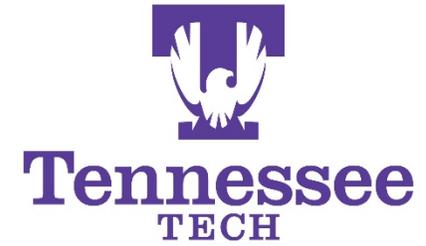


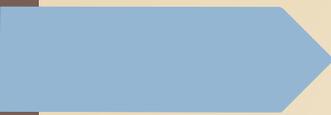
Research 101 Workshop:

Responsible Conduct of Research

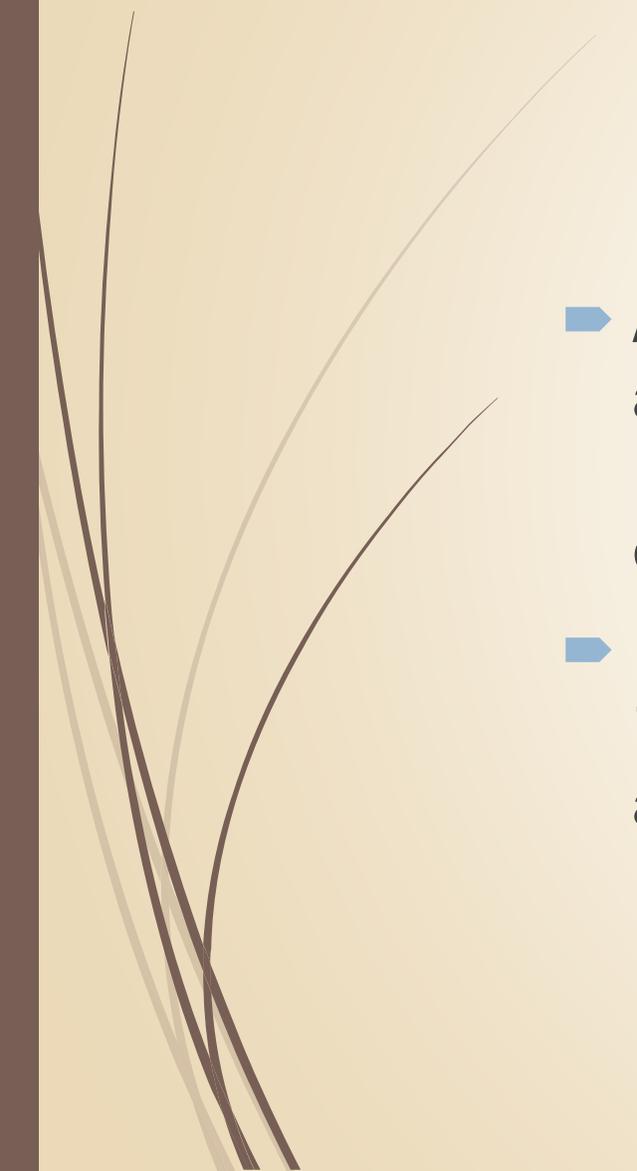


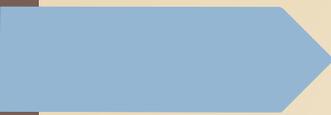


ETHICS AND RESPONSIBLE CONDUCT OF RESEARCH



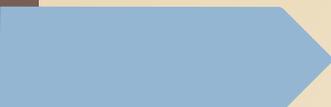
UNIFYING THEME

- ▶ All members of the university community (students, staff, faculty, and administrators) share responsibility for developing and maintaining standards to assure honesty, accuracy and objectivity in research and research administration.
 - ▶ Misconduct in carrying out academic activities undermines the integrity of the educational system and the research enterprise, and erodes public trust in the university community.
- 



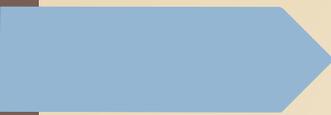
ETHICS

- ▶ Principles or philosophies which circumscribe the pursuit of a learned profession in the spirit of public service.
- ▶ Statement of principles by which the practitioner may calibrate his personal attitude and conduct to the model approved by his peers.
- ▶ Guide to the individual in the daily practice of his profession and is based on voluntary adherence to principles which transcend the practitioner's own immediate interest.
- ▶ Name we give to our concern for good behavior. Ethics rises above laws, customs, or religious practices of any one country.



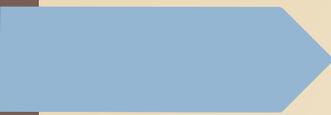
WHY WE STUDY ETHICS

- Provide an opportunity to clarify the policies, values, theories and assumptions underlying institutional and professional practices.
- Provide an opportunity to deal with issues of attribution, authorship, ownership of research materials, and so forth, on a daily basis.
- Provide an opportunity to learn the proper standards in our work with others and the profession at large.

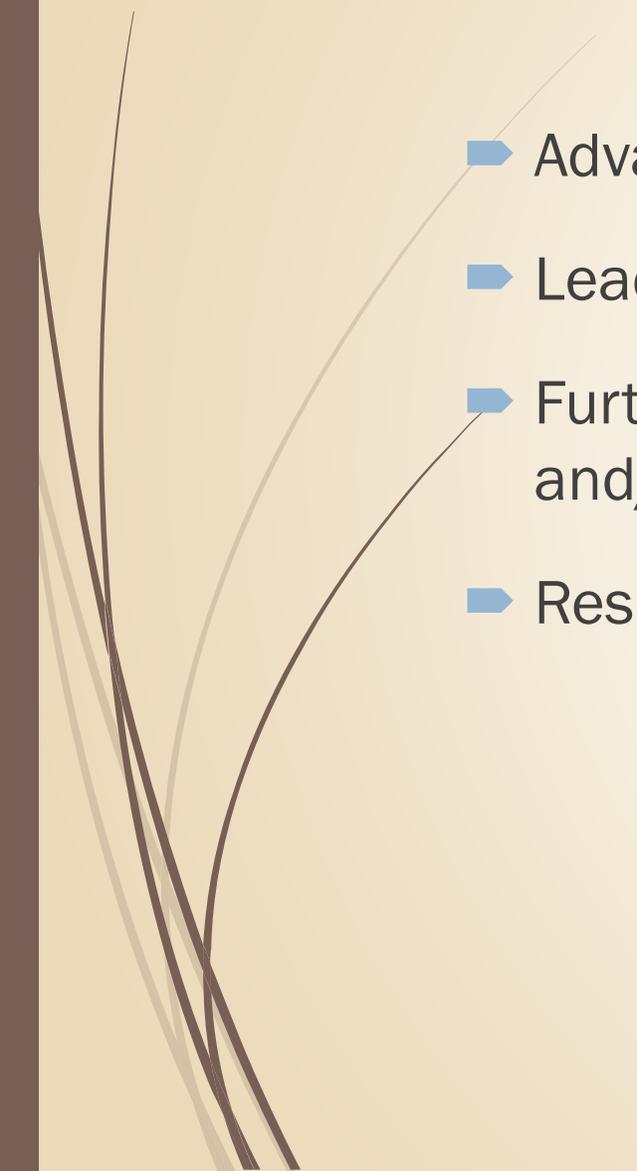


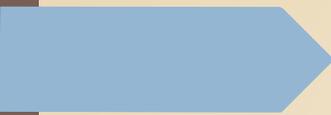
PROFESSIONAL CODES OF ETHICS

- ▶ Every professional should at all times think and act in accord with the highest principles of personal and professional honor. Do unto others as you would have others do unto you. (Golden rule).
- ▶ Ethics provide a guide in the practice of a professional's service to humanity.
- ▶ Common features include:
 - Public interest
 - Qualities of truth and honesty
 - Professional performance



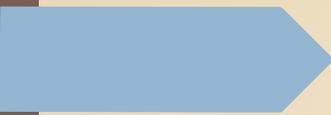
WHY WE DO RESEARCH

- Advances knowledge
 - Leads to discoveries that will benefit individuals and society
 - Furthers professional advancement, and/or
 - Results in personal gain and satisfaction
- 



RESPONSIBLE CONDUCT OF RESEARCH

- ▶ Good citizenship applied to professional life.
- ▶ Researchers have obligation to honor the trust that colleagues have placed in them.
- ▶ Researchers have obligation to themselves.
- ▶ Researchers have obligation to act in ways that serve the public good.



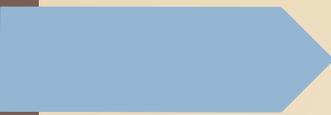
TOPICS IN ETHICS AND RESPONSIBLE CONDUCT OF RESEARCH

- Acquisition, management, sharing and ownership of data
 - Conflict of interest and commitment
 - Human subjects
 - Animal welfare
 - Research misconduct (fabrication, falsification, plagiarism)
 - Publication practices and responsible authorship
 - Mentor and trainee responsibilities
 - Peer review
 - Collaborative science
- 

RULES THAT GOVERN ETHICAL AND RESPONSIBLE CONDUCT OF RESEARCH

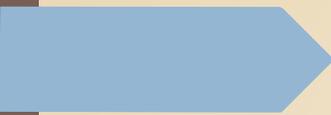
- Government (federal, state, local) regulations
- Institutional policies
- Professional codes
- Personal convictions





GOVERNMENT REGULATIONS (FEDERAL, STATE, LOCAL)

- ▶ 1966 Animal Welfare Act (PL 89-544)
- ▶ 1974 National Research Act (PL 93-348)
- ▶ 1985 Health Research Act (PL 99-158)
- ▶ 1992 Office of Research Integrity (ORI)
- ▶ 2007 “AMERICA COMPETES” Act (PL 110-69)
- ▶ 2014 Code of Federal Regulations, Title 2 Part 200
- ▶ 1951 TN Public Acts – Tennessee Code Annotated (T.C.A.)



AMERICA “COMPETES” ACT (PL 110-69)

COMPETES: Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science.

Requires *that each institution that applies for financial assistance 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.



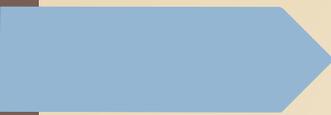
INSTITUTIONAL POLICIES

- ▶ Institutions that accept federal funds for their research programs are required by law to have policies that cover various aspects of their research programs.
- ▶ Institutions are required to have Web sites that contain some or all of the following information:
 - Copies of institutional research policies
 - Links to federal and state policies
 - Required forms and instructions for completing them
 - Responsible conduct of research training
 - List of key personnel



TTU POLICIES ON RESPONSIBLE CONDUCT OF RESEARCH

- Responsible conduct of research
- Animal care and use
- Human subjects
- Export controls
- Intellectual property
- Misconduct in research
- Conflict of interest
- Etcetera



PROFESSIONAL CODES AND PERSONAL CONVICTIONS

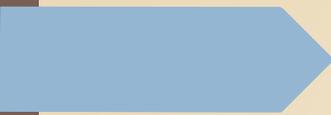
- ▶ Professional societies are a good starting point for learning about responsible conduct of research.
 - ▶ Always follow the rules and be aware that rules establish minimum standards.
 - ▶ Rules will not resolve some of the personal conflicts and moral dilemmas that arise in research.
 - ▶ Rules should be supplemented with good judgment and strong sense of personal integrity.
- 



CONFLICT OF INTEREST

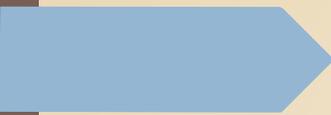
Exists whenever personal, professional, commercial, or financial interests and activities have the possibility (either actually or in appearance) of

- ▶ compromising individual's judgement;
- ▶ biasing the nature of scholarly research;
- ▶ affecting individual's decision or behavior with respect to teaching and student affairs, appointments and promotions, uses of resources, interactions with human subjects; or other matters of interests to the institution; or
- ▶ resulting in a family member's gain or advancement.



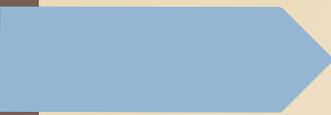
FEDERAL POLICY ON CONFLICT OF INTEREST

- ▶ Federal policies require institutions that receive federal funds to establish administrative procedures for
 - Reporting significant conflicts before any research is undertaken;
 - Managing, reducing, or eliminating significant financial conflicts of interest;
 - Providing subsequent information on how the conflicts are handled.



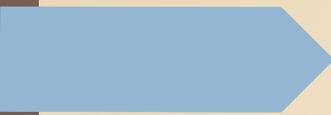
CONFLICT OF COMMITMENT

Exists whenever an individual's external relationships or activities have the possibility (either in actuality or in appearance) of interfering or competing with the University's educational, research, or service missions, or with that individual's ability or willingness to perform the full range of responsibilities associated with his or her position.



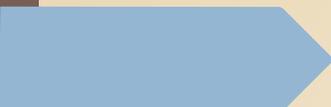
FEDERAL POLICY ON CONFLICT OF COMMITMENT

- ▶ Federal law requires that institutions have rules on how researchers who receive federal funding spend their time, particularly time in serving as paid consultants, giving paid lectures, or working as an employee in a private company. These rules require that researchers
 - Honor the commitment they have made, such as devoting a specified percent of time to a grant or contract;
 - Refrain from charging two sources of funding for the same time; and
 - Seek advice if they are unsure whether a particular commitment of time is allowed under an institution's or the Federal Government policies



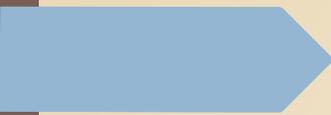
MANAGING CONFLICTS OF INTEREST AND CONFLICTS OF COMMITMENT

- ▶ Avoidance – usually the best approach
- ▶ Transparency – often best used for difficult-to-avoid situations that are not severe or direct conflicts



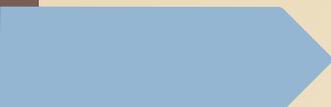
RESEARCH MISCONDUCT

- ▶ Fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or reporting research results.
 - ▶ Misconduct does not include honest error or honest differences in interpretations or judgments of data.
- 



FEDERAL GUIDANCE ON RESEARCH MISCONDUCT

- ▶ Every institution that receives public health service funding must have procedures in place for receiving and investigating reports of research misconduct to include:
 - Provisions of initial inquiry to determine whether the allegations have merit,
 - Provisions for a formal investigation to reach conclusions about the truth of the allegations,
 - Designation of an individual who is authorized to adjudicate the conclusions reached in the investigation and impose administrative actions to redress the misconduct,
 - Provisions for reporting to the Federal Office of Research Integrity.



FALSIFICATION

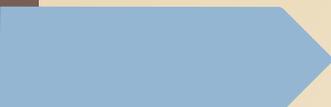
Manipulation such that the research is not accurately represented in the research record by the following:

- Research materials
- Equipment
- Processes
- Data manipulation (changing/omitting data or results)



PLAGIARISM

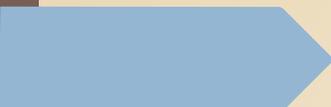
- ▶ Plagiarism: The appropriation of another person's ideas, processes, results, or words without giving appropriate credit, including those obtained through confidential review of others' research proposals and manuscripts (Nat. Acad. Press document.)
- ▶ Self-plagiarism: The verbatim copying or reuse of one's own research (IEEE Policy Statement)



RESEARCH MISCONDUCT

In order to be considered research misconduct, actions must:

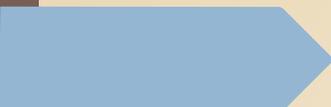
- ▶ Represent a significant departure from accepted practices;
- ▶ Have been committed intentionally, or knowingly, or recklessly; and
- ▶ Be proven by preponderance of evidence



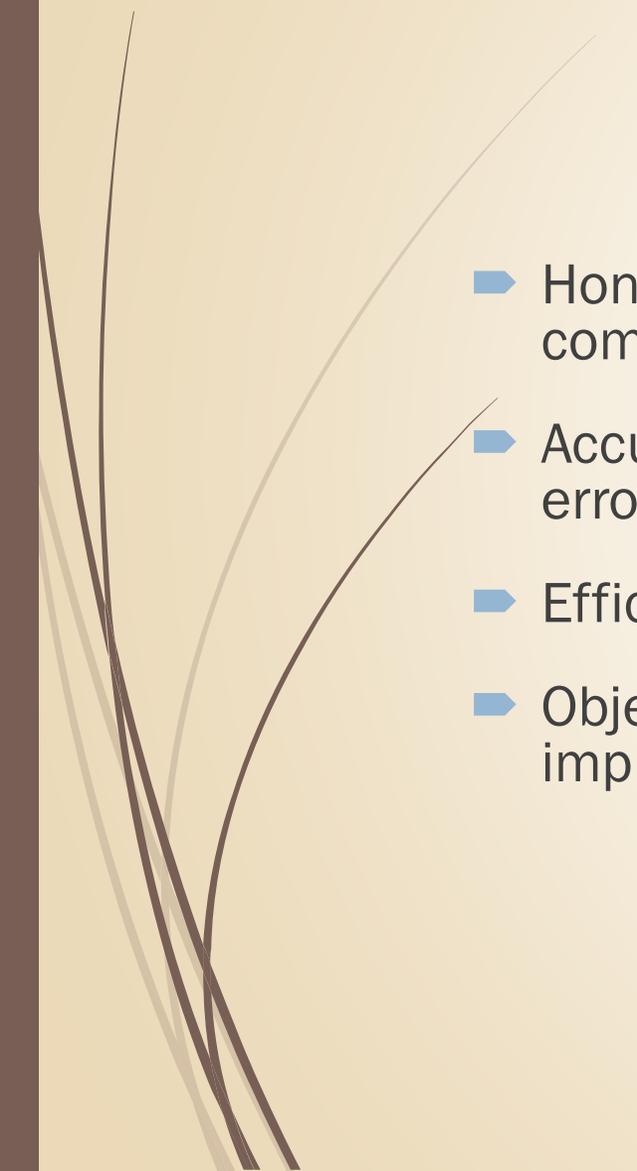
WITNESSING MISCONDUCT

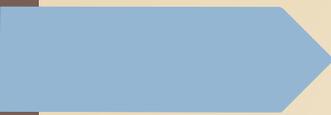
What should you do if you are a witness to unethical actions?

- ▶ Make sure what you are witnessing is unethical
- ▶ Gather evidence of unethical behavior
- ▶ Document abuses in writing and find other witnesses/allies
- ▶ If you must face a suspected malefactor, it is best not to be self-righteous or confrontational



SHARED VALUES

- ▶ Honesty – conveying information truthfully and honoring commitments
 - ▶ Accuracy – reporting findings precisely and taking care to avoid errors
 - ▶ Efficiency – using resources wisely and avoiding waste
 - ▶ Objectivity – letting the facts speak for themselves and avoiding improper bias.
- 



FINAL THOUGHTS

“It's not the honors and the prizes and the fancy outsides of life which ultimately nourish our souls. It's the knowing that we can be trusted, that we never have to fear the truth, that the bedrock of our very being is good stuff.”

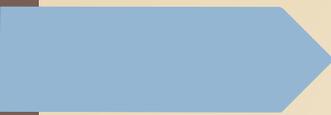
- Fred Rogers

“Mister Rogers’ Neighborhood”

Commencement Address at Middlebury College - May, 2001

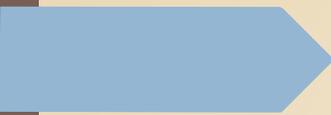
REFERENCES

- ▶ National Academy of Science, National Academy of Engineering, and Institute of Medicine. Committee on Science Engineering and Public Policy. (2009). *On Being a Scientist: A Guide to Responsible Conduct of Research* (3rd ed.) Washington DC. The National Academy Press
- ▶ Institute of Medicine and National Research Council of the National Academies. Committee on Assessing Integrity in Research Environments. (2002). *Integrity in Scientific Research: Creating an Environment That Promotes Responsible Conduct*. Washington, DC. The National Academic Press
- ▶ Office of Research Integrity. (2004). *Introduction to the Responsible Conduct of Research*, by N.H. Steneck. Washington, DC. U.S. Government Printing Office.
- ▶ Council of Graduate Schools. (2008). *Best Practices in Graduate Education for the Responsible Conduct of Research* by D. Carlin and D. Denecke. Washington, DC.
- ▶ Council of Graduate Schools. (2006). *Graduate Education for the Responsible Conduct of Research*, by P. Tate and D. Denecke. Washington, DC.

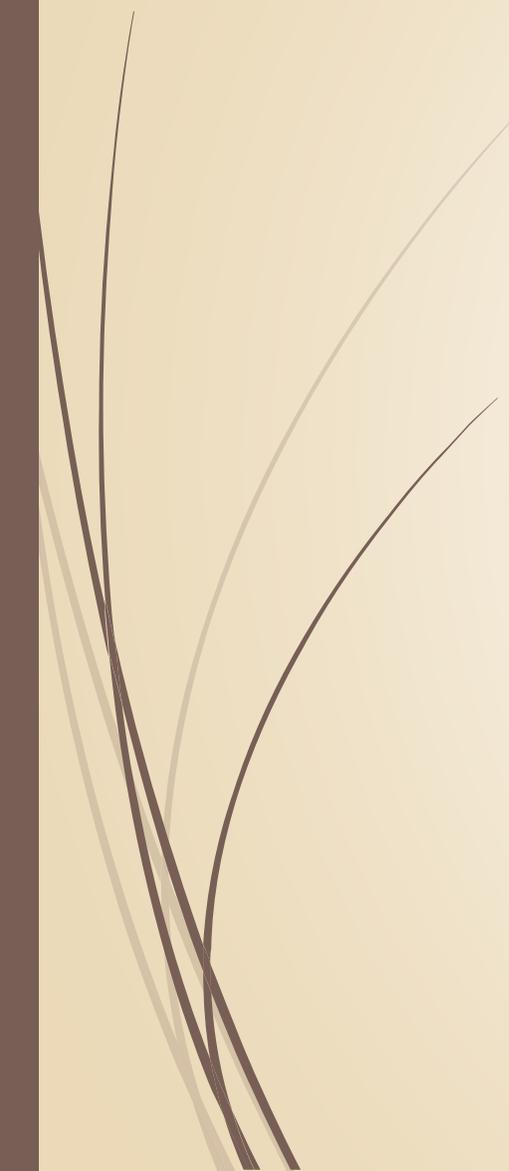


DISCUSSIONS . . .

- ▶ What is the biggest challenge to learning about responsible conduct of research?
- ▶ How should the academic community (students, staff, faculty, and administrators) learn about responsible conduct of research?
- ▶ Who is responsible for monitoring research misconduct at Tennessee Tech?
- ▶ Would you report research misconduct if you are concerned that doing so would adversely impact your career?



DISCUSSIONS



- ▶ Prof. Quartz has a grant from the National Science Foundation (NSF) to travel to Sydney, Australia to present the results of an important and significant work on primates. He requested and received approval from the NSF program director to fly first class to Sydney. Should Prof. Quartz purchase a first class air ticket since he has received approval from the program director?
- ▶ Prof. Granite received a fixed cost contract from the Caterpillar Company. He has successfully completed the Caterpillar project and provided the deliverables. He wants to purchase additional supplies for an unrelated project from the left over funds from the Caterpillar project. Should Prof. Granite purchase the supplies?

QUESTIONS ?

