunities include:

- Research methods courses
- Departmental faculty meetings
- Training sessions offered by Institutional Review Boards, Institutional Animal Care and Use Committees, and Institutional Bio-safety Committees
- Experiential research programs for graduate and undergraduate students
- Orientation sessions for new faculty, postdoctoral fellows, graduate students, and graduate assistants
- Training sessions for new department chairs
- Meetings or luncheons for new faculty hosted by university officials
- Departmental activities such as dissertation groups, seminar series, journal clubs
- Institution-wide lecture or discussion series
- Professional development programming offered by the graduate school
- Activities sponsored by graduate student and post-doctoral organizations
- Feature articles on RCR issues in the campus newspaper and organizational web sites
- Collaboration with graduate program coordinators to promote RCR training
- Communications between the chief research officer and the campus community

Principal Investigators may wish to offer some of these various opportunities to their NSF-supported students and researchers.

VIII. RESPONSIBILITIES UNDER THE PLAN

Responsibility for compliance with the university's *Plan to Meet the National Science Foundation's Educational Requirements for the Responsible and Ethical Conduct of Research* rests primarily with the Principal Investigators. As such, Principal Investigators will:

- Certify that they have read and understand the Plan;
- Ensure that all undergraduate and graduate students and post-doctoral researchers who will be supported by the PI's NSF award complete the CITI RCR training within 30 days of their appointment on the award with a minimum

passing score of 80%;

- Ensure that undergraduate and graduate students and post-doctoral researchers renew their certification, if applicable, every three years;
- Forward a copy of the RCR certificates of completion to the Office of Sponsored Programs; and
- Not be required to report on RCR training in required annual and final reports to NSF, unless specifically requested.

The Office of Sponsored Programs, under the direction of the Vice President for Research and Technology Transfer, will be responsible to:

- Ensure the executive director, as an Authorized Organizational Representative, certifies the existence of an institutional plan for RCR education on NSF proposals;
- Make the CITI RCR training available to undergraduate and graduate students and post-doctoral researchers supported by NSF at no cost;
- Liaison with the University of Miami's CITI Administrator to ensure the RCR modules are in working order; and
- Maintain RCR certifications of completion in the appropriate NSF award file.

REFERENCES/ADDITIONAL RESOURCES

- 1.) NSU Faculty Policy Manual
<http://www.nova.edu/cwis/vpaa/policies/>
*Appropriate Conduct and Ethical Behavior For Faculty And Administrators
- 2.) Online NSF FAQs
http://www.nsf.gov/pubs/policydocs/rcr/faqs_mar10.pdf
- 3.) Office of Research Integrity (ORI)
The RCR Educational Resources webpage contains a variety of materials that may be useful in RCR education programs. http://ori.dhhs.gov/education/products/rcr_general.shtml
- 4.) Online Ethics Center for Engineering and Research <http://www.onlineethics.org/>
- 5.) Collaborative Research between Scientists and Industry/University Collaborators Bibliography
<http://www.onlineethics.org/Resources/Bibliographies/CollaborativeResearchBib.aspx>
- 6.) Nicholas H. Steneck. U.S. Department of Health and Human Services-Office of Research Integrity - Introduction to the Responsible Conduct in Research. (Revised Edition-August 2007). <http://ori.dhhs.gov/documents/rcrintro.pdf>

APPENDIX A

Instructions for Creating a CITI Account for the Responsible Conduct of Research Training

I. If you already have an active CITI account (For IRB), complete the following steps:

- Step 1. Go to <http://www.citiprogram.org>
- Step 2. Enter your user name and password
Hit submit
- Step 3. Select "Add a course or update your learner groups for Nova Southeastern University"
- Step 4. Answer whether this the first time doing the CITI Program as a member of the NSU community? You should answer "No"
Hit Next Question
- Step 5. In response to the question "What area of research are you working?", select "Responsible Conduct of Research Gradebook (RCR)"
Hit Next Question
- Step 6. Select the group according to your research activities and select "Responsible Conduct of Research (RCR)"
Hit Next Question
- Step 7. Select from the list provided the courses you need to complete.
Hit Next Question
- Step 8. You are now ready to begin.
Hit "Enter" under the Status column

To pass this course you must complete all required modules with a combined score of 80. Once you have satisfactorily completed the course, a certificate of completion will automatically be generated and forwarded to the Office of Sponsored Programs.

APPENDIX A (Cont'd)

Instructions for Creating a CITI Account for the Responsible Conduct of Research Training

II. If you are opening a CITI account for the first time, complete the following steps:

- Step 1. Go to <http://www.citiprogram.org>
- Step 2. Select "Register Here" next to the "New Users"
- Step 3. Select Your Institution
- Select Nova Southeastern University from the drop down menu
- Step 4. Select Username and Password
- Create your own user name and password (You create your own)
- Step 5. Enter Your Name
- Provide first and last name
- Step 6. Enter Your Email Address
- Step 7. Select "Yes" or "No" to the question, "Do you anticipate requesting CME/CEU credits for the course(s) you are about to complete?"
- Select what the professional affiliation is for the credits from the drop down menu
- Step 8. Select "Yes" or "No" if you do or do not wish to be contacted to complete a course survey
- Hit submit
- Step 9: Fill in demographic information. Following information required:
- Language preference
 - Institutional email address
 - Gender
 - Highest degree
 - Employee number
 - Department
 - What is your role in research (DOES NOT AFFECT MODULES)
 - Address
 - Office phone
 - What is your area of research (DOES NOT AFFECT MODULES)
- Hit submit

APPENDIX A (Cont'd)

Instructions for Creating a CITI Account for the Responsible Conduct of Research Training

- Step 10: You should answer "Yes" if it is your first time registering for CITI
Hit Next Question
- Step 11: Pick area of research. Select Responsible Conduct in Research (RCR)
Hit next question
- Step 12: Select your learner group
Hit next question
- Step 13: You are registered with Nova Southeastern University. You will check
"Yes: to affiliate with another institution or "No" to continue your current
selection.
- Step 14: You are now ready to begin
Hit "Enter" under the Status column

To pass this course you must complete all required modules with a combined score of 80. Once you have satisfactorily completed the course, a certificate of completion will automatically be generated and forwarded to the Office of Sponsored Programs.

APPENDIX B

MEMORANDUM

To: Principal Investigator
From: Catherine M. Harlan, Director, Office of Sponsored Programs
Subject: Principal Investigator Certification Regarding the National Science Foundation (NSF)-Responsible Conduct in Research Training (RCR)

Proposal Title: _____

Name of Principal Investigator: _____

National Science Foundation's Section 7009 of the America COMPETES Act of 2007 (*America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education and Science*) directed that the National Science Foundation (NSF) require that each institution that applies for financial assistance from the Foundation for science and engineering research or education certify that the institution has a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate and graduate students, and postdoctoral researchers who will be supported by NSF.

Please review Nova Southeastern University's (NSU) *Plan to Meet the National Science Foundation's Educational Requirement for Training and Oversight in the Responsible Conduct of Research*, which is attached, to ascertain the training that undergraduate and graduate students, and post-doctoral researchers will be required to receive in order to comply with this new NSF requirement.

*As NSU Principal Investigator for this proposal, I have read and I understand NSU's **Plan to Meet the National Science Foundation's Educational Requirements for the Responsible and Ethical Conduct of Research**. I agree to comply with this requirement and I will ensure that all undergraduate and graduate students, and postdoctoral researchers who will be supported by this proposal, if awarded, will receive training and oversight in the responsible and ethical conduct of research.*

Principal Investigator Signature

Date