

# RCRG 600 – An Introduction to Responsible Conduct of Research

## 0 Credit Hours

### Course Logistics

**Course Director:** Natalie Chernets, PhD

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**Office Hours:** By appointment

**Course Time and Locations:** The course is offered during three sections. Students will only register for one section.  
Sessions:

1. Mondays, 12 pm-12:50 pm, 3PKWAY 603A;  
Dates: Jan 6, 13, 27, Feb 3,10,17,24, March 2.
2. Wednesdays, 12 pm-12:50 pm, NSBITT 125;  
Dates: – Jan 8, 15, 22, 29, Feb 5,12,19, 26

### COURSE DESCRIPTION

This course is a series of 50 min meetings that are designed to familiarize students with several issues related to the ethical conduct of scientific research. The students are advised of their societal responsibilities as members of the scientific research community. These include integrity, honesty, objectivity and excellence.

This short course in the responsible conduct of research (RCR) will introduce students to major ethical and policy issues in research. Priority will be given to those issues covered in the federal definition of “scientific misconduct” and in the NIH’s model curriculum on RCR. These issues include data fabrication, data falsification and plagiarism; responsible authorship, publication and mentorship practices; conflicts of interest; data management; and the use of human participants and animal subjects in research. As well, broader ethical issues in scientific research will be touched upon, for example as relates to changes in the way science is funded and structured and evolving social views regarding researchers’ responsibilities to both humans and animal involved in research. Course sessions and discussions are led by senior Drexel University academic and research leaders, including department chairs, vice presidents, deans, directors and provosts. The course is presented using lectures, current literature, large and small group discussions, required text readings, online resources and discussion, and required online exercises and quizzes (for training in plagiarism, and in the ethical study of animals and humans).

### COURSE STRUCTURE

The is a 0-credit, non-billable course that consists of eight (8) 50 min lectures, as laid out below in the lecture schedule, as well as **an additional 2 hours of RCR instruction to be delivered by students’ academic programs outside of the classroom.** Students will be notified by their academic programs later in the year about any supplementary training that they need to complete.

All lectures will be 50 minutes in length. Course sections will meet once per week and will be capped at approximately 40 students each.

## **COURSE OBJECTIVES**

Upon completion of this course, students will be able to:

1. Describe in broad terms the ethical considerations that arise in the planning, funding, conduct, and reporting of science.
2. Discuss the three main elements of research misconduct: fabrication, falsification, and plagiarism.
3. Give examples of financial and nonfinancial conflicts of interest.
4. Locate the Drexel policies on research misconduct and conflicts of interest and know when to consult these policies.
5. Explain in broad terms the ethical issues raised by human- and animal-subjects research and the manner in which these activities are regulated.
6. Determine if they need to seek IRB and IACUC approval.
7. Understand relevant federal requirements pertaining to data sharing and the arguments supporting them.

## **COURSE CONTENT AND TEACHING METHODS**

**Course materials:** Materials that will be available on Blackboard:

- PowerPoint slide presentations
- Required course readings
- Additional readings

**Required text:**

- **Scientific Integrity: Text and Cases in Responsible Conduct of Research**, 4<sup>th</sup> edition; F. L. Macrina, ASM Press, 2014. This ebook is available online through the library.
- **On Being A Scientist: A Guide to Responsible Conduct of Research**, 3<sup>rd</sup> edition; COSEPUP, National Academies Press, 2009 ([http://www.nap.edu/catalog.php?record\\_id=12192](http://www.nap.edu/catalog.php?record_id=12192) to download a free and legal PDF of the book). This ebook is available online through the library.

**Other Required readings:** As posted under “materials by week” on Blackboard

**Optional readings:** As posted under “materials by week on Blackboard”

**Prerequisites:** There are no pre-required courses for enrollment in this course, however, you should have a working knowledge of Drexel (Blackboard) Learn.

**Technical Support:** You have access to technical support 24/7 through the Instructional Technology Group (ITG). Click on “**Tech Support**” at the top of the DREXEL LEARN (BbLearn) page.

- Drexel (Blackboard) Learn, 215-895-1224, itg@drexel.edu
- Software or Hardware, 215-895-2020, consult@drexel.edu

## **COURSE REQUIREMENTS**

- (1) Read the assigned reading(s) in both required course texts before class. This helps to stimulate and fuel class discussions.
- (2) **At least 24 hours before class** post (in BbLearn) answers to any assigned discussion questions based on the assigned readings. Dr. Chernets will post to BB learn and email the discussion question assignments the week prior. As time allows, the class will discuss the questions and answers during class or small group breakout sessions to stimulate discussion.
- (3) For classes dealing with **plagiarism**, and with **human** and with **animal** experimentation, complete the **CITI exercises** covering these topics (<https://www.citiprogram.org/>), **in addition to the assigned text reading, if any. At least 24 hours before class email the screen shot of the completion report** (as a screen shot) to [mak98@drexel.edu](mailto:mak98@drexel.edu). You must pass ( $\geq 80\%$ ) the quizzes to receive credit for them. [Please see separate instructions in the BbLearn course site on how to access the CITI exercises.](#)

## EVALUATION METHODS

This is a pass/fail course. In order to pass the course, students must attend or make up all required in-classroom sessions (absence policy elaborated below). Moreover, students will need to earn a grade of 75% or higher on the final exam that will include a case study presented to the class. In addition to the classroom portion of the course, students must also complete relevant supplementary training with their home programs and **have this training documented with the Graduate College** in order to receive a passing grade.

Evaluation Method	Proportion of Final Grade
Attendance	25
Homework discussion questions only 5 of the lectures, 5 pts each	25
CITI online instruction and CITI course quizzes (3 X 10 points each)	30
Final in class ppt presentation on topic in responsible conduct of research	20
<b>Each unexcused absence</b>	-10

## **Grading Scale**

The course is pass/fail. Students will need to receive a grade of 75% on the quiz in order to pass.

## **ATTENDANCE POLICY**

To ensure compliance with funding agency requirements, attendance at this course is mandatory, and attendance will be taken at all sections. Students are strongly encouraged to make the required efforts to attend all class sessions for the course section in which they are registered. **Unexcused absences will detract from your final grade – 10 points for each unexcused absence, out of a course total of 100 points.** If for some reason an absence is unavoidable, students should contact Dr. Chernets and arrange to make up the missed lecture by attending a different class section, if at all possible. For all excused absences, a written assignment may be given in lieu of attending class. **Outside of exceptional circumstances, students who miss more than 2 hours of in-class lecture will fail the course.** If there is an exceptional circumstance requiring substantial absences, students should contact Dr. Chernets to make alternate arrangements, which might include taking the course in a later term.

## **ADD/DROP POLICY**

The Drexel University course add & drop policies are available here:

<https://drexel.edu/provost/policies/course-add-drop/>

## **ADDITIONAL COURSE POLICIES**

- Please make every effort to arrive at class on time as a courtesy to others. We will make every effort to begin and end the classes promptly. However, if a discussion is ongoing, interested parties can stay until all discussions are ended. If you must leave prior to the hour to attend another class, simply do so and please inform the instructor ahead of time.
- Dr. Chernets will communicate with you through BbLearn and through email sent to your DREXEL email address, not to any other email address. Checking BbLearn often is your responsibility, as is making sure your DREXEL email account is not full, i.e., assuring that you can accept email.
- **Weather-Related Closing and Delayed Opening Information** - In the event of the need to close or delay the daily opening of a campus, the University will provide notice via Web, telephone, and the DrexelALERT system. In this case we might decide to use Zoom to broadcast the lecture if the presenter is available or reschedule the lecture at a later date.
- **Academic Integrity:** Students are expected to exhibit the highest degree of integrity and professionalism in all aspects of their work, and are expected to adhere to professional standards of scholarly conduct. Cheating, plagiarism or other academic misconduct will be handled per Drexel University policies as defined in the [Code of Conduct](#), and in the Drexel University Student Handbook [http://drexel.edu/studentaffairs/community\\_standards/studentHandbook/](http://drexel.edu/studentaffairs/community_standards/studentHandbook/)  
**Please familiarize yourself with these documents.**

## LECTURE SCHEDULE

Lecture #	Topics & relation to course objectives	Readings/Assignments
<p><i>Lecture 1: An Introduction to the Responsible Conduct of Research (RCR)</i></p>	<ul style="list-style-type: none"> <li>• Course Introduction</li> <li>• Science and ethics: framing the relationships</li> </ul>	<ul style="list-style-type: none"> <li>• On Being A Scientist: A Guide to Responsible Conduct of Research, Preface (p. ix-xii) and Introduction (p. 1-4), page 12</li> <li>• Scientific Integrity: Text and Cases in Responsible Conduct of Research -chapter 1,2</li> <li>• Alok Jha. (September 13, 2012). "False Positives: Fraud and Misconduct Are Threatening Scientific Research." <i>The Guardian</i>. <a href="https://www.theguardian.com/science/2012/sep/13/scientific-research-fraud-bad-practice">https://www.theguardian.com/science/2012/sep/13/scientific-research-fraud-bad-practice</a></li> </ul>
<p><i>Lecture 2: Research Misconduct</i></p>	<ul style="list-style-type: none"> <li>• <i>Federal policy on research misconduct: definition, examples, penalties, &amp; process.</i></li> <li>• <i>Misconduct: its extent and factors influencing it</i></li> <li>• <i>Some considerations regarding misconduct &amp; whistleblowing.</i></li> </ul>	<ul style="list-style-type: none"> <li>• On Being A Scientist: A Guide to Responsible Conduct of Research, pages 15, 19</li> <li>• Drexel University Policy on Research Misconduct. <a href="http://drexel.edu/research/resources/forms-and-policies/Policies/Research%20Misconduct/">http://drexel.edu/research/resources/forms-and-policies/Policies/Research%20Misconduct/</a></li> <li>• Optional: Lutz Bornmann. (2013). "Research Misconduct: Definitions, Manifestation, and Extent." <i>Publications</i> 2013, 1, 87-98; doi:10.3390/publications1030087</li> </ul>
<p><i>Lecture 3: Conflicts of Interest in Research</i></p>	<ul style="list-style-type: none"> <li>• <i>Conflict of Interest: definitions, conceptual distinctions</i></li> <li>• <i>Financial COI in research: types, extent, federal policies, Drexel Policy</i></li> </ul>	<ul style="list-style-type: none"> <li>• Scientific Integrity: Text and Cases in Responsible Conduct of Research -chapter 7</li> <li>• On Being A Scientist: A Guide to Responsible Conduct of Research , pages 29, 43</li> <li>• Josephine Johnston. (2008). "Conflicts of Interest." in <i>The Hastings Center Bioethics Briefing Book for Journalists, Policymakers, and Campaigns</i>, ed. Mary Crowley (Garrison, NY: The Hastings Center, 2008), 31-34. <a href="http://www.thehastingscenter.org/Publications/BriefingBook/Detail.aspx?id=2156">http://www.thehastingscenter.org/Publications/BriefingBook/Detail.aspx?id=2156</a></li> <li>• Optional: Howard Brody. (2011). "Clarifying Conflict of Interest." <i>The American Journal of Bioethics</i>, 11:1, 23-28</li> </ul>
<p><i>Lecture 4: Ethical Issues in Data Management</i></p>	<ul style="list-style-type: none"> <li>• <i>Federal definition of "data" and components of data management</i></li> <li>• <i>Ethical and pragmatic reasons to ensure good data management</i></li> <li>• <i>Data ownership: regulatory considerations</i></li> <li>• <i>Data storage and sharing</i></li> </ul>	<ul style="list-style-type: none"> <li>• Janet D. Stemwedel. (2008). "Should Researchers Share Data?" <i>Adventures in Ethics &amp; Science</i> [online resource]. <a href="http://scienceblogs.com/ethicsandscience/2008/03/03/should-researchers-share-data/">http://scienceblogs.com/ethicsandscience/2008/03/03/should-researchers-share-data/</a></li> <li>• Optional: Jennifer A. Thomson. (2007). "How to Start and Keep a Laboratory Notebook." <i>iP Handbook of Best Practices</i>. (OK to skim) <a href="http://www.iphandbook.org/handbook/ch08/p02/">http://www.iphandbook.org/handbook/ch08/p02/</a></li> </ul>
<p><i>Lecture 5: Authorship &amp; Publication</i></p>	<ul style="list-style-type: none"> <li>• <i>Some recent controversies regarding scientific authorship &amp; publication</i></li> <li>• <i>Scientific publication: definition, purposes, goals</i></li> </ul>	<ul style="list-style-type: none"> <li>• Scientific Integrity: Text and Cases in Responsible Conduct of Research -chapter 4</li> <li>• Fred Barbash. (July 11, 2014). "An Obscure Academic Journal. A Memorable Peer Review Scandal." <i>The Washington Post</i>. <a href="http://www.washingtonpost.com/news/morning-">http://www.washingtonpost.com/news/morning-</a></li> </ul>

<p>Lecture 5: Authorship &amp; Publication (cont.)</p>	<ul style="list-style-type: none"> <li>• What does it mean to be an “author” on a scientific paper?</li> <li>• Bylines: authorship guidelines by discipline and points of debate</li> <li>• Problematic authorship practices</li> <li>• Peer review: ethical considerations &amp; guidelines</li> </ul>	<p><a href="http://mix/wp/2014/07/11/the-most-brazen-peer-review-scandal-anyone-can-remember/">mix/wp/2014/07/11/the-most-brazen-peer-review-scandal-anyone-can-remember/</a></p> <ul style="list-style-type: none"> <li>• Tom Spears. (August 20, 2014). “Respected Medical Journal Turns to Dark Side.” <i>The Ottawa Citizen</i>. <a href="http://ottawacitizen.com/technology/science/respected-medical-journal-turns-to-dark-side">http://ottawacitizen.com/technology/science/respected-medical-journal-turns-to-dark-side</a></li> <li>• Vijaysree Venkatramen. (April 16, 2010). “Conventions of Scientific Authorship.” <i>Science</i>. <a href="http://www.sciencemag.org/careers/2010/04/convention-s-scientific-authorship">http://www.sciencemag.org/careers/2010/04/convention-s-scientific-authorship</a></li> <li>• Bernard Lo. (2009). “When Authorship Turns Sour,” <i>CTSI Research Ethics Blog</i>. (See comments as well). <a href="https://accelerate.ucsf.edu/blogs/ethics/when-authorship-turns-sour">https://accelerate.ucsf.edu/blogs/ethics/when-authorship-turns-sour</a>.</li> <li>• CITI training plagiarism</li> </ul>
<p>Lecture 6: Research with Animal Subjects</p>	<ul style="list-style-type: none"> <li>• IACUC structure and functions</li> <li>• When you need IACUC review</li> <li>• Investigator considerations: the 3Rs and animal welfare</li> <li>• Current philosophical and social controversies</li> </ul>	<ul style="list-style-type: none"> <li>• Scientific Integrity: Text and Cases in Responsible Conduct of Research -chapter 6</li> <li>• On Being A Scientist: A Guide to Responsible Conduct of Research , page 24</li> <li>• CITI training with <b>animal</b> experimentation</li> </ul>
<p>Lecture 7: Mentoring in Research</p>	<ul style="list-style-type: none"> <li>• Opening Case Study</li> <li>• What is a mentor? How is mentorship different from supervision?</li> <li>• The relationship between mentoring and ethical research</li> <li>• Mentoring and role delineation—who is responsible for what?</li> <li>• Considerations when choosing a mentor</li> <li>• Things to clarify with your advisor or mentor <i>Toxic mentoring: what is it, how common is it, and how to deal with it.</i></li> </ul>	<ul style="list-style-type: none"> <li>• On Being A Scientist: A Guide to Responsible Conduct of Research, pages 48</li> <li>• <i>Scientific Integrity: Text and Cases in Responsible Conduct of Research -chapter 3</i> <i>Optional reading</i></li> <li>• National Institutes of Health, Office of Intramural Training and Education. (n.d.).“Evaluating Potential Mentors.” <a href="https://www.training.nih.gov/evaluating_potential_mentors">https://www.training.nih.gov/evaluating_potential_mentors</a></li> <li>• “Advisor/Student.” <i>Science Professor</i> [online resource]. <a href="http://science-professor.scientopia.org/2011/02/07/advisorstudent/">http://science-professor.scientopia.org/2011/02/07/advisorstudent/</a></li> <li>• Drmellivora [pseudonym]. “Toxic Academic Mentors.” <i>Tenure She Wrote</i> [online resource]. <a href="https://tenureshewrote.wordpress.com/2013/08/12/toxic-academic-mentors/">https://tenureshewrote.wordpress.com/2013/08/12/toxic-academic-mentors/</a></li> <li>• William Neaves. (2012). “The Roots of Research Misconduct.” <i>Nature</i> 488: 121-122. (access through Drexel library)</li> </ul>
<p>Lecture 8: Research with Human Participants</p>	<ul style="list-style-type: none"> <li>• Ethical principles governing human research</li> <li>• IRB structure and functions</li> <li>• Historical and recent controversies</li> <li>• Informed consent and risk-benefit assessment</li> </ul>	<ul style="list-style-type: none"> <li>• On Being A Scientist: A Guide to Responsible Conduct of Research -page 24</li> <li>• Scientific Integrity: Text and Cases in Responsible Conduct of Research -chapter 5</li> <li>• CITI training with <b>human subjects</b></li> </ul>

## **DREXEL UNIVERSITY POLICIES**

### **Drexel University Policy on Plagiarism**

(taken directly from [http://www.drexel.edu/provost/policies/academic\\_dishonesty.asp#plagiarism](http://www.drexel.edu/provost/policies/academic_dishonesty.asp#plagiarism))

Plagiarism is the inclusion of someone else's words, ideas, or data as one's own work. When a student submits work for credit that includes the words, ideas, or data of others, the source of that information must be acknowledged through complete, accurate, and specific references, and, if verbatim statements are included, through quotation marks as well. By placing his/her name on work submitted for credit, the student certifies the originality of all work not otherwise identified by appropriate acknowledgments. Plagiarism covers unpublished as well as published sources. Examples of plagiarism include, but are not limited to:

- Quoting another person's actual words, complete sentences or paragraphs, or an entire piece of written work without acknowledgment of the source
- Using another person's ideas, opinions, or theory, even if it is completely paraphrased in one's own words without acknowledgment of the source
- Borrowing facts, statistics, or other illustrative materials that are not clearly common knowledge without acknowledgment of the source
- Copying another student's essay test answers
- Copying, or allowing another student to copy, a computer file that contains another student's assignment, and submitting it, in part or in its entirety, as one's own
- Working together on an assignment, sharing the computer files and programs involved, and then submitting individual copies of the assignment as one's own individual work

Students are urged to consult with individual faculty members, academic departments, or recognized handbooks in their field if in doubt regarding issues of plagiarism.

### **Drexel University Policy on Cheating**

(taken directly from [http://www.drexel.edu/provost/policies/academic\\_dishonesty.asp#cheating](http://www.drexel.edu/provost/policies/academic_dishonesty.asp#cheating))

Cheating is an act or an attempted act of deception by which a student seeks to misrepresent that he or she has mastered information on an academic exercise that he/she has not mastered. Examples include, but are not limited to:

- Copying from another student's test paper
- Allowing another student to copy from a test paper
- Unauthorized use of course textbook or other materials, such as a notebook to complete a test or other assignment from the faculty member
- Collaborating on a test, quiz, or other project with any other person(s) without authorization
- Using or processing specifically prepared materials during a test such as notes, formula lists, notes written on the students clothing, etc. that are not authorized
- Taking a test for someone else or permitting someone else to take a test for you

**Disability Statement:** Students with disabilities requesting accommodations and services at Drexel University need to present a current accommodation verification letter (AVL) to faculty before accommodations can be made. This must be done prior to the midterm exam. AVL's are issued by the Office of Disability Services (ODS). For additional information, contact ODS at [www.drexel.edu/edt/disability](http://www.drexel.edu/edt/disability), 3201 Arch St., Suite 210, Philadelphia, PA 19104, 215.895.1401 (V) or 215.895.2299 (TTY).