Drexel University
Graduate College
RCRG 600 – An Introduction to Responsible Conduct of Research Syllabus
0 Credit Hours

Course Logistics

Course Co-Directors:

NB3 section (Wednesdays, 12-12:50 pm)

Natalie Chernets, Ph.D.
Director of Postdoctoral Affairs & Professional Development
Associate Director, MD/Ph.D. Program
Assistant Professor
College of Medicine
Email: natalie.chernets@drexel.edu

NB2 section (Mondays, 12-12:50 pm)

Rose Ann DiMaria-Ghalili, PhD, RN, FASPEN, FAAN, FGSA
Professor of Nursing
Senior Associate Dean for Research
Rad83@drexel.edu

James R. Muruthi, PhD
Assistant Professor
Department of Counseling and Family Therapy
College of Nursing & Health Professions
https://drexel.edu/cnhp/faculty/profiles/MuruthiJames/

Office Hours: Immediately after the class or virtually by appointment.

Course Time and Locations: The course is offered in two sections. Students will only register for one section.

Sessions:

1. NB2 Monday, 12:00 pm-12:50 pm (Recommended for Health Professions and education students – CNHP, Dornsife, Psychology, Education, and students in fully-online programs)
   Dates: Jan 8, 15, 22, 29, Feb 5, 12, 19, 26, Mar 4, 11
   Location: Health Sciences Building, 60 N 36th St, Philadelphia, PA 19104

2. NB3 Wednesdays, 12:00 pm-12:50 pm
   Dates: Jan 10, 17, 24, 31, Feb 7, 14, 21, 28 March 6, 13
   Location: Health Sciences Building, 60 N 36th St, Philadelphia, PA 19104

Please note that the course is offered in the new Health Sciences Building on 60 N 36th St, Philadelphia, PA 19104. We are working with security to grant you access to HSB building’s second floor for the duration of the term. Please try swiping your ID at the entrance. If you have challenges accessing the building, you will need to sign up with the guard to enter the building. Please let the guard know that you are headed to the second floor. Please arrive early to ensure you
find the class location on time. Please note that the letters E or W in the class location indicate the East or West wing of
the building. For example, HSB 2W10 means second floor, West wing, classroom 10, and HSB 2E03 means second floor,
East wing, classroom 3.

In Winter 23-24, the course will be offered in person on the University City Campus. Section NB2, which meets on
Mondays, will have a hybrid option available. The hybrid option is designed to accommodate fully online students.
Students in on-campus programs should plan to attend the section in-person, with occasional exceptions approved by
the course directors. In case of inclement weather or campus closures, the lectures will be conducted remotely,
synchronously, through Zoom.

COURSE DESCRIPTION
This responsible conduct of research (RCR) course is a series of 50-minute meetings 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. Priority
will be given to those issues covered in the federal definition of “scientific misconduct” and the NIH’s model curriculum
on RCR. These issues include data fabrication, falsification, plagiarism; responsible authorship and publication; mentorship
practices; conflicts of interest; research misconduct, safe research environment, collaborative research and data
acquisition, analysis, and management. Also, broader ethical issues in scientific research will be touched upon, such as
changes in how science is funded and structured and evolving social views regarding researchers’ responsibilities to both
humans and animals involved in research. The Course sessions and discussions are led by senior Drexel University
academic and research leaders. The course uses lectures, current literature, large and small group discussions, required
text readings, online resources and discussion, and CITI training.
This course is required for any first-year Master or Doctoral student at Drexel University conducting bench research,
clinical patient-oriented research, quality improvement research, qualitative/survey-based research, non-research
Master, and literature review-based thesis. Students in the College of Medicine must attend IDT 500 instead of RCRG600.
Students in the School of Biomedical Engineering, Science Health Systems must attend BMES 538 instead of RCRG600.
This course is also available to senior undergraduate students and postdoctoral fellows.

COURSE STRUCTURE
It is a 0-credit, non-billable course consisting of nine lectures, as outlined below in the lecture schedule. All lectures will
be 50 minutes in length. Course sections will meet once per week.

COURSE LEARNING OBJECTIVES
Adapted from Dubois and Dueker's 2009 article "Teaching and Assessing the Responsible Conduct of Research: A Delphi
Consensus Panel Report."

- To increase familiarity with US policies and regulations regarding scientific research, including federal
definitions, their limitations, and their development
- To foster research integrity, professionalism, and the ability to identify ethical issues in scientific research
- To re/introduce resources at Drexel University and beyond for topics and issues related to the responsible
  conduct of research

COURSE CONTENT AND TEACHING METHODS
Course materials: Materials that will be available on Blackboard:
- PowerPoint slide presentations
- Required course readings
- Additional readings
- Some weeks will have a video pre-class materials
Required text:
- **Scientific Integrity: Text and Cases in Responsible Conduct of Research**, 4th edition; F. L. Macrina, ASM Press, 2014. 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 can access 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. Please respond to one classmate's post. 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. **Complete CITI exercises** for required modules: Plagiarism (RCR-Basic) (ID 15156), Authorship (RCR-Basic) (ID 16597), Collaborative Research (RCR-Basic) (ID 16598), Data Management (RCR-Basic) (ID 16600), and Introduction to RCR (RCR-Basic) (ID 17009), Research Misconduct (RCR-Basic) (ID: 16604). Additionally, complete the following three elective modules: Mentoring (RCR-Basic) (ID 16602), Peer Review (RCR-Basic) (ID 16603), and Environmental and Social Dimensions of Engineering Research (ID 12835). If you are working with animal subjects, you must complete the CITI training module Using Animal Subjects in Research (RCR-Basic) (ID 13301). If you are working with human subjects, you must complete the CITI training module Research Involving Human Subjects (RCR-Basic) (ID 13566).

The CITI exercises ([https://www.citiprogram.org/](https://www.citiprogram.org/)) are required in addition to the assigned text reading. You must pass (> 80%) the quizzes to receive credit for them. **Please see separate instructions on accessing the CITI exercises on the BbLearn course site.** If you have already taken these courses within four years, there is no need to repeat them. If your CITI training is older than four years from the last week of classes in the Winter Quarter, please select the refresher modules instead of the basic modules.

The deadline to complete CITI exercises is **Sunday, February 11, at 11:59 pm EST**. Please upload the PDF to BB learn. The screenshot should specify your name, the list of completed modules, and the grade received in these modules. See BB for further instructions.

**EVALUATION METHODS**

This is a pass/fail course. To pass the course, students must attend or make up all required in-classroom sessions (absence policy elaborated below).

<table>
<thead>
<tr>
<th>Evaluation Method</th>
<th>Proportion of Final Grade</th>
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<tbody>
<tr>
<td>Attendance</td>
<td>40</td>
</tr>
<tr>
<td>Discussion board (individual work)</td>
<td>5 (5 points x1 posts (excluding introduction post))</td>
</tr>
</tbody>
</table>
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. If an absence is unavoidable, students should contact the course instructor (Dr. Chernets or Dr. DiMaria-Ghalili) and arrange to make up the missed lecture by attending a different class section, if possible. A written assignment (“think piece”) will be given instead of attending class for all excused absences. Outside of exceptional circumstances, students who miss more than 2 hours of in-class lectures will fail the course. If an exceptional circumstance requires substantial absences, students should contact Dr. Chernets to make alternate arrangements, which might include taking the course in a later term.

If you miss one lecture, you will have the opportunity to fulfill the course deliverables and advance your understanding of the material by producing a “think piece,” thereby critically evaluating the topic as it relates to your research experience. The think piece should include a discussion of the lecture materials, readings, case studies, and a reflection on the relevance of the weekly theme for your own research.

Format Requirements:
- 1-2 pages; double spaced; one-inch margins; name; title of missed session
- Word document saved as “LastName.FirstName.RCRG2023”
- Original work; citations should be consistent but do not need to be in a specific format

Due: Two weeks after the missed lecture and no later than Wednesday, March 13, at 11:59 pm EST.

Drexel Student Learning Priorities:

Students graduating from Drexel University achieve competency in a field of study, evidenced by achieving a set of program-specific learning outcomes. In addition to demonstrating competency in their fields of study, students graduating from Drexel University also will demonstrate meaningful progress in six core intellectual and practical skill areas and five experiential and applied learning areas, achieving levels of competency in each core area appropriate to their program of study, their individual interests, and their abilities. Learning in these core areas supports and is integrated with learning in our discipline and provides the foundation for a broad education across disciplines. Available at Provost’s Website on Drexel Student Learning Priorities

<table>
<thead>
<tr>
<th>Core Intellectual and Practical Skill Areas</th>
<th>Experiential and Applied Learning Areas</th>
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<tbody>
<tr>
<td>1. Communication</td>
<td>7. Global Competence</td>
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<tr>
<td>2. Creative and Critical Thinking</td>
<td>8. Leadership</td>
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<td>3. Ethical Reasoning</td>
<td>9. Professional Practice</td>
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<td>4. Information Literacy</td>
<td>10. Research, Scholarship and Creative</td>
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<td>5. Self-Directed Learning</td>
<td>Expression</td>
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<tr>
<td>6. Technology Use</td>
<td>11. Responsible Citizenship</td>
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</table>

* The learning outcomes integrated with the learning objectives for this course are in bold above.

UNIVERSITY RESOURCES AND POLICIES

Appropriate Use of Course Materials

It is important to recognize that some or all of the course materials provided to you are the intellectual property of Drexel University, the course instructor, or others. Use of this intellectual property is governed by Drexel University policies, including the IT-1 can be found here: Acceptable Use Policy (IT).

Briefly, this policy states that all course materials, including recordings provided by the course instructor, may not be copied, reproduced, distributed, or re-posted unless otherwise given prior written approval by the University. Doing so
may be considered a breach of this policy and will be investigated and addressed as possible academic dishonesty, among other potential violations. Improper use of such materials may also constitute a violation of the University's Code of Conduct and will be investigated as such.

**Recording of Class Activities:**
Students and others should not record course interactions and activities in lectures, labs, studios, or recitation.

Students who have an approved accommodation from the Office of Disability Resources to record online lectures and discussions for note-taking purposes should inform their course instructor(s) of their approved accommodation in advance. The recording of lectures and discussions may only be carried out by the students enrolled in the class who have an approved accommodation from Disability Resources with their instructors’ prior knowledge and consent. Students with approved accommodations may be asked to turn off their recorder if confidential or personal information is presented.

Talk to your course instructor first if a student has any comments, concerns, or questions about provided class materials or recording. If this does not resolve the issue, you can also reach out to the Department Head and use the process described for a grade appeal to move your concern forward. The process described for grade appeals can be found in Provost Policies.

**Academic Integrity:** See Academic Integrity Policy, which can also be found in the Code of Conduct.

**Students with Disabilities:** Request Accommodations

**Course Add/Drop:** Provost Add/Drop Policy

**Course Withdrawal:** Provost Course Withdrawal Policy

**Course Change Policy:**
As a student, you acknowledge receipt of this syllabus and the information herein by continuing to attend this course. As the instructor, I reserve the right to make changes to this syllabus if circumstances warrant such change. All major changes will be provided to you via written communication.

Please familiarize yourself with these documents.

<table>
<thead>
<tr>
<th>LECTURE SCHEDULE</th>
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<tbody>
<tr>
<td>Lecture #</td>
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| **Lecture 1: Responsible Conduct of Research** | ● The scientist as a responsible member of society  
● Contemporary ethical issues in research  
● The environmental and societal impacts of scientific research  
● Misconduct: its extent and factors influencing it  
● Scientific Integrity: Text and Cases in Responsible Conduct of Research - chapter 1,2  
● On Being A Scientist: A Guide to Responsible Conduct of Research, pages 15, 19 |
## Lecture 2: Research Misconduct, Conflicts of Interest and Commitment in Research
- Federal policy on research misconduct: definition, examples, penalties, process & policies for handling misconduct.
- Conflict of interest: personal, professional, and financial - definitions, conceptual distinctions
- Financial COI in research: types, extent, federal policies, Drexel Policy
- Conflict of commitment, in allocating time, effort, or other research resources
- Drexel University Policy on Research Misconduct. [https://drexel.edu/provost/policies/conduct_of_research/](https://drexel.edu/provost/policies/conduct_of_research/)
- Scientific Integrity: Text and Cases in Responsible Conduct of Research - chapter 7
- On Being A Scientist: A Guide to Responsible Conduct of Research, pages 29, 43
- Optional:

## Lecture 3: The Art of Mentorship
- What is a mentor? How is mentorship different from supervision?
- The relationship between mentoring and ethical research
- Mentoring and role delineation—who is responsible for what?
- Considerations when choosing a mentor
- Things to clarify with your advisor or mentor
- Toxic mentoring: what is it, how common is it, and how to deal with it.
- Difficult conversations
- On Being A Scientist: A Guide to Responsible Conduct of Research, pages 48
- Scientific Integrity: Text and Cases in Responsible Conduct of Research - chapter 3
- Optional reading
  - Drmellivora [pseudonym]. "Toxic Academic Mentors." Tenure She Wrote [online resource]. [https://tenureshewrote.wordpress.com/2013/08/12/toxic-academic-mentors/](https://tenureshewrote.wordpress.com/2013/08/12/toxic-academic-mentors/)

## Lecture 4: Ethical Issues in Data Management
- Federal definition of "data" and components of data management
- Ethical and pragmatic reasons to ensure good data management
| Week 5: Data acquisition and analysis | Data acquisition and analysis  
- Laboratory tools (e.g., tools for analyzing data and creating or working with digital images)  
- Recordkeeping practices, including methods such as electronic laboratory notebooks  
- Data ownership: regulatory considerations  
- Data storage and sharing | Best Practices. (OK to skim)  
[http://www.iphandbook.org/handbook/ch08/p02/]  
- Scientific Integrity: Chapter 10 Scientific Record Keeping page 329-334, 336-351  
- On Being A Scientist: A Guide to Responsible Conduct of Research - The Treatment of Data page 8-11 |
| --- | --- | --- |
| Week 6: History and Modern Oversight of Research with Human Participants | Ethical principles governing human research  
- IRB structure and functions  
- Historical and recent controversies  
- Informed consent and risk-benefit assessment  
- Investigator considerations: the 3Rs and animal welfare  
- Current philosophical and social controversies  
- Ethical principles governing human research  
- IRB and IACUC structure and functions  
- Historical and recent controversies  
- Scientific Integrity: Text and Cases in Responsible Conduct of Research - chapter 5  
- CITI training with human subjects |
| Week 7: The History and Modern Oversight of Animal Subjects Regulations | Investigator considerations: the 3Rs and animal welfare  
- Current philosophical and social controversies  
- Ethical principles governing human research  
- IRB and IACUC structure and functions  
- Historical and recent controversies  
- Informed consent and risk-benefit assessment  
- Some recent controversies regarding scientific authorship & publication  
- Scientific publication: definition, purposes, goals  
- What does it mean to be an "author" on a scientific paper?  
- Bylines: authorship guidelines by discipline and points of debate  
- Problematic authorship practices  
- Peer review: ethical considerations & guidelines  | Scientific Integrity: Text and Cases in Responsible Conduct of Research - Chapter 4  
- CITI training with human subjects (only for students who are working with human subjects)  
- CITI training with animal experimentation (only for students who are working with animal subjects) |
### Assignments

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Due date</th>
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<tbody>
<tr>
<td><strong>Week 1</strong> Discussion Board -Please introduce yourself.</td>
<td><strong>Wednesday, January 10, 11:59 pm EST</strong></td>
</tr>
<tr>
<td>1. What is your graduate program? (masters, Ph.D., then specific program)</td>
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<tr>
<td>2. What type of research will you be carrying out as part of your graduate program? (bench research, clinical patient-oriented research, quality improvement research, qualitative/survey-based research, non-research masters, literature review-based thesis, etc.)</td>
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<tr>
<td><strong>Week 1 Essay:</strong> Review a misconduct case in your field of study, detailing the nature of the misconduct and its repercussions on the researcher, their supervisor, the institution, colleagues, and society at large. Analyze the ethical implications, the impact on trust and credibility within the field, and propose preventive measures to mitigate such incidents in the future.</td>
<td><strong>Sunday, January 13, 11:59 pm EST</strong></td>
</tr>
<tr>
<td><strong>Week 5</strong> Complete the Research Integrity Self-Assessment # 1 exercise in Blackboard</td>
<td><strong>Sunday, February 4, 11:59 pm EST</strong></td>
</tr>
<tr>
<td><strong>Week 6</strong> CITI exercises</td>
<td><strong>Sunday, February 11, 11:59 pm EST</strong></td>
</tr>
<tr>
<td><strong>Week 9</strong> Complete the Research Integrity Self-Assessment # 2 Exercise in Blackboard</td>
<td><strong>Sunday, March 10, 11:59 pm EST</strong></td>
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</table>

**“Think piece” for any missed lectures – only 2 think pieces are allowed.** In the event that you miss one lecture, you will have the opportunity to fulfill the course deliverables and advance your understanding Two weeks after the missed lecture and no later than Wednesday, March 13, at 11:59 pm EST.
of the material by producing a "think piece," thereby critically evaluating the topic as it relates to your own research experience. The think piece should include a discussion of the lecture materials, readings, case studies, and/or a reflection on the relevance of the weekly theme for your own research. Format Requirements:

- 1-2 pages; double spaced; one-inch margins; name; title of missed session
- Word document saved as "LastName.FirstName.RCRG2023"
- Original work; citations should be consistent but do not need to be in a specific format
DREXEL UNIVERSITY POLICIES

Academic Honesty
Forms of academic dishonesty include plagiarism, fabrication, cheating, and academic misconduct. Cheating and plagiarism are serious misconduct issues that result in negative consequences for all involved in the learning environment. Any serious misconduct of this nature will be addressed directly and expeditiously by Graduate College and Drexel University. To protect and maintain a superior learning environment, all students must review and adhere to Drexel University's Student Conduct & Community Standards. Drexel University policies regarding academic integrity are listed at:
http://drexel.edu/studentaffairs/community_standards/studentHandbook/
http://www.drexel.edu/provost/policies/academic_dishonesty.asp

If there is evidence that a violation of Drexel University's Academic Honesty Policy has occurred, the faculty member indicates what sanction he/she believes is appropriate to the Graduate College, who in turn will determine whether such a sanction is commensurate with the action and evidence, and if necessary makes adjustments to the sanction. For the first infraction, the sanction may include:
- An "F" for the assignment or exam
- Reduction of course grade
- Failure for the entire course, with the inability to withdraw.
- Examples of other actions that may be deemed appropriate by the faculty member include, but are not limited to, requiring the student to re-take the exam, re-complete an assignment, or complete an assigned exercise.

Permitted Use Of Artificial Intelligence Tools In This Course:
(taken directly from https://drexel.edu/provost/policies-calendars/policies/academic_integrity_artificial_intelligence/)
Artificial intelligence tools such as large language models (e.g., ChatGPT) are not permitted to be used in preparing submitted work for this course. Further information on university policies regarding the use of artificial intelligence tools in the classroom is available in the Draft Drexel University Policy on Academic Integrity Pertaining to Artificial Intelligence.

Drexel University Policy on Plagiarism
(taken directly from 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)

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 projects 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:** Drexel University is committed to providing students who have disabilities with an equal opportunity to fully participate in its courses. 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 issues by the Office of Disability Services (ODS). For additional information, contact ODS at www.drexel.edu/edt/disability, 3201 Arch St., Suite 210, Philadelphia, PA 19104, 215.895.1401 (V) or 215.895.2299 (TTY).

**Appropriate Use of Course Materials**

It is important to recognize that some or all of the course materials provided to you may be the intellectual property of Drexel University, the course instructor, or others. Use of this intellectual property is governed by Drexel University policies, including the IT-1 policy found at: https://drexel.edu/it/about/policies/policies/01-Acceptable-Use/  
Briefly, this policy states that all course materials, including recordings provided by the course instructor may not be copied, reproduced, distributed, or re-posted. Doing so may be considered a breach of this policy and will be investigated and addressed as possible academic dishonesty, among other potential violations. Improper use of such materials may also constitute a violation of the University's Code of Conduct found at: https://drexel.edu/cpo/policies/cpo-1/ and will be investigated as such.

**Time Zones and Assignment Due Dates**

Drexel's Blackboard servers are located in the Eastern Time Zone. All due dates and times are displayed in Eastern Time. Students are responsible for adjusting any deadlines to their own time zone.

**Email Class Liability**

Neither Drexel University nor the instructor can be held responsible for the content of any personal messages, which are sent from one student directly to another student using the online email delivery system. It is expected that all students will adhere to accepted codes of ethical, personal, and civil conduct when conversing online using email or engaging in any online chat sessions. Failure to abide by such codes of conduct and etiquette may result in expulsion from the course with a failing grade. Consult the official university code of student conduct for further information.