NEW MEXICO TECH

SCIENCE • ENGINEERING • RESEARCH UNIVERSITY

Responsible Conduct of Research Training Plan

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At New Mexico Tech, we are committed to fostering a culture of integrity, accountability, and excellence in research. Responsible Conduct of Research (RCR) training is a vital component of this commitment, ensuring that all researchers—faculty, staff, and students—adhere to the highest ethical and professional standards.

Annual RCR training is essential for:

- **Upholding Research Integrity** – Preventing misconduct and promoting transparency, reproducibility, and credibility in research.
- **Compliance with Federal and Institutional Regulations** – Meeting funding agency requirements (e.g., NIH, NSF) and institutional policies that mandate ongoing education in research ethics.
- **Protecting Research Participants and Data** – Ensuring ethical treatment of human and animal subjects and safeguarding sensitive information.
- **Fostering a Culture of Ethical Decision-Making** – Equipping researchers with the knowledge to navigate complex ethical dilemmas in their work.

By completing RCR training annually, researchers reinforce best practices that strengthen the integrity of scientific discovery and innovation. Continuous education in research ethics is not just a requirement—it is a responsibility we all share to advance knowledge with honesty, respect, and accountability.

New Mexico Tech already offers several training resources for students and researchers:

- **The NMT Research Ethics Series** - These are held in-person, and cover a variety of research related topics and showcase NMT and affiliated presenters from different disciplines. These workshops occur multiple times each semester, and each workshop fulfills NMT and other agency's requirements for a **one (1) hour face to face RCR training**.
- **New Mexico Consortium CITI Training** - An online learning module style resource utilized by many other universities in the state of New Mexico and across the nation. The modules can be taken anytime online and their certification lasts for 4 years.

In addition to these programs that NMT provides,researchers are expected to provide tailored and flexible learning opportunities to meet the evolving demands of their individual research labs. NMT researchers are uniquely qualified to present and discuss responsible conduct of research topics that are most relevant to their field of scholarship and type of research. Often, informal lab group discussion or impromptu meetings make the most lasting impression. NMT Research Compliance also provides a Responsible Conduct of Research page on its website designed to highlight federal regulatory requirements and facilitate initial subject matter for research conversations. The site is updated regularly but is not intended to be an exhaustive resource.

It is essential that all researchers at New Mexico Tech (NMT) diligently maintain records of their Responsible Conduct of Research (RCR) training, as well as those of their students and laboratory staff. Researchers are responsible for ensuring these records are accurate, up to date, and readily accessible. In the event of an audit or an inquiry, researchers may be required to provide documentation verifying compliance with RCR training requirements. Maintaining thorough and organized records not only ensures adherence to university and funding agency regulations but also upholds the integrity and ethical standards of research at NMT.

Likewise, maintaining detailed records of all training sessions is essential in ensuring continuous improvement in laboratory practices. It is crucial to document attendance records for every session you attend, as well as the topics covered in training you provide to your lab personnel annually. These records serve as evidence of regulatory compliance, support competency assessments, and help track knowledge updates over time.

Case Studies for RCR Training Discussions

To enhance the in-person discussion component of Responsible Conduct of Research (RCR) training, we have compiled case studies developed by the National Institutes of Health (NIH). These case studies serve as valuable tools for facilitating conversations in lab meetings, departmental seminars, and other group settings.

Addressing responsible conduct of research topics is important, regardless of whether the research is externally funded. Many federal agencies require researchers to complete 8 hours of annual in-person RCR training and encourage ongoing discussions on ethical research practices throughout the year. These case studies cover key topics such as scientific misconduct, authorship, data management, mentorship, and research integrity, helping to reinforce ethical decision-making and compliance with federal regulations.

Integrating these case studies into regular lab meetings not only helps research teams fulfill training requirements but also promotes a culture of safety, integrity, accountability, and responsible research practices.

Suggested RCR Annual Training Topics*:

*Case studies designed by the National Institutes of Health (NIH)

Theme 1 – Scientific Misconduct (2001)

- Scientific Misconduct in the Laboratory
- Suspicions of Misconduct in Clinical Research
- Ownership of Ideas
- CLUES: Research Misconduct or Sloppy Science?
- Handling of Images and Graphs
- A Technically Challenging Method Collides With a Hot Topic
- Handling of Clinical Data
- Sources of Potential Bias and Data Sharing
- Research Reproducibility I: Sample Composition and Reproducibility
- Research Reproducibility II: Prostate Cancer Serum Biomarker Study

Theme 2 – Authorship (2002)

- Authorship and the Role of the Absent Researcher
- To Be or Not To Be Included
- Student Publishes
- Criteria for Authorship and Attribution
- Co-Authorship – When Changing Labs, Have You Done Enough to Be Included?
- Criteria for Authorship and Attribution
- Multiple Publications
- First Authorship, Publicity, and Multiple Institutions
- Intellectual Input, Core Facilities and Authorship
- Authorship Disputes in Multi-Team Collaborations

Theme 3 – Mentoring (2003)

- Different Supervising and Mentoring Styles
- Equal Treatment of Postdoctoral Fellows Sharing of Job Ads
- Work Hours and Schedules
- Mentoring of Technicians
- Intellectual Property Mentor's Use of Fellow's Research Proposal
- Future Collaborations for Tenure track Investigators
- Issues Related to CRADA Funding of Trainees
- Confirmation of Lab Results Request for Secrecy
- Handling of Personal Relationships in the Laboratory
- Dealing with A Substance Abuse Problem in the Laboratory
- Different Mentoring Styles

- Non-Academic Staff
- Intellectual Property
- Personal Relationships

Theme 4 – Collaborative Science (2004)

- Basic-Clinical Collaboration
- When Does a Collaborator Deserve Authorship
- Equipment Sharing and Authorship
- Assays and Authorship
- Collaboration and Credit
- The Statute of Limitations
- Clinical Collaborations
- Transfer of a Project and Scientific Disagreement
- Authorship or Acknowledgement of a Post-baccalaureate Trainee
- Collaboration and Outside Activities

Theme 5 – Data Management (2005)

- Guiding Principles for Data Management
- Epidemiological and Clinical Data Management
- What's in a Picture? The Temptation of Image Manipulation
- Three Retractions Published in Cell (2004)
- Data Management of Computer-generated Files
- Handling of Images and Graphs
- Appropriate Use of Statistics
- Appropriate Sources of Data and Decision to Publish
- Handling of Clinical Data
- Data Management in Clinical Studies

Theme 6 – Ethical Responsibility (2006)

- Ethical Ambiguities
- Borrowing Results
- Borrowing Ideas
- Borrowing English
- Whistleblowers
- Nepotism in the Training and Research Setting
- Gender Bias in Academia
- Responsible and Equitable Mentoring of Fellows
- Diversity and Bias – Approach to Disabilities
- Implicit/Unconscious Biases?
- Gender Harassment, Sexual Harassment, and Consenting Relationships

- Freedom of Expression and Civility in the Laboratory
- Biases in Mentoring of Fellows and Sexual Harassment
- Use of Human Biospecimens and Informed Consent
- IRB Protocol Deviation
- Using AI to Write a Manuscript
- Using AI to Analyze Research Data

Theme 7 - Scientific & Social Responsibility (2009)

- Streptococcus pneumoniae Membrane Pump Sequence
- Pandemic Influenza Genomic Sequence
- An Unusual Wrinkle to Translational Research
- Cell-matrix Interaction and Tumor Growth & Metastasis
- Potential Consequences of Epidemiological Studies
- Scientific Research and the Press
- Intellectual Property – Why Use an MTA
- Deciding What Study Results to Publish and Transparency in Research Publication
- Handling Select Agents
- Research Competition and Reproducibility
- Societal Aspects of the Responsible Conduct of Research
- Data Access, Analysis and Reporting within a Research Group
- Science Under Pressure