



Research Integrity

Iris Jenkins, Ph.D.

Director, Research Integrity and Consultation Program

Research Integrity Officer

Virginia Tech

irisj@vt.edu

Katie Tomlinson

Research Compliance Specialist

Responsible Conduct of Research Coordinator

Carilion Clinic

kltomlinson@carilionclinic.org



January 2025



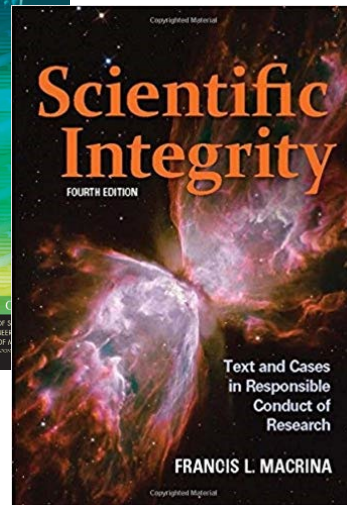
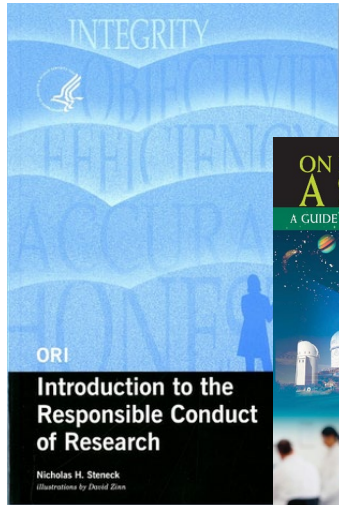
RESEARCH AND INNOVATION
SCHOLARLY INTEGRITY AND
RESEARCH COMPLIANCE
VIRGINIA TECH

What is Research Integrity?



The adherence to ethical principles, honesty, and transparency in the conduct of research by maintaining high standards of accuracy, objectivity, and fairness throughout the entire research process.

What does the field expect of us?

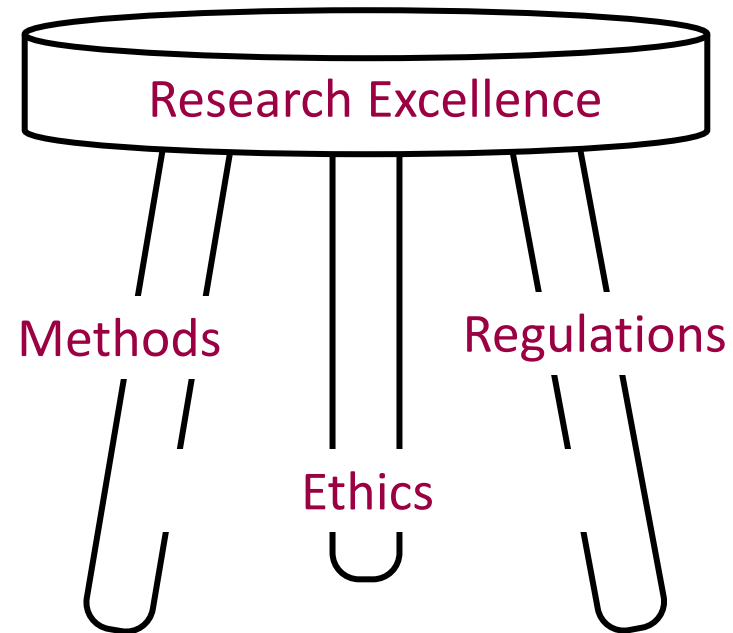


- **Our shared values:** Honesty, objectivity, transparency, accuracy, and reproducibility
- **Our obligations:** To honor the trust our colleagues have in us; to our personal integrity; to the public
- **Our ability to engage in moral reasoning:** Moral sensitivity, moral reasoning, moral commitment, moral perseverance/implementation

Research Excellence



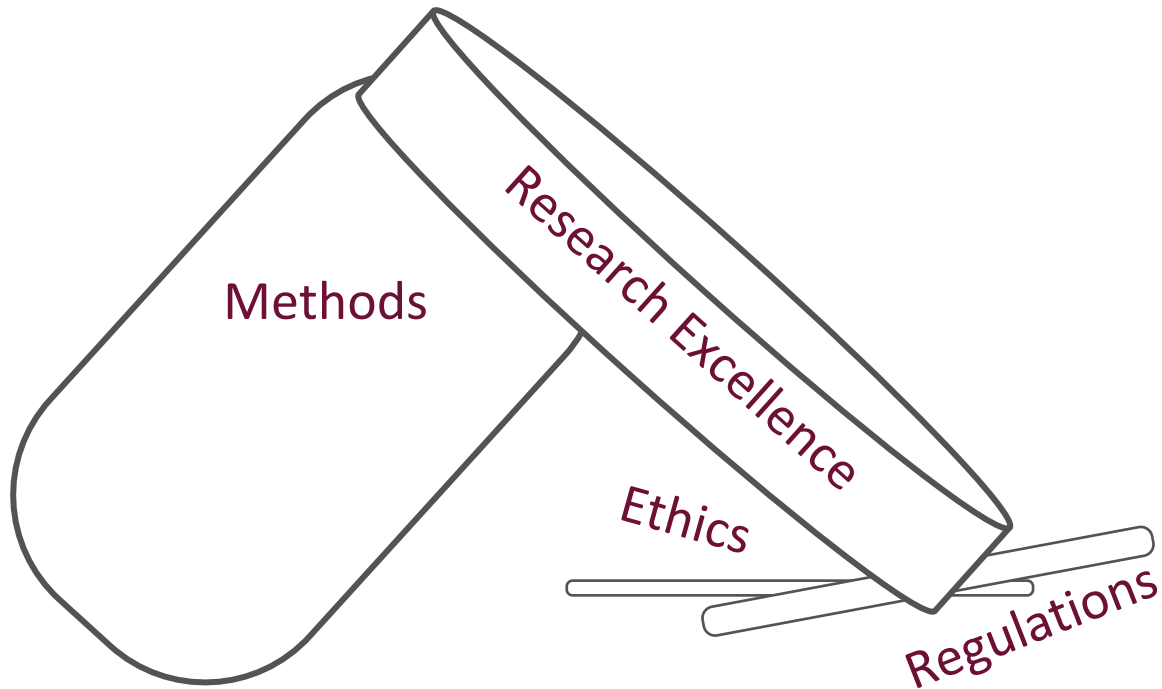
Research Excellence



Research Excellence



Research Excellence



Research Excellence





Defining Research Misconduct

Unethical behavior including fabrication, falsification, or plagiarism in proposing, performing, reviewing, or in reporting research results

Defined by 42 CFR 93 HHS and 45 CFR 689 NSF

- Fabrication: Making up data or results and recording or reporting them as actual or real data
- Falsification: Manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record
- Plagiarism: Appropriation of another person's ideas, processes, results, or words without giving appropriate credit

Does not include honest error or differences of opinion



COLLABORATION



COMMITMENT



COMPASSION



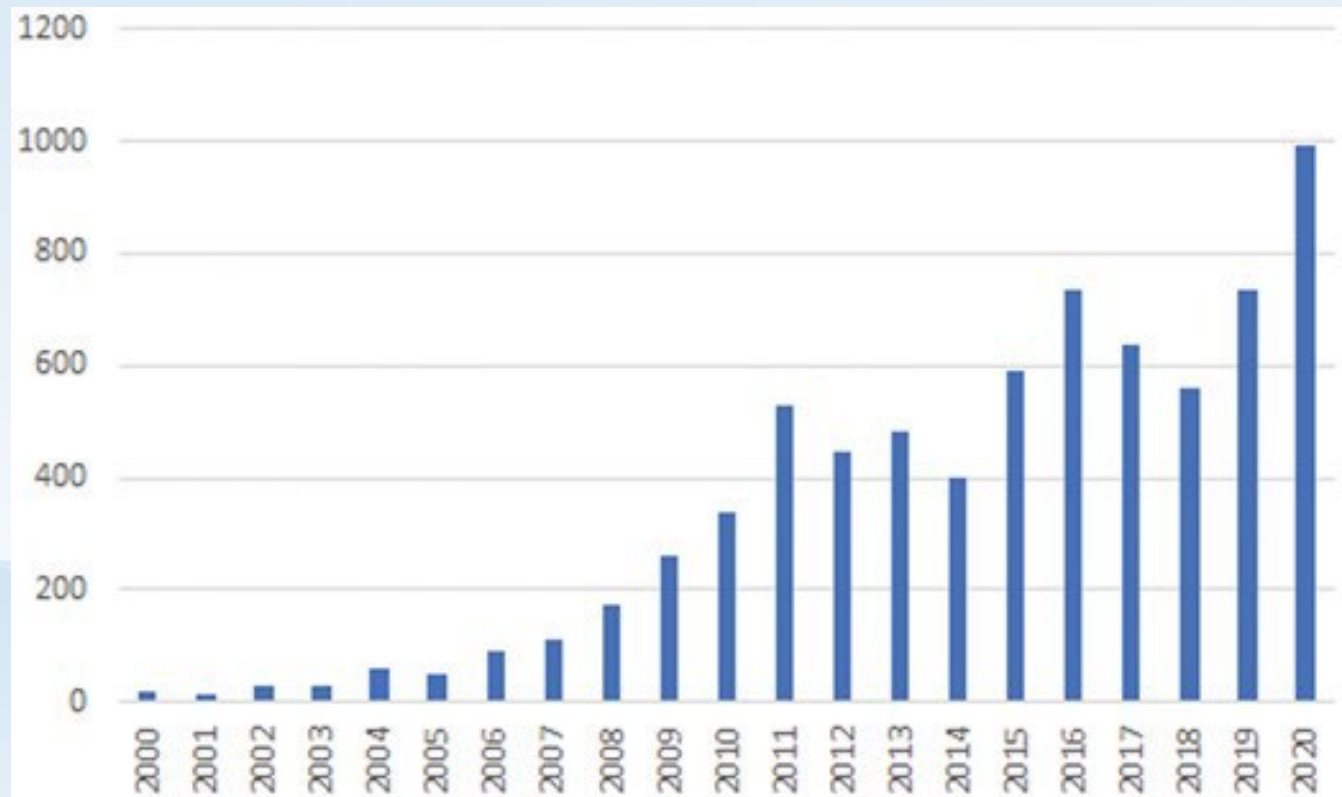
COURAGE



CURIOSITY

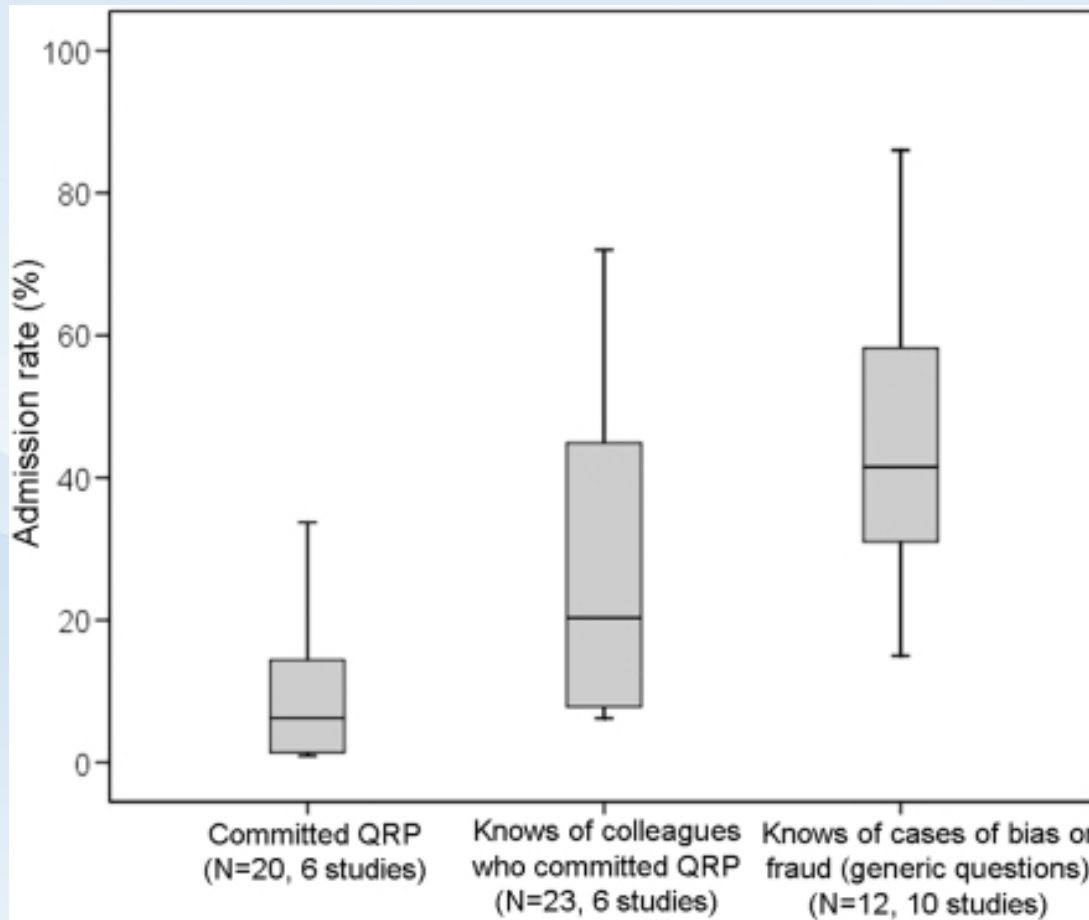
Bad Apples: Retractions Over the Years

Retractions in the health sciences by year since 2000. Data are from the Retraction Watch Database at retractiondatabase.org.



Ivan Oransky, Stephen E Frenes, Paul Kurlansky, Mario Gaudino, Retractions in medicine: the tip of the iceberg, *European Heart Journal*, Volume 42, Issue 41, 1 November 2021, Pages 4205–4206, <https://doi.org/10.1093/eurheartj/ehab398>

Bad Apples: Admission Rates



Fanelli D. How many scientists fabricate and falsify research? A systematic review and meta-analysis of survey data. PLoS One. 2009 May 29;4(5):e5738. doi: 10.1371/journal.pone.0005738. PMID: 19478950; PMCID: PMC2685008.

Consequences of Research Misconduct



- Professional Consequences
- Academic/Institutional Consequences
- Harm to the credibility of science



COLLABORATION



COMMITMENT



COMPASSION



COURAGE



CURIOSITY

Research Misbehavior or Research Misconduct? Can You Identify **Misbehavior**?

A. Sloppy notebook

B. Enhancing the contrast of an image

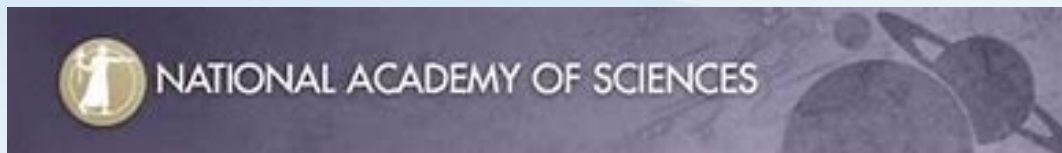
C. Exaggerating meaning of results



Detrimental Research Practices

National Academy of Sciences: It is no longer questionable that some research practices are detrimental

- Gratuitous authorship, denying authorship
- Not retaining data, code or other material as expected
- Neglectful or exploitative supervision
- Misleading statistical analysis
- Lack of policies, procedures, or capacity to create an environment to support integrity
- Abusive or irresponsible publication practices





Case Studies




CARILION CLINIC



RESEARCH AND INNOVATION
SCHOLARLY INTEGRITY AND
RESEARCH COMPLIANCE
VIRGINIA TECH

Mine not Ours

- A former graduate student contacted the RIO and said that their former faculty advisor had published research without giving them appropriate credit.
- According to the former graduate student, the faculty member had coauthored a manuscript that referenced ideas and used methods that the former graduate student believed they created without giving them appropriate credit.
- The use of their “intellectual property” was particularly distressing to the former graduate student because they believe that a lack of publications and citations is limiting their ability to gain employment.

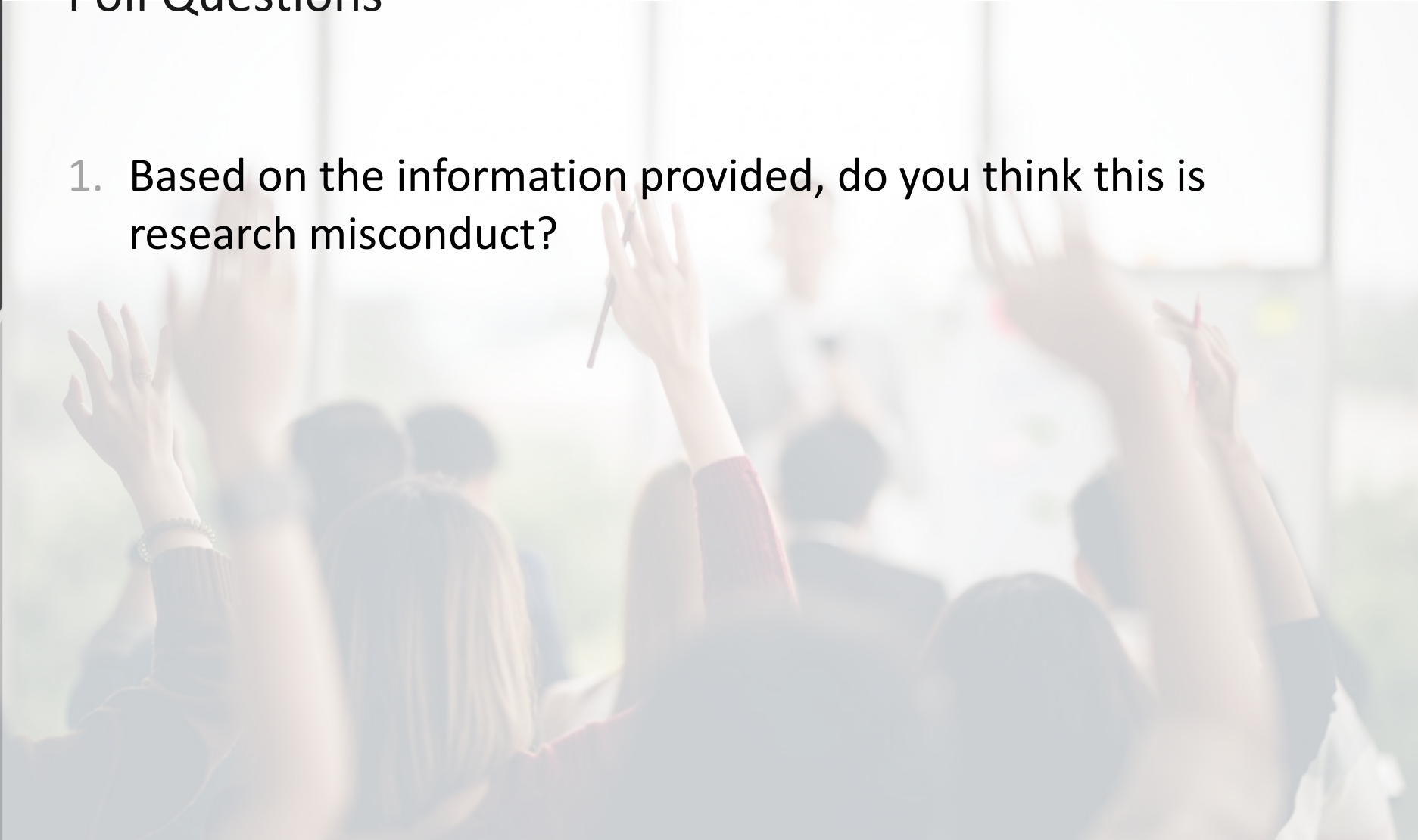
Mine not Ours

- The faculty member responded to the former graduate student's complaint by saying that the former graduate student is trying to lay claim to tools and analysis techniques that are widely used by other research teams in the field.
- The faculty member also agreed that there are similarities between the former graduate student's dissertation and the article in question but claimed that the research described in the article is from a different study.
- The faculty member concluded their rebuttal by saying that they have strongly encouraged the former graduate student to publish their work, but the former graduate student never submitted their research to any journal. Therefore, the faculty member believes that it is impossible for them to cite the former graduate student's work in event that a citation was necessary.



Poll Questions

1. Based on the information provided, do you think this is research misconduct?





Discussion

Why do you think this *is* or *is not* research misconduct?

What additional information might you need to determine if this situation is or is not research misconduct?

How might a researcher cite unpublished work?

Themes and Issues

- Ownership of ideas
- The importance of publication to a career in academia
- Interpersonal Disputes v. Authorship
Disputes v. Research Misconduct





COLLABORATION



COMMITMENT



COMPASSION



COURAGE



CURIOSITY

Where's the data?

- A current graduate student was asked to conduct additional analysis on data collected by a former graduate student.
- The current graduate student was unable to replicate the former graduate student's results.
- The current graduate student believed the former graduate student may have fabricated or falsified the data, so they contact the RIO.



COLLABORATION



COMMITMENT



COMPASSION



COURAGE



CURIOSITY

Where's the data?

- The questionable data had been published but only made up a small portion of the manuscript.
- A research misconduct review was initiated, and the committee requested copies of the original data produced by the piece of equipment used to run the test.
- The record produced by the machine was an Excel document and it was impossible to determine who made the changes to the data before it was submitted to the journal.



COLLABORATION



COMMITMENT



COMPASSION



COURAGE



CURIOSITY

Where's the data?

- The committee requested the former graduate student's lab notebook, but it was scant on details.
- A review of the electronic research records did not provide any additional clarity.
- When asked why they didn't catch the manipulated data during the review process the faculty advisor indicated that they trusted the student and didn't want to micromanage them.



COLLABORATION



COMMITMENT



COMPASSION



COURAGE



CURIOSITY

Poll Questions

1. Based on the information provided, do you think this is research misconduct?



COLLABORATION



COMMITMENT



COMPASSION



COURAGE



CURIOSITY

Discussion

Why do you think this *is* or *is not* research misconduct?

What are the responsibilities of faculty in ensuring research integrity?

What processes or safeguards could have been put into place to prevent such issues from arising?



COLLABORATION



COMMITMENT



COMPASSION



COURAGE



CURIOSITY

Themes and Issues

- Data Management
- Record Keeping
- Adequate oversight
- Pressure to succeed





Responsible Conduct of Research




CARILION CLINIC

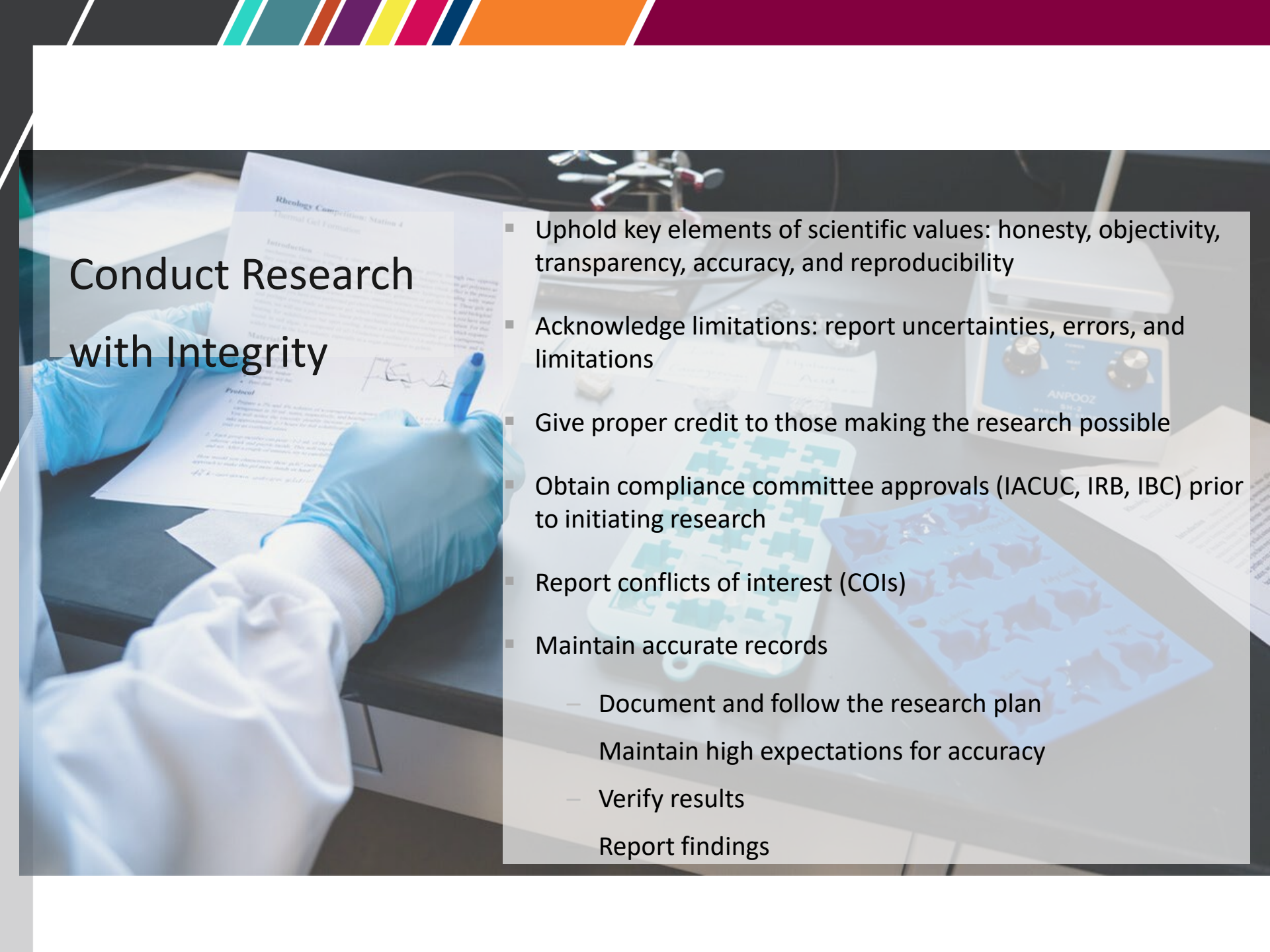


RESEARCH AND INNOVATION
SCHOLARLY INTEGRITY AND
RESEARCH COMPLIANCE
VIRGINIA TECH

The Importance of Moral Reasoning in the Responsible Conduct of Research

- Not all problems can be anticipated
- Ethical challenges cannot be addressed if they go unrecognized
- Not all ethical challenges have corresponding research regulations
- Ethical challenges often have more than one 'right answer'
- Communicating ethical reasoning is essential





Conduct Research with Integrity

- Uphold key elements of scientific values: honesty, objectivity, transparency, accuracy, and reproducibility
- Acknowledge limitations: report uncertainties, errors, and limitations
- Give proper credit to those making the research possible
- Obtain compliance committee approvals (IACUC, IRB, IBC) prior to initiating research
- Report conflicts of interest (COIs)
- Maintain accurate records
 - Document and follow the research plan
 - Maintain high expectations for accuracy
 - Verify results
 - Report findings

Conduct Research with Integrity Continued



- Collaborate responsibly
 - Clearly define roles
 - Outline authorship expectations
 - Foster open communication
- Promote ethical research culture
 - Code of ethics
 - Institutional policies
 - Regulations
 - Personal convictions
- Training
 - Ongoing training and development of moral reasoning
 - Mentoring



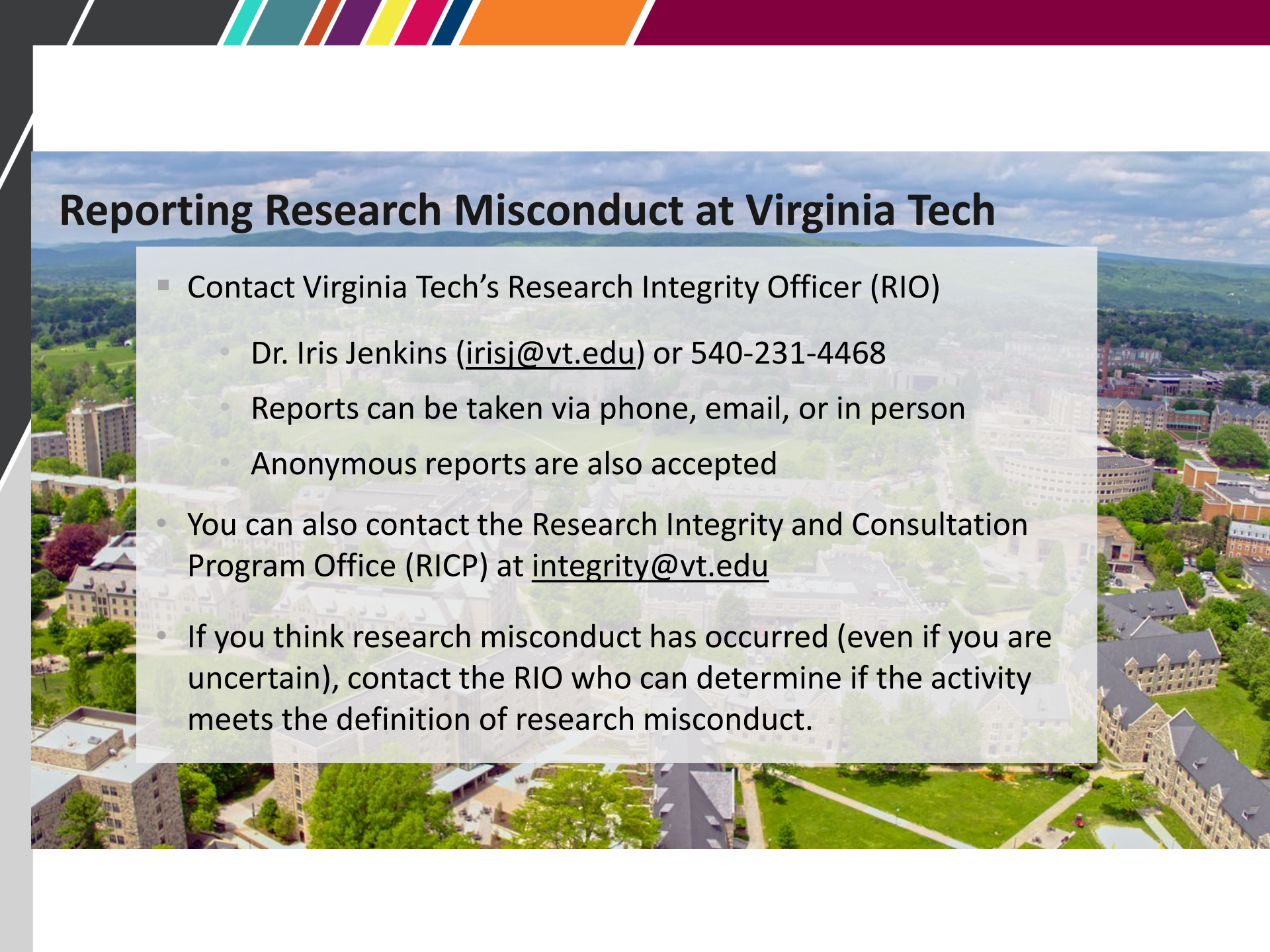
Research Misconduct Reporting




CARILION CLINIC



RESEARCH AND INNOVATION
SCHOLARLY INTEGRITY AND
RESEARCH COMPLIANCE
VIRGINIA TECH

An aerial photograph of the Virginia Tech campus, showing various buildings, green spaces, and a large lake in the foreground. A semi-transparent white box is overlaid on the center of the image, containing text about reporting research misconduct. The top of the slide features a decorative header with diagonal stripes in teal, orange, and purple.

Reporting Research Misconduct at Virginia Tech

- Contact Virginia Tech's Research Integrity Officer (RIO)
 - Dr. Iris Jenkins (irisj@vt.edu) or 540-231-4468
 - Reports can be taken via phone, email, or in person
 - Anonymous reports are also accepted
- You can also contact the Research Integrity and Consultation Program Office (RICP) at integrity@vt.edu
- If you think research misconduct has occurred (even if you are uncertain), contact the RIO who can determine if the activity meets the definition of research misconduct.



COLLABORATION



COMMITMENT



COMPASSION



COURAGE



CURIOSITY

Research Misconduct Reporting at Carilion Clinic

If you have any concern that research misconduct has occurred, please report by:

- Calling the **Integrity Help Line Compliance** at (844)-732-6232,
- By accessing <https://compliance.carilionclinic.org> and selecting “research misconduct” report,
 - Anonymous reports accepted
- Or by emailing ResearchCompliance@carilionclinic.org.
- **Research Integrity Officer:** Kristin Meador, MHA
 - Also, Carilion’s Chief Compliance Officer
 - klmeador@carilionclinic.org

<https://compliance.carilionclinic.org>

Billing/Coding 	Conflict of Interest 	Environmental 	Fraud 
Health Violation 	HIPAA Privacy 	Housekeeping 	Human Resources 
Maintenance 	Medical Staff 	Other 	Patient Abuse/Physical 
Patient Abuse/Verbal 	Patient Care 	Patient’s Rights 	Policy Violation 
Research Misconduct 	Sexual Harassment 	Substance Abuse/Alcohol 	Substance Abuse/Drugs 

REPORT DISCLAIMER

NEXT >