GNEG 5315-P01: Data Ethics

Roy G. Perry College of Engineering
Prairie View A&M University
Fall 2023

Pre-requisites:

none.

Textbook:

No textbook required. Students will be required to read and review state-of-the-art articles and research papers in the area of data ethics.

References:

Ethical Data and Information Management: Concepts, Tools and Methods, by Katherine O'keefe and Daragh Obrian, Kogan Page, Ltd.;1st edition, 2018, ISBN: 978-0749482046

Oxford Handbook of Ethics of AI, by Markus Dubber, Frank Pasquale, Sunit Das, Oxford University Press; 1st edition, 2020, ISBN: 978-0190067397

DATA ETHICS - THE NEW COMPETITIVE ADVANTAGE; 1st edition, 2016, Gry Hasselbalch & Pernille Tranberg, Print: AKA PRINT A/S, ISBN print: 978-87-7192-017-8

Instructors:

Dr. Xiangfang (Lindsey) Li,

Roy G. Perry College of Engineering

Phone: (936) 261-9915

Emails: xili@pvamu.edu

In addition, guest speakers from various fields of data science will be invited during the delivery of this course, including Dr. X. Dong, L. Qian, and L. Lin; Emails: {xidong, liqian, lilin}@pvamu.edu

Office Hours:

M & W: 9am-1pm; 3pm-4:30pm F: 9-10am Or by appointment

Lectures:

F 10:00-12:50 PM, New EE Bldg. 119

Course Objectives:

This course will introduce, discuss, and analyze ethical issues, algorithmic challenges, and policy decisions in data science. Specifically, the moral, social, and ethical ramifications of the choices will be explored at the different stages of the data analysis

pipeline, from data collection and storage to understanding feedback loops in analysis. Through class discussions, case studies and exercises, students will learn the fundamentals of ethical thinking in data science, understand the history of ethical dilemmas in scientific work, and study the distinct challenges associated with ethics in modern data science. In addition, it will cover important use cases in policing, health, journalism, and social media.

Course Outcomes:

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

1. Develop fluency in the key technical, ethical, policy, and legal terms and concepts in modern data science.
2. Understand the impacts and the contributing factors of bias and data misuse, such as data bias, algorithm bias, surveillance, disinformation, and feedback loops.
3. Learn about algorithmic and data-driven approaches for mitigating biases in artificial intelligence and machine learning.
4. Analyze emerging data science use cases and identify and mitigate potential ethic risks.
5. Master tools of ethical techniques and practices

Course Contents:

The course will cover the following materials:

- Week 1: What is ethics; Review of modern data science and data analysis pipeline
- Week 2: Introduction to ethics in data science; History, Concept of Informed Consent
- Week 3: Data Ownership
- Week 4: Data ethics case study 1: class discussions and presentation
- Week 5: Privacy in data science, anonymization, and differential privacy
- Week 6: Data security in the Internet era; Anonymity
- Week 7: Data ethics case study 2: class discussions and presentation
- Week 8: Review of machine learning (ML) and artificial intelligence (AI)
- Week 9: Accountability and risk assessment of predictive algorithms in ML and AI
- Week 10: Interpretability and fairness of predictive algorithms in ML and AI
- Week 11: Identification and mitigation of bias in data and algorithms
- Week 12: Societal Consequences

- Week 13: Code of ethics
- Week 14: Guest lecture
- Week 15: Student final research paper/project presentation (1)
- Week 16: Student final research paper/project presentation (2)

Grading:

Classroom assignments/quizzes	35%
Reviews, HWs, and Presentations	30%
Final Research Paper/Project	35%
Total	100%

Any deviation from the above grading policy will be discussed in advance with the class. Such deviations will be considered only in situations to provide learning enrichment opportunities for the entire class.

Assignments:

Projects and other assignments will be assigned to test the ability of solving problems with the knowledge learned from this course. Students will be required to turn in or demonstrate the projects. Projects must be handed in on time. Late projects will *not* be accepted unless due to acceptable reasons (as defined by University policy). *Students are required to submit their works through ecourses*: http://ecourses.pvamu.edu

Taskstream:

Taskstream is a tool that Prairie View A&M University uses for assessment purposes. One or more of your assignments may be required for submission as an "artifact", an item of coursework that serves as evidence that course objectives are met. More information will be provided during the semester, but for general information, you can visit Taskstream via the link in ecourses.

Review and Research Papers:

All written work must be submitted electronically through ecourses: http://ecourses.pvamu.edu. Review and Research Papers shall be between 1400-1800 words. All online paper submissions must be turned in using PDF formats. *Papers are automatically compared to web materials and to other papers submitted.* This means that any text borrowed from another source will be flagged, and any plagiarized work will be brought to the attention of the instructor.

Computer Usage:

Python, plus additional software such as FairVis (https://github.com/poloclub/FairVis) and TensorFlow, will be used in the class. It will allow the students to practice the theory and techniques in data science through hands-on experiences.

Electronic Devices Policy:

Cell phones are restricted during class. Cell phones must be turned off during the lectures and must *not* be used during exams. If your cell phone rings during class, you

may be asked to leave. Other devices (computers, recorders, etc.) may be allowed, but you must ask the instructor before you use them during class.

Student Support and Success

John B. Coleman Library

The John B. Coleman Library's mission is to enhance the scholarly pursuit of knowledge, to foster intellectual curiosity, and to promote life-long learning and research through our innovative services, resources, and cultural programs, which support the Prairie View A&M University's global mission of teaching, service, and research. It maintains library collections and access both on campus, online, and through local agreements to further the educational goals of students and faculty. Library Website Phone: 936-261-1500

Academic Advising Services

Academic Advising Services offers students various services that contribute to student success and lead toward graduation. We assist students with understanding university policies and procedures that affect academic progress. We support the early alert program to help students connect to success early in the semester. We help refer students to the appropriate academic support services when they are unsure of the best resource for their needs. Faculty advisors support some students in their respective colleges. Your faculty advisor can be identified in PantherTracks. Advisors within Academic Advising Services are available to all students. We are located across campus. Find your advisor's location by academic major on the advising website. Phone: 936-261-5911

The University Tutoring Center

The University Tutoring Center (UTC) offers free tutoring and academic support to all registered PVAMU students. The mission of the UTC is to help provide a solid academic foundation that enables students to become confident, capable, independent learners. Competent and caring staff and peer tutors guide students in identifying, acquiring, and enhancing the knowledge, skills, and attitudes needed to reach their desired goals. Tutoring and academic support are offered face-to-face in the UTC and virtually in online sessions. Other support services available for students include Supplemental Instruction, Study Breaks, Academic Success Workshops, and Algebra Study Jam. Location: J. B. Coleman Library, Rm. 307; Phone: 936-261-1561; Email: pvtutoring@pvamu.edu; University Tutoring Website

Writing Center

The Writing Center provides well-trained peer tutors to assist students with writing assignments at any stage of the writing process. Tutors help students with various writing tasks from understanding assignments, brainstorming, drafting, revising, editing, researching, and integrating sources. Students have free access to Grammarly online writing assistance. Grammarly is an automated proofreading and plagiarism detection tool. Students must register for Grammarly by using their student email address. In addition, students have access to face-to-face and virtual tutoring services either asynchronously via email or synchronously via Zoom. Location: J. B. Coleman Library, Rm. 209; Phone: 936-261-3724; Writing Center Website, Grammarly Registration

Panther Navigate

Panther Navigate is a proactive system of communication and collaboration between faculty, academic advisors, and students that is designed to support student success by promptly identifying issues and allowing for intervention. Panther Navigate helps students by providing a central location to schedule advising appointments, view campus resources, and request assistance. Students who recognize that they have a problem that negatively affects their academic performance or ability to continue school may self-refer an academic early alert. To do

so, students will log in to Canvas and click on Student Alerts on the left sidebar within a course. Students also have the option to download the Navigate Student app. Phone: 936-261-5902; Panther Navigate Website

Student Counseling Services

The Student Counseling Services offers a range of services and programs to assist students in maximizing their potential for success: short-term individual, couples, and group counseling, as well as crisis intervention, outreach, consultation, and referral services. The staff is licensed by the State of Texas and assists students who are dealing with academic skills concerns, situational crises, adjustment problems, and emotional difficulties. Information shared with the staff is treated confidentially and in accordance with Texas State Law. Location: Hobart Taylor, 2nd floor; Phone: 936-261-3564; Health & Counseling Center Website

Office of Testing Services

The Office of Testing Services serves to facilitate and protect the administration of educational and professional exams to aid students, faculty, staff, and the community in their academic and career goals. We provide proctoring services for individuals who need to take exams for distance or correspondence courses for another institution, exams for independent study courses, or make-up exams. In order for a proctored exam to be administered by our office, the instructor of the course must first submit the online PVAMU Testing Services – Test Proctoring Form (this form can only be completed by the instructor) to the Office of Testing Services 72 hours prior to the first exam being administered. Once the Test Proctoring Form has been submitted, the instructor will inform their testers so they can then register for an appointment with our office on one of the selected proctored exam test dates within the testing window for the exam and pay the applicable fees. To access the OTS – Test Proctoring Form, to schedule a proctored exam appointment, or to find more information about our proctoring services, please visit the OTS – Proctoring Service website. Location: Wilhelmina Delco, 3rd Floor, Rm. 305; Phone: 936-261-3627; Email: aetesting@pvamu.edu; Testing Website

Office of Diagnostic Testing and Disability Services

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, contact the Office of Disability Services. As a federally-mandated educational support unit, the Office of Disability Services serves as the repository for confidential disability files for faculty, staff, and students. For persons with a disability, the Office develops individualized ADA letters of request for accommodations. Other services include learning style inventories, awareness workshops, accessibility pathways, webinars, computer laboratory with adapted hard and software, adapted furniture, proctoring non-standardized test administrations, ASL interpreters, ALDs, digital recorders, Livescribe, and a comprehensive referral network across campus and the broader community. Location: Hobart Taylor, Rm. 1D128; Phone: 936-261-3583; Disability Services Website

Center for Instructional Innovation and Technology Services (CIITS)

Distance Learning, also referred to as Distance Education, is the employment of alternative instructional delivery methods to extend programs and services to persons unable to attend classes in the traditional manner. CIITS supports student learning through online, hybrid, web-assist, and 2-way video course delivery. For more details and contact information, visit CIITS Student Website. Phone: 936-261-3283 or email: ciits@pvamu.edu.

Veteran Affairs

Veteran Services works with student veterans, current military, and military dependents to support their transition to the college environment and continued persistence to graduation. The

Office coordinates and certifies benefits for both the G.I. Bill and the Texas Hazlewood Act. Location: Evans Hall, Rm. 102; Phone: 936-261-3563; Veteran Affairs Website

Office for Student Engagement

The Office for Student Engagement delivers comprehensive programs and services designed to meet the co-curricular needs of students. The Office implements inclusive and accessible programs and services that enhance student development through exposure to and participation in diverse and relevant social, cultural, intellectual, recreational, community service, leadership development, and campus governance. Location: Memorial Student Center, Rm. 221; Phone: 936-261-1340; Student Engagement Website

Center for Careers & Professional Development

This center supports students through professional development, career readiness, and placement and employment assistance. The center provides one-on-one career coaching, interview preparation, resume and letter writing, and career exploration workshops and seminars. Services are provided for students at the Northwest Houston Center and College of Nursing in the Medical Center twice a month or on a requested basis. Distance Learning students are encouraged to visit the center website for information regarding services provided. Location: Anderson Hall, 2nd floor; Phone: 936-261-3570; Center for Careers & Professional Development Website

University Rules and Procedures

Academic Misconduct

Academic dishonesty is defined as any form of cheating or dishonesty that has the effect or intent of interfering with any academic exercise or fair evaluation of a student's performance. The college faculty can provide additional information, particularly related to a specific course, laboratory, or assignment.

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with the *University Administrative Guidelines on Academic Integrity*, which can be found on the Academic Integrity webpage. Students who engage in academic misconduct are subject to university disciplinary procedures. As listed in the *University Administrative Guidelines on Academic Integrity*, the University Online Catalog, and the Student Code of Conduct, the following are examples of prohibited conduct. This list is not designed to be all-inclusive or exhaustive. In addition to academic sanctions, any student found to have committed academic misconduct that is also a violation of criminal law may also be subject to disciplinary review and action by the Office of Student Conduct (as outlined in the Student Code of Conduct).

Forms of Academic Dishonesty:

1. Cheating: Deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not learned, giving or receiving aid unauthorized by the instructor on assignments or examinations. Examples: unauthorized use of notes for a test; using a "cheat sheet" on a quiz or exam; any alteration made on a graded test or exam which is then resubmitted to the teacher;
2. Plagiarism: Careless or deliberate use of the work or the ideas of another; representation of another's work, words, ideas, or data as your own without permission or appropriate acknowledgment. Examples: copying another's paper or answers, failure to identify

information or essays from the internet and submitting or representing it as your own; submitting an assignment which has been partially or wholly done by another and claiming it as yours; not properly acknowledging a source which has been summarized or paraphrased in your work; failure to acknowledge the use of another's words with quotation marks;

3. Collusion: When more than one student or person contributes to a piece of work that is submitted as the work of an individual;
4. Conspiracy: Agreeing with one or more persons to commit an act of academic/scholastic dishonesty; and
5. Multiple Submission: Submission of work from one course to satisfy a requirement in another course without explicit permission. Example: using a paper prepared and graded for credit in one course to fulfill a requirement and receive credit in a different course.

PVAMU's General Statement on the Use of Generative Artificial Intelligence Tools in the Classroom

Generative Artificial Intelligence (GAI), specifically foundational models that can create writing, computer code, and/or images using minimal human prompting, are increasingly becoming pervasive. Even though ChatGPT is one of the most well-known GAIs currently available, this statement includes any and all past, current, and future generations of GAI software. Prairie View A&M University expects that all work produced for a grade in any course, be it face-to-face or virtual, will be the sole product of a student's endeavors to meet those academic goals. However, should an instructor permit their students to use artificial intelligence as a resource or tool, students must not substitute the substance of their original work with the results of using such GAI tools. This clearly violates the University's Administrative Guidelines on Academic Integrity and its underlying academic values.

Nonacademic Misconduct

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the ability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. The Office of Student Conduct will adjudicate such incidents under nonacademic procedures.

Sexual Misconduct

Sexual harassment of students and employees at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating the university's sexual harassment policy will be subject to disciplinary action. In accordance with the Texas A&M University System guidelines, your instructor is obligated to report to the Office of Title IX Compliance (titleixteam@pvamu.edu) any instance of sexual misconduct involving a student, which includes sexual assault, stalking, dating violence, domestic violence, and sexual harassment, about which the instructor becomes aware during this course through writing, discussion, or personal disclosure. The faculty and staff of PVAMU actively strive to provide a learning, working, and living environment that promotes respect that is free from sexual misconduct, discrimination, and all forms of violence. If students, faculty, or staff would like assistance or have questions, they may contact the Title IX Coordinator, Dr. Zakiya Brown, at 936-261-2144 or titleixteam@pvamu.edu. More information can be found at Title XI Website, including confidential resources available on campus.

Protections and Accommodations for Pregnant and Parenting Students

The U.S. Department of Education's Office for Civil Rights (OCR) enforces, among other statutes, Title IX of the Education Amendments of 1972. Title IX protects people from discrimination based on sex, sexual orientation, and gender identity in education programs or activities that receive federal financial assistance. This protection includes those who may be pregnant and parenting. Title IX states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." Students seeking accommodations related to pregnancy or parenting should contact the Office of Title IX for information, resources, and support at titleixteam@pvamu.edu. Additional information and/or support may be provided by the Office of Disability Services or the Office of the Dean of Students.

Non-Discrimination Statement

Prairie View A&M University does not discriminate on the basis of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation, or gender identity in its programs and activities. The University is committed to supporting students and complying with The Texas A&M University System non-discrimination policy. It seeks to establish an environment that is free of bias, discrimination, and harassment. If you experience an incident of discrimination or harassment, we encourage you to report it. If you would like to speak with someone who may be able to afford you privacy or confidentiality, there are individuals who can meet with you. The Director of Equal Opportunity & Diversity has been designated to handle inquiries regarding the non-discrimination policies and can be reached at Harrington Science Building, Suite 109, or by phone at 936-261-1744 or 1792.

Class Attendance Policy (See the University Online Catalog for Full Attendance Policy)

Prairie View A&M University requires regular class attendance. Attending all classes supports the full academic development of each learner, whether classes are taught with the instructor physically present or via distance learning technologies such as interactive video and/or the Internet. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in the assignment of a grade of "F." Absences are accumulated beginning with the first day of class during regular semesters and summer terms. Each faculty member will include the University's attendance policy in each course syllabus.

Makeup Work for Legitimate Absences

Prairie View A&M University recognizes that there are a variety of legitimate circumstances in which students will miss coursework and that accommodations for makeup work will be made. If a student's absence is **excused**, the instructor must either provide the student an opportunity to make up any quiz, exam, or other work contributing to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. Students are encouraged to work with instructors to complete makeup work before known scheduled absences (University-sponsored events, administrative proceedings, etc.). Students are responsible for planning their schedules to avoid excessive conflicts with course requirements.

Absence Verification Process

All non-athletic absences (e.g., Medical, Death/Funeral, Court/Legal-related, etc.) for which a student seeks to obtain a valid excuse must be submitted to the Dean of Students/Office of Student Conduct, with supporting documentation, for review and verification. Please use the Online Reporting Forms to access/complete/submit the *Request for a University Excused Absence* form for an excuse. Upon receipt, a staff member will verify the documentation and provide an official university excuse, if applicable. The student is responsible for providing the official university excuse issued by the Office for Student Conduct to the professor(s). Questions should be directed to the Dean of Students via email: deanofstudents@pvamu.edu or phone: (936) 261-3550 or Office for Student Conduct via email: studentconduct@pvamu.edu or phone: (936) 261-3524.

Student Academic Appeals Process

Authority and responsibility for assigning grades to students rest with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the University Online Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

Technical Considerations

***Minimum* Recommended Hardware and Software:**

- Intel PC or laptop with Windows 10 or later version; Mac with OS Catalina
- Smartphone or iPad/tablet with wi-fi*
- High-speed internet access
- 8 GB memory
- Hard drive with 320 GB storage space
- 15" monitor, 1024 x 768, color
- Speakers (internal or external)
- Microphone and recording software
- Keyboard & mouse
- Most current version of Google Chrome, Safari, or Firefox

Note: Be sure to enable Java & pop-ups in the web browser preferences

* Some courses may require remote proctoring. At this time only Chromebooks, laptops, and desktops running Windows or Mac work with our proctoring solution, but iPads are not compatible. Most other applications will work with Android or Apple tablets and smartphones.

Participants should have a basic proficiency of the following computer skills:

- Sending and receiving email
- A working knowledge of the Internet
- Microsoft Word (or a program convertible to Word)
- Acrobat PDF Reader
- Windows or Mac OS
- Video conferencing software (Zoom)

Netiquette (online etiquette)

Students are expected to participate in all discussions and virtual classroom chats as directed. Students are to be respectful and courteous to others on discussion boards. Foul or abusive language will not be tolerated. Do not use ALL CAPS for communicating to others AS IT CAN BE INTERPRETED AS YELLING. Avoid slang terms such as "wassup?" and texting abbreviations such as "u" instead of "you." Limit and possibly avoid the use of emoticons. Be cautious when using humor or sarcasm as tone is sometimes lost in an email or discussion post, and the message might be taken seriously or sound offensive.

Video Conferencing Etiquette

When using Zoom, WebEx, or other video conferencing tools, confirm the visible area is tidy, clear of background clutter, inappropriate or offensive posters, and other distractions. Ensure you dress appropriately and avoid using high traffic or noisy areas. Stay muted when you are not speaking and avoid eating/drinking during the session. Before the class session begins, test audio, video, and lighting to alleviate technology issues.

Technical Support

Students should go to Password Reset Tool if they have password issues. The page will provide instructions for resetting passwords and contact information if login issues persist. For other technical questions regarding eCourses, call the Center for Instructional Innovation and Technology Services at 936-261-3283 or email ciits@pvamu.edu.

Communication Expectations and Standards

Emails or discussion postings will receive a response from the instructor, usually in less than 48 hours. Urgent emails should be marked as such. Check regularly for responses.

Discussion Requirement

Online courses often require minimal to no face-to-face meetings. However, conversations about the readings, lectures, materials, and other aspects of the course can occur in a seminar fashion. The use of the discussion board will accomplish this. The instructor will determine the exact use of discussion boards.

It is strongly suggested that students type their discussion postings in a word processing application such as Word and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, copy and paste to the discussion board.

COVID-19 Campus Safety Measures

In accordance with the latest guidelines from the PVAMU Health Services, the following measures are in effect until further notice.

- Students who are ill will be asked to adhere to best practices in public health, such as masking, handwashing, and social distancing, to help reduce the spread of illness across campus.
- Mandatory self-reporting will no longer be required by students. Students will be responsible for communicating with their professors regarding COVID, similarly to any other illness.
- There will be no mandatory isolation. Students who are too ill to engage in classroom activities will be responsible for securing the appropriate documentation to support the absence.
- Students who self-isolate will be responsible for communicating with their professors and securing an excuse from Student Conduct.
- All students will have access to TimelyCare, a telehealth platform that provides virtual medical care 24/7 and by appointment in the Student Health Clinic. Students are encouraged to enroll with TimelyCare at the beginning of the semester, at timelycare.com/pvamu.
- Students will have access to COVID testing in the Student Health Clinic by appointment. Testing is for students who are symptomatic ONLY.