

NOVA SOUTHEASTERN
UNIVERSITY



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

Effective July 31, 2023

I. BACKGROUND

Section 7009 of the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act (42 USC 1862o–1), as amended, 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, postdoctoral researchers, faculty, and other senior personnel supported by the proposed research project. Such training must include mentor training and mentorship.

The requirements of Section 7009 will go into effect for new NSF proposals submitted or due on or after July 31, 2023. Additional resources regarding NSF's implementation of the requirement are available at <https://www.nsf.gov/bfa/dias/policy/rcr.jsp>.

NSF standard award conditions clearly stipulate that institutions are responsible for verifying that undergraduate students, graduate students, postdoctoral researchers, faculty and other senior personnel supported by NSF to conduct research have received Responsible and Ethical Conduct in Research (RECR) training. According to the NSF implementation guidelines, individual proposals *are not expected* to include the institution's plan or describe the way in which RECR 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, postdoctoral researchers, faculty and other senior personnel in the responsible and ethical conduct of research. This plan is intended to meet the *minimum baseline requirements* of Section 7009 of the America COMPETES Act (42 USC 1862o-1) as amended. 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, postdoctoral researchers, faculty and other senior personnel who are supported by NSF must fulfill educational requirements related to the responsible and ethical 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 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 AND ETHICAL CONDUCT OF RESEARCH (RECR)?

As outlined in the *NSF Proposal & Award Policies & Procedures Guide*:

The responsible and ethical conduct of research (RECR) is critical for excellence, as well as public trust, in science and engineering. RECR involves not only a responsibility to generate and disseminate knowledge with rigor and integrity, but also a responsibility to:

- a. conduct peer review with the highest ethical standards;*
- b. diligently protect proprietary information and intellectual property from inappropriate disclosure; and*
- c. treat students and colleagues fairly and with respect.*

Further, according to Nickolas H. Steneck in ORI's *Introduction to the Responsible Conduct of Research* (Revised August, 2007), responsible conduct in research 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 AND ETHICAL 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. In selecting an appropriate delivery method, NSU has drawn

from the Department of Health and Human Services (DHHS) Office of Research Integrity (ORI) *Introduction to the Responsible Conduct of Research*, which identifies the following nine core instructional areas as summarized below.

- 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. NSU's policy on Research Data Ownership, Management, Retention and Access is available at <https://www.nova.edu/osp/policies>.
- 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. Information regarding NSU's financial conflict of interest in research policies and procedures is available at <https://www.nova.edu/dor/fcoi/index.html>
- 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 <https://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. Information about NSU's policies and procedures related to research involving animals is available at <https://www.nova.edu/dor/animal-subjects.html>
- 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 <https://www.nova.edu/academic-affairs/faculty-policy-manual/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

NSU requires all undergraduate and graduate students, postdoctoral researchers (whether on a new or continuing appointment), faculty and other senior personnel who are supported by NSF (i.e., support from salary and/or stipends to conduct research on NSF grants excluding conference, symposium, workshop or travel proposals) to complete RECR training. NSU's primary delivery method for this training will be the 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. Modules within the CITI course are consistent with the nine core areas addressed above and include Research Misconduct, Data Management, Authorship, Peer Review, Mentoring and Health Research Environments, Conflicts of Interest and Commitment, and Collaborative Research. 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 within CITI for each individual successfully completing the online training and documentation of completion is centrally maintained by the Research Compliance Manager in the Division of Research and Economic Development (DoR). The training certification expires every three (3) years.

VII. OTHER TRAINING OPPORTUNITIES

Numerous opportunities exist within colleges, universities, medical schools, and research institutes to promote responsible and ethical 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 at the time of proposal submission by completing Appendix B and submitting to the Office of Sponsored Programs (OSP) housed under DoR;
- Ensure that they, as PI, PI's complete the CITI RCR training within 30 days of receiving their NSF award with a minimum passing score of 80%;
- Ensure that all undergraduate and graduate students, post-doctoral researchers, and other senior personnel 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% (Appendix A includes instructions to access the CITI Training);
- Ensure that these individuals renew their certification, if applicable, every three years;
- Forward a copy of the RCR certificates of completion to rcr@nova.edu (administered by DoR); and
- Not be required to report on RCR training in required annual and final reports to NSF, unless specifically requested.

The Division of Research and Economic Development (DoR), under the direction of the Senior Vice President, will:

- Certify the existence of an institutional plan for RECR education on NSF proposals, completed at proposal submission by the Office of Sponsored Programs authorized representative;
- Make the CITI training available to undergraduate and graduate students, post-doctoral researchers, faculty and other senior personnel supported by NSF at no cost;
- Liaison with the CITI Administrator to ensure the modules are in working order; and
- Maintain certifications of completion in the appropriate NSF award record or within the investigator's profile housed in the Cayuse research administration portal.

REFERENCES/ADDITIONAL RESOURCES

1. NSU Faculty Policy Manual <https://www.nova.edu/academic-affairs/faculty-policy-manual/index.html>
*Appropriate Conduct and Ethical Behavior for Faculty and Administrators
2. NSF Responsible and Ethical Conduct of Research <https://www.nsf.gov/od/recre.jsp>
3. Office of Research Integrity (ORI)
The RCR Educational Resources webpage contains a variety of materials that may be useful in RCR education programs. <https://ori.hhs.gov/>
4. Online Ethics Center for Engineering and Research <https://onlineethics.org/>
5. Collaborative Research between Scientists and Industry/University Collaborators Bibliography <https://onlineethics.org/cases/collaborative-research-between-scientists-and-industryuniversity-collaborators-bibliography>
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). <https://ori.hhs.gov/ori-introduction-responsible-conduct-research>

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

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

- Step 1. Go to <http://www.citiprogram.org>
- Step 2. Enter your username and password and click Log In
- Step 3. Click View Courses then click on Learner Tools for Nova Southeastern University. Select "Add a Course."
- Step 4. In response to the question "What area of research are you working?", select "Responsible Conduct of Research Gradebook (RCR)"
- Click Next
- Step 5. Select the group according to your research activities and select "Responsible Conduct of Research (RCR)"
- Click Next Question
- Step 6. Select form the list provided the courses you need to complete.
- Click Next Question
- Step 7. You are now ready to begin.
- Click "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.

IMPORTANT: After completing the course, *mail your certificate of completion to RCR@nova.edu.* If you have any questions, please contact RCR@nova.edu.

APPENDIX A
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" next to the "Log In"
- Step 3. Select Your Institution
- Type in Nova Southeastern University (it may auto populate). Check off the required Terms of Service and NSU affiliation affirmation boxes and click continue.
- Step 4. Personal Information
- Provide first and last name and your email address.
- Step 5. Create a Username and Password
- Create your own username and password
 - Select a security question and provide the corresponding answer.
 - Step 6. Country of Residence
 - Enter your country of residence and if CITI can contact you regarding other course offerings.
- Step 7. Select "Yes" or "No" to the question, "Are you interested in the option of receiving Continuing Education Unit (CEU) credit for completed CITI Program course?"
Please note if you select yes, you will have to pay for the course.
- If yes, select the professional affiliation which the credits are for.
- Step 8: Fill in demographic information. Following information required:
- Language preference
 - Institutional email address
 - Highest degree
 - Employee number
 - Department
 - What is your role in research
 - Address
 - Office phone
 - What is your area of research (Biomedical Investigator, Social & Behavioral Investigator or Social & Behavioral AND Biomedical)
- Step 9: What area of research are you working? Select all that apply, but note that for RCR training purposes, the Responsible Conduct of Research Gradebook is the only one required.
- Human Research (IRB Required Program)
 - Lab Animal

APPENDIX A
Instructions for Creating a CITI Account
for the Responsible Conduct of Research Training (continued)

- Responsible Conduct of Research Gradebook (RCR)
- CITI Good Clinical Practice (GCP)
- Conflicts of Interest
- Health and Information Privacy and Security (HIPS)

Step 10: Select the group appropriate to your research activities. Select Group 1 and/or Group 2 for RCR training purposes.

- Group 1: Biomedical (HPD) Researchers
- Group 2: Social-Behavioral-Education (Non-HPD) Researchers
- Group 3: College Representatives & IRB Office Staff Only
- Group 4: Stem Cell Research Oversight
- Group 5: Investigator Non-Compliance
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Step 11: Please select from the list below the courses that you need to complete. (Select all that apply)

- Biomedical Responsible Conduct of Research Course 1.
- Social and Behavioral Responsible Conduct of Research Course 1.
- Physical Science Responsible Conduct of Research Course 1.
- Humanities Responsible Conduct of Research Course 1.

Step 12: Finalize Registration.

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.

IMPORTANT: After completing the course, *mail your certificate of completion to RCR@nova.edu.* If you have any questions, please contact RCR@nova.edu.