

Ethical Issues in Big Data Research

Responsible Conduct of Research

GRAD 575/NSCI 575 – 1 Credit

Spring 2022

Thursday, 9-10:30a

Pathology 109

January 20-March 10 – 8 Weeks

Coordinator

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Responsible Conduct of Research Coordinator

Research Integrity & Compliance Review Office

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Office Hours

By appointment

Required text

Collmann, J. and Sorin A. Matei (Eds.) (2016). *Ethical reasoning in big data: An exploratory analysis*. Switzerland. Springer International Publishing. PDF

Course Overview

This course explores ethical issues in big data research. It examines big data research through an applied interdisciplinary approach to ethical issues surrounding collection, use, reporting, and preservation of big data. The course meets the NIH, NSF and USDA-NIFA requirements for Responsible Conduct of Research Training.

Following the mission of CSU's GAUSSI program, this course

"incorporates a wide range of transferrable skills training so that trainees will be well equipped to engage and lead data-centric research within or outside academia." In addition, we will discuss topics related to the responsible conduct of research (RCR), which will satisfy related training requirements from funding agencies, such as: National Institutes of Health, National Science Foundation, and the United States Department of Agriculture— National Institute of Food and Agriculture. Additional information about RCR and the topics covered can be found here: <https://ori.hhs.gov/ori-introduction-rcr> and here:

<https://www.research.colostate.edu/ricro/rcr/>. As a graduate research seminar course, we will meet weekly to discuss course readings and identified topics. Weekly readings will come from the course text and supplemental articles and/or book chapters drawn from the scientific literature. We will have guest speakers including faculty, industry professionals, members of compliance committees or offices, or community members. Announcements will be made in class concerning upcoming speakers.

Assignments include completion of online RCR training, development of a data management plan, the Individual Development Plan, development of a personal/professional code of conduct, looking ahead discussion.

Course Objectives

- Students will be able to identify and discuss ethical issues in the collection, use, and reporting of big data research;
- Students will understand how such issues arise and potential avenues for identifying solutions;
- Students will be better skilled and equipped to conduct research in a manner consistent with the goal of maximizing benefit while minimizing adverse impacts on humans, animals and the environment;
- Students will be able to look for and identify potential ethical issues that emerge in transdisciplinary research using big data. Students will understand more about the myriad ethical dilemmas that arise during the formulation of regulations and policy surrounding big data research

Expectations for students

This course is designed to be interactive, and its success is largely dependent on the engagement of its members. To this end, your participation and contributions will determine both the success of the course as well as your individual success. We will discuss a variety of big data issues, drawn from a multitude of disciplines. As such, it is expected your completion of all assigned readings and all course assignments will occur before the start of a given class. Such preparedness is an essential component of this course, as class discussion will revolve around the assigned readings and/or assignments.

Attendance: Attendance is mandatory and will be taken for each class. Students are allowed one excused absence. When possible, the instructor should be notified in advance of any absence.

Important information about COVID:

Masks are required inside university buildings. You must also meet university vaccine or exemption requirements.

All students are expected and required to report to the COVID Reporter

(<https://covid.colostate.edu/reporter/>) **when:**

- You suspect you have symptoms of COVID, regardless of whether or not you are vaccinated and even if your symptoms are mild
- You have tested positive for COVID through a non-CSU testing site, such as home test or test at a pharmacy
- You believe you may have been exposed to COVID go to the COVID Reporter and follow the guidance under “I believe I have been in close contact with someone who has COVID-19.” This guidance will depend upon your individual circumstances

You will not be penalized in any way for reporting symptoms or concerns.

Do not ask me as your instructor to report for you. It is your responsibility to report through the COVID Reporter promptly.

As your instructor I may not ask you about vaccination status or if you have COVID but you may freely volunteer to send me information from a public health official - if you have been asked to isolate or quarantine.

When you complete the COVID Reporter, the CSU Public Health office is notified. Once notified, that office will contact you and, depending upon each situation, will conduct contact tracing, initiate any necessary public health requirements and notify you if you need to take any steps.

If you do not have internet access to fill out the online COVID-19 Reporter, please call (970) 491-4600.

For the latest information about the University's COVID resources and information, including FAQs about the spring semester, please visit the **CSU COVID-19 site** <https://covid.colostate.edu/>.

Course Expectations and Policies

CSU Principles of Community

Inclusion: We create and nurture inclusive environments and welcome, value and affirm all members of our community, including their various identities, skills, ideas, talents and contributions.

Integrity: We are accountable for our actions and will act ethically and honestly in all our interactions.

Respect: We honor the inherent dignity of all people within an environment where we are committed to freedom of expression, critical discourse, and the advancement of knowledge.

Service: We are responsible, individually and collectively, to give of our time, talents, and resources to promote the well-being of each other and the development of our local, regional, and global communities.

Social Justice: We have the right to be treated and the responsibility to treat others with fairness and equity, the duty to challenge prejudice, and to uphold the laws, policies and procedures that promote justice in all respects.

Assessment

Attendance: Attendance and class participation are a critical component of this course. There will be readings/activities required prior to each discussion, so please come prepared. You may miss **no more than ONE** class session. Extenuating circumstances will be assessed on an individual basis.

Homework: All homework assignments must be completed to obtain a satisfactory grade. Details below.

Online RCR Training: Students must complete the required online RCR CITI training by the end of the course.

Instructions for accessing CITI training:

https://www.research.colostate.edu/ricro/wp-content/uploads/sites/22/2021/12/CITI-SSO-Integration-Instructions_RCR.pdf

Grading: Satisfactory/Unsatisfactory. Performance equivalent to a grade of C or better is recorded as Satisfactory. Performance equivalent to D or F is recorded as Unsatisfactory. Neither the S nor U grades are used in calculating the CSU grade point average; however, courses graded S may apply to graduation requirements.

To obtain a satisfactory grade, students must:

- Attend at least **7 class sessions** – attendance (30%)
- Complete all homework assignments (70%)
 - Data Management Plan – 10%
 - Individual Development Plan – 20%
 - Code of Conduct – 20%
 - Looking Ahead Discussion – 20%

Attendance: Attendance in class is required and is a component of students' course grade. I understand that life circumstances occasionally interfere with students' ability to attend class, and the current pandemic poses special challenges. Reasonable excuses will be considered (e.g. medical emergencies, required work obligations, required family obligation, etc.). If the absence is anticipated, I expect you to notify me prior to the class session and if the absence is an emergency, I expect you to contact me as soon as possible. If there is an extenuating circumstance that prevents you from attending more than two class sessions, I encourage you to contact me immediately to discuss the matter. If you miss class, it is important that you connect with a classmate and/or visit office hours to catch up.

Preparation and Participation: I expect all students to come to class prepared to fully engage and participate in the course. I will call on students at random to participate in discussion. This is a graduate-level course and we will not always have time to explore all of the topics in detail, so please use the resources in Canvas, your classmates and I to answer remaining questions or explore further.

Communication: The best method of communication with me is email. I expect that you check your Colorado State email frequently and respond to my emails in a timely manner and I will do the same; I will respond to your emails within 48 hours. **If something is not working/available in Canvas, please let me know as soon as possible, so I can fix it.**

Computers and Phones: Please turn off or silence cellphones during class. I understand the desire to remain connected to email and the internet, but our weekly time together is limited. Please respect our time together by minimizing computer use for purposes other than the course.

Assignments: All assignments must be submitted by the assigned due date. If you are unable to submit the assignment due to unforeseen circumstances, you must contact me prior to the assignment due date so as not to affect your grade. *Unless otherwise noted, all written assignments should be submitted using Microsoft Word and uploaded to Canvas.*

Mental Health and Wellness: Please prioritize self-care! The graduate school/research process is a grind and it is important to take care of yourself.

Need Help? CSU is a community that cares for you. If you are struggling with drugs, alcohol and/or experiencing depression, anxiety, overwhelming stress or thoughts of hurting yourself or others, please know there is help available. CSU Health Network Counseling Services has trained professionals who can help. Your student fees provide access to a wide range of support services. Call (970) 491-6053 or visit Counseling Services on the 3rd floor of the Health and Medical Center, and they will work together

with you to find out which services are right for you. Visit health.colostate.edu/counseling to learn more. If you are concerned about a friend or peer, use Tell Someone by calling (970) 491-1350 or visiting tellsomeone.colostate.edu to share your concerns with a professional who can discreetly connect the distressed individual with the proper resources. Rams Take Care of Rams. Reach out and ask for help if you or someone you know is having a difficult time.

Academic Integrity & CSU Honor Pledge: This course will adhere to [the CSU Academic Integrity/Misconduct policy](#) as found in the General Catalog and the [Student Conduct Code](#).

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, I will ask that you affirm the CSU Honor Pledge as part of completing your work in this course.

Further information about Academic Integrity is available at CSU's [Academic Integrity - Student Resources](#).

As a student learning the norms and standards of the academy, I encourage you to email me if you have any questions or concerns regarding academic misconduct and especially plagiarism. It is important that all assignments and work conducted for this course represent your own efforts and ideas or are appropriately cited.

Copyrighted Course Materials: Please do not share material from this course in online, print, or other media. Course material is the property of the instructor who developed the course and guest presenters. Materials authored by third parties and used in the course are also subject to copyright protections. Posting course materials on external sites (commercial or not) violates both copyright law and the CSU Student Conduct Code.

Students who share course content without the instructor's express permission, including with online sites that post materials to sell to other students, could face appropriate disciplinary or legal action.

Universal Design for Learning/Accommodation of Needs: I am committed to the principle of universal learning. This means that our classroom, our virtual spaces, our practices, and our interactions be as inclusive as possible. Mutual respect, civility, and the ability to listen and observe others carefully are crucial to universal learning.

If you are a student who will need accommodations in this class, please contact me to discuss your individual needs. Any accommodation must be discussed in a timely manner. A verifying memo from The Student Disability Center may be required before any accommodation is provided.

The Student Disability Center (SDC) has the authority to verify and confirm the eligibility of students with disabilities for the majority of accommodations. While some accommodations may be provided by other departments, a student is not automatically eligible for those accommodations unless their disability can be verified and the need for the accommodation confirmed, either through SDC or through acceptable means defined by the particular department. Faculty and staff may consult with the SDC staff whenever there is doubt as to the appropriateness of an accommodative request by a student with a disability.

The goal of SDC is to normalize disability as part of the culture of diversity at Colorado State University. The characteristic of having a disability simply provides the basis of the support that is available to students. The goal is to ensure students with disabilities have the opportunity to be as successful as they have the capability to be.

Support and services are offered to student with functional limitations due to visual, hearing, learning, or mobility disabilities as well as to students who have specific physical or mental health conditions due to epilepsy, diabetes, asthma, AIDS, psychiatric diagnoses, etc. Students who are temporarily disabled are also eligible for support and assistance. The SDC is also managing needs that arise due to CV-19.

Any student who is enrolled at CSU, and who self-identifies with SDC as having a disability, is eligible for support from SDC. Specific accommodations are determined individually for each student and must be supported by appropriate documentation and/or evaluation of needs consistent with a particular type of disability. SDC reserves the right to ask for any appropriate documentation of disability in order to determine a student's eligibility for accommodations as well as in support for specific accommodative requests. The accommodative process begins once a student meets with an accommodations specialist in the SDC.

Names and Pronouns: Class rosters and University data systems are provided to faculty with the student's legal name and legal gender marker. As a student, you are able to change how your preferred/proper name shows up through various administrative records. This option is helpful for various student populations, including but not limited to: students who abbreviate their first name; students who use their middle name; international students; and transgender students. **As a faculty member, I am committed to using your proper name and pronouns.** You can add your pronouns to your Teams profile/display as you are comfortable. If these change at any point during the semester, please let me know and we can develop a plan to share this information with others in a way that is safe for you.

Should you want to update your preferred/proper name, you can do so by clicking on the following link:

<https://registrar.colostate.edu/academic-resources/changemyinformation/>

Undocumented Student Support: Any CSU student who faces challenges or hardships due to their legal status in the United States and believes that it may impact their academic performance in this course is encouraged to visit Student Support Services for Undocumented, DACA & ASSET for resources and support. Additionally, only if you feel comfortable, please notify your professor so they may pass along any additional resources they may possess.

Title IX/Interpersonal Violence: For the full statement regarding role and responsibilities about reporting harassment, sexual harassment, sexual misconduct, domestic violence, dating violence, stalking, and the retaliation policy please go to: Title IX – Sexual Assault, Sexual Violence, Sexual Harassment. If you feel that your rights have been compromised at CSU, several resources are available to assist:

- Student Resolution Center, 200 Lory Student Center, 491-7165
- Office of Equal Opportunity, 101 Student Services, 491-5836

A note about interpersonal violence: If you or someone you know has experienced sexual assault, relationship violence and/or stalking, know that you are not alone. As instructors, we are required by law to notify university officials about disclosures related to interpersonal violence. Confidential victim advocates are available 24 hours a day, 365 days a year to provide support related to the emotional, physical, physiological and legal aftermath of interpersonal violence. Contact the Victim Assistance Team at: 970-492-4242.

Religious Observances: CSU does not discriminate on the basis of religion. Reasonable accommodation should be made to allow individuals to observe their established religious holidays. Students seeking an exemption from attending class or completing assigned course work for a religious holiday will need to fill out the Religious Accommodation Request Form and turn it in to the Division of Student Affairs, located on the second level of the Administration building.

Once turned in, the Division of Student Affairs will review the request and contact the student accordingly. If approved, the student will receive a memo from the Dean of Students to give to their professor or course instructor.

Students are asked to turn in the request forms as soon as the conflict is noticed. Similarly, unanticipated conflicts requiring a religious observance, such as a death in the family, can also be reviewed.

Course Schedule

DATE	INSTRUCTOR	TOPIC
Jan 20	Kimberly Cox-York, PhD	<i>Course Overview; Social Responsibility, Understanding “big data” Use of Animals; Human Subjects; Infectious Agents, rDNA;</i>
Jan 27	Kimberly Cox-York, PhD	<i>Ethical challenges of big data research.</i> <ul style="list-style-type: none"> • Read Ethical Reasoning Ch. 2 <i>Role of Mentoring in BDR</i>
Feb 3	Mara Sedlins, PhD – Data Management Specialist, Libraries Nicole Kaplan, MS - Computational Biologist, USDA	<i>Data collection, management, collaboration</i>
Feb 10	Mara Sedlins, PhD Nicole Kaplan, MS Dan Sloan, PhD – Associate Professor, Dept. Biology	<i>Data Management, continued</i> <i>Field-specific Considerations</i>
Feb 17	Laura Jensen, PhD – Vice Provost for Planning and Effectiveness	<i>Unanticipated or unintended outcomes: technological innovation and privacy</i>
Feb 24	Kimberly Cox-York, PhD	<i>Conflict Resolution, Mentoring, Collaboration</i> <i>Research Misconduct</i>
Mar 3	Kimberly Cox-York, PhD Mark Stenglein, PhD – Associate Professor, MIP	<i>Publication Practices, Responsible Authorship and Peer Review; Case Studies</i> <i>Outreach and communication in big data research</i>
Mar 10	Kimberly Cox-York	<i>Looking Ahead Discussion</i> <i>Code of Conduct</i> <i>IDP</i> Course Wrap-up ** course evaluation**

Instructor contact information:

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