



Responsible Conduct of Research, Scholarship, and Creative Activities

Introduction

Responsible Conduct of Research, Scholarship, and Creative Activities
Michigan State University Graduate School, 2010 <http://grad.msu.edu/>

The Graduate School
Michigan State University
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Objectives

- Define the following terms in your own words: (a) research, (b) scholarship, (c) creative activities, and (d) responsible conduct of research, scholarship, and creative activities (RCR)
- Indicate how the 9 components of RCR identified by the U.S. Office of Research Integrity and the 2 additional MSU components of RCR apply to your scholarly work
- Identify responsibilities you have to people and agencies who have an interest in your work or who make a contribution to your work

U.S. Office of Research Integrity, <http://ori.dhhs.gov/education/>

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What is the Scope of Research, Scholarship, and Creative Activities?

“The exploration, discovery, interpretation, revision,
and sharing of knowledge of our world, including the
creation of works for the enlightenment and
intellectual stimulation of humans”

Office of the Vice President for Research and Graduate Studies
<http://www.vprgs.msu.edu/aboutOVPRGS/FAQ>

MSU Faculty Handbook
<http://www.hr.msu.edu/documents/facacadhandbooks/facultyhandbook/>

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MSU Definition of Research

“A formal investigation conducted for the purpose of producing or contributing to generalizable knowledge, and the reporting thereof”

MSU Procedures Concerning Allegations of Misconduct in Research and Creative Activities,

http://rio.msu.edu/June_2009_Procedures.pdf

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MSU Definition of Creative Activities

“Creative activities means the preparation or creation of computer programs, websites, motion pictures, sound recordings, and literary, pictorial, musical, dramatic, audiovisual, choreographic, sculptural, architectural, and graphic works of any kind.”

MSU Procedures Concerning Allegations of Misconduct in Research and Creative Activities,

http://rio.msu.edu/June_2009_Procedures.pdf


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What is Responsible Conduct of Research, Scholarship, and Creative Activities?

- Do good work
- Show respect for others
- Exercise social responsibility

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What is Responsible Conduct?
Do Good Work


- Have passion for your work
 - Care about the quality and impact of your work
- Become an expert and use best practices
 - Design
 - Conduct
 - Analysis/interpretation
 - Dissemination of results
- Honesty in all aspects of your work

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Doing good work refers to scholarly research or creative activity.

To do good work

- Have passion for your work – care about the quality and impact of your work
- Become an expert and collaborate with others whose expertise enhances the group work
- Demonstrate care in the design, conduct, analysis/interpretation, and dissemination of your work
- Demonstrate integrity/honesty



What is Responsible Conduct?
Show Respect for Others

- Collegiality
- Protection of human and animal subjects
- Compliance with institutional, professional, and governmental regulations and policies

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Collegiality refers to the respect you show to other people

- Respect and consideration of ideas
- Respect for intellectual property
- Fairness in assigning effort and credit for work
- Confidentiality in peer review

Protection of human and animal subjects

- Concern for the health, safety, privacy, and protection of human subjects in research
- Consideration of animal welfare

Compliance with institutional, professional, and governmental regulations and policies



What is Responsible Conduct?

Exercise Social Responsibility

- Relevant, significant hypotheses, questions, and purposes
- Appropriate dissemination of scholarly work
- Active participation in the work of the scientific community

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Responsible Conduct of Research @ MSU

1. Data management
2. Conflict of interest
3. Protection of human subjects
4. Animal welfare
5. Research misconduct
6. Publication and authorship
7. Mentor/trainee responsibilities
8. Peer review
9. Collaborative science
10. Intellectual property
11. Plagiarism

RCR topics identified by the U.S. Office of Research Integrity (ORI)

Additional MSU topics

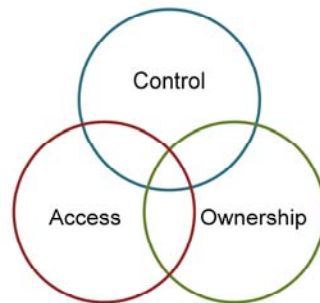
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RCR means responsible conduct of research

The next 11 slides in this presentation serve as an introduction to the more comprehensive information provided in separate PowerPoint presentations about each topic.

RCR @ MSU:

Data Management



Data management is a general term that refers to the control, access, and ownership of research data

- Control refers to data collection, storage, security, disaster recovery, and retention
- Access refers to which persons may use the data under which conditions
- Ownership refers to legal rights to the data

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RCR @ MSU:

Conflict of Interest

- Conflicts of interest include:
 - Possibility of financial gain from research
 - Competing work commitments that may affect an investigator's attention to a research project
- Conflicts of interest may lead to bias in the planning, conduct, or reporting of research
- Conflicts of interest are not inherently bad
- Disclosure helps everyone be aware of and manage conflicts of interest

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RCR @ MSU:

Protection of Human Subjects

Three principles from the Belmont Report describe the protection of human subjects in research

- Respect for persons
 - Participation must be voluntary
 - Special consideration and protection is extended to “vulnerable” subjects
- Beneficence – No person shall be placed at risk unless the risks are reasonable in relation to the anticipated benefits
- Justice – Risks and benefits should be justly distributed

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RCR @ MSU:

Animal Research

- Animal-related activities are an integral part of MSU's teaching, research and outreach missions and help MSU advance the quality of life for people and animals
- Researchers should understand the roles and responsibilities of the scientist, attending veterinarian, Institutional Animal Care and Use Committee (IACUC), and MSU administration
- If you expect to use or study living animals in your activities at MSU, contact IACUC at 517-432-8103 or <http://www.iacuc.msu.edu>

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RCR @ MSU:

Research Misconduct

- Continuum from research integrity to misconduct



Research integrity

Questionable research practices

Unacceptable research practices

Research misconduct

- Definition of Misconduct,
 - Fabrication – make-up data or results
 - Falsification – manipulate data inappropriately
 - Plagiarism – steal another person's work

Definition of misconduct, U.S. Office of Research Integrity

http://ori.dhhs.gov/policies/fed_research_misconduct.shtml

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RCR @ MSU:

Publication and Authorship

- Researchers should observe the authorship policies established by the journals and other venues in which they publish
- The MSU authorship guidelines (not policy) should be used in the absence of journal policies
- Authors should not:
 - Submit a manuscript to more than one publication at the same time
 - Engage in duplicate or piecemeal publication

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RCR @ MSU:

Mentor/Trainee Responsibilities

- Mentors should establish clear expectations for trainees with respect to all aspects of planning, conducting, and reporting research
- Collegiality and learning are enhanced when mentors and trainees understand each other's interests and responsibilities
- Concerns about mentoring include finding mentors, the need for "cultural mentors", conflicts between mentors and trainees, amorous or sexual relationships, "toxic mentors", networking, and equal opportunity for all trainees

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RCR @ MSU:

Peer Review

Peer review

- Helps establish the quality of the research and manuscript – it is judged by experts
- Contributes to fair editorial decisions about what does and does not get published

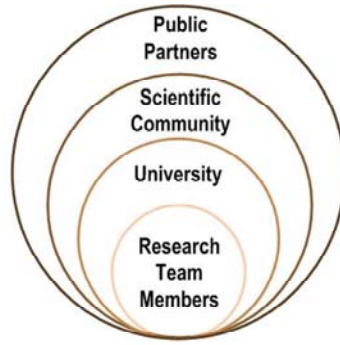
Three principles of peer review

- Fairness – provide an objective and impartial review
- Confidentiality – do not use ideas from the manuscript until it is published
- Speed – complete the review within a reasonable amount of time

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RCR @ MSU:

Collaborative Science



- Research team members – courtesy, respect, managing roles and relationships
- University – interdisciplinary collaborations
- Scientific community – sharing research data and findings
- Public partners – study relevant questions, share results

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RCR @ MSU:

Intellectual Property

- Intellectual property encompasses all forms of creativity, including:
 - Inventions, discoveries, know-how, show-how, processes, unique materials, copyrightable works, original data, and other creative or artistic works
 - The physical embodiment of intellectual effort (e.g., models, machines, devices, apparatus, instrumentation, circuits, computer programs and visualizations, biological materials, chemicals, other compositions of matter, plans, and records of research)
- Intellectual property is protected by copyrights, patents, trademarks, and trade secrets

MSU Technologies: <http://www.technologies.msu.edu/ip-primer.html>

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RCR @ MSU:

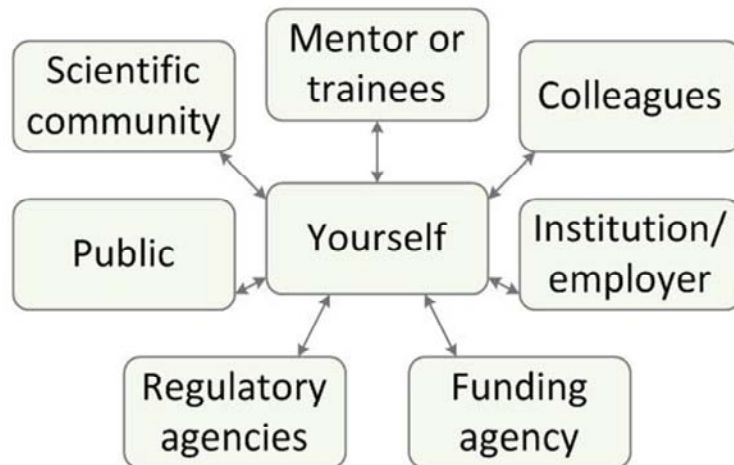
Plagiarism

- Your own words and ideas are important. As a scholar you need to create your own ideas and words!
- Plagiarism is the “use or close imitation of the language and thoughts of another author, and the representation of them as one's own original work” (Wikipedia, <http://en.wikipedia.org/wiki/Plagiarism>)
- Plagiarism is a problem in every academic and research setting, including MSU
- Students need to learn strategies for doing their own work and avoiding plagiarism

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Another Perspective

Instead of responsible *for what*,
think about responsible *to whom*



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Matching: How Are You Responsible to Each Person or Agency?

- | | |
|-------------------------|---|
| 1. Yourself | A. <i>Relevant, important research questions</i> |
| 2. Mentor or trainees | B. <i>Good science</i> |
| 3. Colleagues | C. <i>Truthful results</i> |
| 4. Employer | D. <i>Education/training</i> |
| 5. Funding agency | E. <i>Collegiality</i> |
| 6. Regulatory agencies | F. <i>Communication</i> |
| 7. Public | G. <i>Compliance with regulations</i> |
| 8. Scientific community | H. <i>Fair authorship and publication practices</i> |
| | I. <i>Other responsibilities?</i> |

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Matching: How Are Other People or Agencies Responsible to You?

- | | |
|-------------------------|---|
| 1. Mentor or trainees | A. <i>Collegiality</i> |
| 2. Colleagues | B. <i>Communication</i> |
| 3. Employer | C. <i>Education/training</i> |
| 4. Funding agency | D. <i>Fair authorship and publication practices</i> |
| 5. Regulatory agencies | E. <i>Facilities and equipment</i> |
| 6. Public | F. <i>Financial support</i> |
| 7. Scientific community | G. <i>Support services and information</i> |
| | H. <i>Other responsibilities?</i> |
| | I. <i>None?</i> |

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What Have You Learned?



- Think about a topic you plan to investigate
 - What knowledge, skills, and mentoring will you need to achieve good science or good disciplinary practice?
 - What else can you do to facilitate responsible conduct?
 - What questions do you have about responsible conduct in your discipline?

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Your Definition of Responsible Conduct

- From the MSU Research Integrity web site
 - “Research integrity broadly refers to the thoughtful and honest adherence to relevant ethical, disciplinary, and financial standards in the promotion, design, conduct, evaluation, and sharing of research in their field”
(<http://grad.msu.edu/ric/>)
- Your definition?
 - In your own words
 - Application to your scholarly discipline
 - Consider the scholar you are or want to become

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1. In what ways do you think the web site definition is adequate or inadequate?
2. State the definition in your own words. Add content specific to your scholarly discipline.



Conclusion

“The scientific enterprise is built on a foundation of trust. Society trusts that scientific research results are an honest and accurate reflection of a researcher’s work. Researchers equally trust that their colleagues have gathered data carefully, have used appropriate analytic and statistical techniques, have reported their results accurately, and have treated the work of other researchers with respect.

(continued on next slide)

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Conclusion

“When this trust is misplaced and the professional standards of science are violated, researchers are not just personally affronted—they feel that the base of their profession has been undermined. This would impact the relationship between science and society.”

On Being a Scientist: A Guide to Responsible Conduct in Research, 3rd edition, 2009, page ix,
http://www.nap.edu/catalog.php?record_id=12192#toc

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- Steneck, N. (2006-HTML Version). *ORI Introduction to the Responsible Conduct of Research*,
<http://ori.dhhs.gov/education/products/RCRintro/>

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