

# BIOTRAIN 751 “The Responsible Scientist I”

Spring 2021

**Course Director:** Erika Crosby, Ph.D.  
OBGE RCR/R&R Curriculum Manager  
**Day/time:** Thursday, 8:30-9:30 AM  
**Location:** Nanaline Duke Room 147

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	Small group 1	Small group 2	Small group 3	Small group 4	Small group 5	Small group 6
<b>Instructors</b>						
<b>TAs</b>						
<b>Room</b>	Nanaline Duke 147	Jones 143				

## Overview:

This course is developed to engage Biomedical Ph.D. trainees in continued Responsible conduct of research, Rigor and Reproducibility RCR/R&R training, an emerging mandate from the National Institution of Health (NIH) and future requirement for NIGMS T32 Pre-Doctoral Training grants. The course is directed by the RCR Curriculum Manager in the Office of Biomedical Graduate Education (OBGE) in Duke School of Medicine and it is team-taught by faculty members from each SoM Ph.D. training program. The content is delivered as a combination of lectures, small group discussions and online based learning modules. This course is part of a curriculum that covers much more than research ethics. The topics included in this curriculum as mandated by the NIH include:

1. Conflict of interest – personal, professional, and financial
2. Policies regarding human subjects, live vertebrate animal subjects in research, and safe laboratory practices
3. Mentor/mentee responsibilities and relationships
4. Collaborative research including collaborations with industry
5. Peer review
6. Data acquisition and laboratory tools; management, sharing and ownership
7. Research misconduct and policies for handling misconduct
8. Responsible authorship and publication
9. The scientist as a responsible member of society, contemporary ethical issues in biomedical research, and the environmental and societal impacts of scientific research
10. Rigor of the prior research; scientific premise
11. Scientific rigor in experimental design
12. Biological variables
13. Authentication

## Course Requirements and Expectations:

This course will have a weekly assignment or meeting. While you will not receive a numeric grade, all modules must be completed and live class meetings attended. Each live lecture will require you to submit an attestation on Sakai that you either attended the lecture or watched the recording in its entirety. There will be a **1 missed class/assignment** grace policy. If you miss 2 classes/assignments, you will be required to complete an additional RCR forum to receive credit for BIOTRAIN754. If you miss 3 or more classes or assignments, you will be required to retake the course next Spring. A reminder that this course is a REQUIREMENT for graduation.

## Sakai Site and Zoom Meetings:

All course materials, modules, video recordings, and zoom links will be available on the course Sakai site. Lectures will be offered live at the scheduled class time, and attendance will be taken. Attendance at the live lecture is not required as all lectures will be recorded and posted on the Sakai site within 24 hours. If you do not attend live, you will be required to view the lecture online and attest that you have watched the lecture in its entirety. The attestation will not be available until the video has been viewed.

## Tentative Schedule:

Changes to the schedule are at the discretion of the course director and will be communicated in a timely fashion.

Date	Topics/ Units	Lecturer
27 Jan	Introduction to the Course, Material, and Instructors	Erika J. Crosby, Ph.D. Assistant Professor of Surgery OBGE RCR/R&R Curriculum Manager
3 Feb	IACUC protocol submission/compliance at Duke, and responsible research with animals	Anna Hampton, DVM, DACLAM, DACAW, CPIA Director, Office of Animal Welfare Assurance Chair, IACUC
10 Feb	Data management and record keeping	Stacy Horner, PhD Associate Professor Co-Director, Center for RNA Biology
17 Feb	Statistical considerations for experimental design and variables	Yue Jiang, PhD Assistant Professor of the Practice of Statistical Science
24 Feb	Writing a scientific paper: determining authorship order and deciding where/how to publish	William Krenzer, Ph.D. Scientific Integrity Associate Duke ASIST Office
3 Mar	Cell line authentication and socially responsible science	Sakai
10 Mar	Spring Break	
17 Mar	Questionable Research practices journal article	Sakai
24 Mar	Responsible authorship, publication and peer review	Small group discussion
31 Mar	Discussion of examples of bias, cherry-picking data, and best practices in data acquisition and analysis	Small group discussion
7 Apr	Statistical considerations peer review	Small group discussion
14 Apr	Research misconduct case studies	Small group discussion

RCR topics shown in red; R&R topics shown in blue; Topics that integrate both elements shown in green.

## Objectives & Student Learning Outcomes (SLOs):

By the end of the course, participants will be able to demonstrate the following learning outcomes:

*Objective 1: Gain knowledge about the responsible conduct of research (RCR)*

*SLO i: Describe rules and policies for ethical research practices*

*Objective 2: Be exposed to ethical decision making (EDM) in RCR*

*SLO ii:* Identify an ethical question (ethical sensibility: is there an ethical dilemma?)

*SLO iii:* Know procedures for reporting and investigating research misconduct

*Objective 3: Exhibit moral courage*

*SLO iv:* Understand that knowing what to do does not equal moral courage

*Objective 4: Demonstrate Integrity*

*SLO v:* Know the importance of character and being honest and fair

#### Disability Statement:

Students with disabilities who believe that they may need accommodations in the class are encouraged to contact the Office of Services for Students with Disabilities at 684-5917 or [disabilities@aes.duke.edu](mailto:disabilities@aes.duke.edu) as soon as possible to better ensure that such accommodations are implemented in a timely fashion.

#### Academic Integrity:

Duke University is a community dedicated to scholarship, leadership, and service and to the principles of honesty, fairness, respect, and accountability. Citizens of this community commit to reflect upon and uphold these principles in all academic and non-academic endeavors, and to protect and promote a culture of integrity.

To uphold the Duke Community Standard:

The student will not lie, cheat, or steal in their academic endeavors;

The student will conduct themselves honorably in all their endeavors; and

The student will act if the Standard is compromised.

Students should also read the Duke policy on Academic Dishonesty at

<https://studentaffairs.duke.edu/conduct/z-policies/academic-dishonesty>