

Course Information

Course Name: CS 39000–GIS: Great Issues in Computer Science

Instructional Modality: In-person lectures with occasional recorded lectures and live remote lectures delivered via teleconferencing (Zoom)

Meeting Time: MWF, 10:30 am - 11:20 am

Meeting Place: Lawson Computer Science Bldg B15

Dates: Aug 21, 2023 - Dec 09, 2023

Prerequisites: None

Instructor Contact Information

Instructor: Z. Berkay Celik

Email Address: zcelik@purdue.edu

Personal Web Page: <https://berkay.github.io/>

Office Hours: By appointment

Teaching Assistants:

Reham Aburas

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Arjun Arunasalam

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Course Description

This course provides an overview of current and essential professional and ethical issues in computing and their impact on society. Topics specialize in the impact of computing, including algorithmic bias, motives behind design decisions, data ethics, privacy and security, and legal issues. The goal of this course is to equip students with the framework and context necessary to think critically about the impact of computing. Discussions and readings will include current events.

Learning Outcomes

By the end of the semester, you should be able to:

1. Identify the causes behind some contemporary ethical concerns in computing.
2. Apply critical thinking and analytical abilities to a conversation around the impact of computing on society.
3. Apply reasoning to real-world case studies to analyze the ramifications of unethical practices.
4. Appreciate the importance of diverse experiences, thoughts, and backgrounds in Computer Science, both in academia and industry.

5. Understand some legal issues, privacy impacts, social issues, and other topics as they apply to computing.

How to Succeed in this Course

- Attend the lectures
- Do the readings
- Do the assignments
- Ask questions if you need clarification
- Be self-motivated and self-disciplined
- Be willing to speak up if problems arise
- Participate appropriately in the class discussions
- Think critically about the material you hear, read, and discuss

Learning Resources, Technology & Texts

- Textbook: no textbook is required for this course.
 - There will be required readings listed on the Brightspace page.
 - There will be some required video and an online course module linked to the Brightspace page.
- Additional Readings:
 - Some suggested references for additional reading are listed in Brightspace if you want additional depth in any topic area.
 - As we progress through the course, other resources may be added. Access to additional readings and online chapters will be through the Brightspace course readings folder and the Library Resources Link.
 - You should regularly read current news to know about developments that may affect the computing milieu. You should contribute interesting items to the News discussion in Brightspace.
- Software/web resources.
 - Word Processor (i.e., MS Word, Apple Pages, LaTeX), remember that [MS Office is free for all students](#). So is access to [Overleaf](#). All assignments **must be turned in as PDF files**, however.
 - We will deduct points for poor grammar and spelling on assignments, so students should be familiar with a writing checker (such as the assistants built into Word and Pages, or [Grammarly](#)) and take due care with their writing.
 - You may need to use [Zoom](#) for group discussions or to join online office hours. Purdue students have access using their Purdue email address and BoilerID.
- You can access the course page via [Brightspace](#). It is strongly suggested that you explore and become familiar with the site navigation and the content and resources available for this course. See the Help tab for resources.

Course Schedule

The class schedule will be posted and updated in Brightspace.

- You should pay attention to due dates for assignments; **do not put things off until the last minute!** All assignments are due by 11:59 p.m. ET on the due date listed in the course schedule.
- *A detailed schedule of topics and assignments is on the Brightspace page for the course.*

Topics (Tentative):

- (1) AI and its Societal Implications
 - Introduction to Algorithmic Decision-Making and Machine Learning Basics
 - Data Ethics
 - AI Ethics
 - Fairness, Algorithmic Bias, and Appropriate Use of ML
 - Impact of LLMs on Society
- (2) Research Ethics
 - Exploring Ethical Values in Computer Science Research
- (3) Misinformation, Disinformation, Fake News, and Deepfakes
- (4) Hate, Harassment, and Online Abuse
- (5) Privacy and Surveillance
 - Data Privacy and Ethics
- (6) Software Security and Safety
- (7) Basics of Cyber Law
- (8) Human-Centered Computing
- (9) Emerging Technologies (e.g., Mixed Reality, Cryptocurrency, and Quantum Computing)

Assignments

This class is worth three credit hours.

- **Reading Assignments:** Students will read short or moderate-length published research papers, journal articles, news sources, or other credible sources on the presented topics and provide annotations on their thoughts and questions on the reading. In some cases, students will write a summary of the reading assignments.
- **CITI Research Training:** This short, 2–3-hour module provides an overview of human subjects practice in a way that applies to the idea of informed consent that will be covered in class at the same time.
- **3-4 Reflections:** Students will write a 3–4-page reflection on what they have learned in the course and its impacts on their future in the workplace or academia.
 - **Example Reflection:** Watch the video [\[link\]](#) (Allow yourself 90 minutes to view this). Think about what is presented and discussed in the video. Write a 1–2 pages personal reflection on the video discussing the potential causes and implications of biases such as those discussed. Include a short discussion of why these issues are significant.
- **2-3 Projects:** Students will look at data for a case study of a real-world issue and research on their own about that topic. Students will then create a report based on the data and research, with visuals and analysis, to show the impacts, directly and indirectly, of changing society.
 - **Example Project:** To begin, read **[doc 1]** and **[doc 2]** to gain insight into conflicts with **[topic]**. Next, identify some aspect of **[topic] in computing** that interests you. Find references and studies on that topic, including some studies or reports containing numerical information (e.g., number of incidents, records,

cost, etc.). Then, write a report about your case(s). Give background about why the topic is important and related to computing. In *your own words*, explain how computing technology is at the center of those incidents...

Grading will be as follows:

- Reading Assignments (Summaries): 10%
- Citi Module: 5%
- Projects: 50%
- Reflections: 30%
- Quizzes (Class Participation): 5%

More details are given in Brightspace associated with each assignment.

Assignments will be due no later than 11:59 pm on due dates. The score for any late homework is 0. Exceptions will be made in case of serious illness or bereavement. If you have a valid reason for missing a due date, I expect you to talk with me *before* it is due. Obviously, some circumstances may prevent this, but that will require a documented excuse from the Dean of Students office (see [Attendance Policy](#), below). I expect you to treat due dates seriously.

Attendance Policy

This course follows Purdue’s academic regulations regarding attendance, which state that students are expected to be present for every meeting of the classes in which they are enrolled. Some lectures *may* be recorded and available via BoilerCast, particularly on days when the instructor must travel away from Purdue. To succeed in this course, students must be timely in attending lectures and submitting assignments. There are [approved reasons](#) to miss class (e.g., jury duty, bereavement, medical necessity), but this should be arranged through the Office of the Dean of Students to be documented appropriately for all classes.

Students need to inform the instructor of any conflict that can be anticipated and will affect the submission of an assignment or the ability to take an exam. Only **the instructor** can excuse a student from a course requirement or responsibility. When conflicts can be anticipated, such as for many University-sponsored activities and religious observations, the student should inform the instructor of the situation as far in advance as possible. For unanticipated or emergency conflict, when advance notification to an instructor is not possible, the student should contact the instructor as soon as possible by email, through Brightspace, or by phone. When the student is unable to make direct contact with the instructor and is unable to leave word with the instructor’s department because of circumstances beyond the student’s control, and in cases of bereavement, quarantine, or isolation, the student or the student’s representative should contact the [Office of the Dean of Students](#) via [email](#) or phone at 765-494-1747. Our course Brightspace includes a link on Attendance and Grief Absence policies under the University Policies menu.

Classroom Guidance Regarding Protect Purdue

The [Protect Purdue Plan](#), which includes the [Protect Purdue Pledge](#), is campus policy. As such, all members of the Purdue community must comply with the required health and safety guidelines.

Any student with substantial reason to believe that another person in a campus room (e.g., classroom) is threatening the safety of others may leave the room without consequence. The student is encouraged to report the behavior and discuss next steps with their instructor. Students can also report the behavior to the [Office of the Student Rights and Responsibilities](#). See also [Purdue University Bill of Student Rights](#).

Academic Integrity

I take academic honesty **very** seriously. Incidents of academic misconduct in this course will be addressed by the instructor and referred to the Office of Student Rights and Responsibilities (OSRR) for review at the university level. Any violation of course policies as it relates to academic integrity will result minimally in a failing or zero grade for that assignment, and at the instructor's discretion, may result in a failing grade for the course. In addition, all incidents of academic misconduct will be reported to OSRR, where university penalties, including removal from the university, may be considered.

Take great care to do your own work, don't plagiarize materials, and be truthful about your work. You may refer to Purdue's [student guide for academic integrity](#).

The [Purdue Honor Pledge](#) "As a Boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together - we are Purdue."

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by emailing integrity@purdue.edu or calling 765-494-8778. While the information may be submitted anonymously, the more information is submitted, the greater the opportunity for the university to investigate the concern. More details are available on our course Brightspace table of contents, under University Policies.

The best way to avoid problems is to talk to the instructor as soon as you feel you are having problems in the course. Dishonesty is never an appropriate way to fix a problem in a class.

Diversity, Equity, and Inclusion

Purdue University is committed to maintaining a community that recognizes and values every person's inherent worth and dignity; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages everyone to strive to reach their potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. More details are available on our course Brightspace table of contents, under University Policies. I endorse and follow this policy. Contact me, anonymously if needed, if you see a potential barrier for someone or yourself in participating fully in the class. See also the section on [Class Etiquette](#).

Accessibility

Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so we can discuss options. You are also encouraged to contact the [Disability Resource Center](#) at: drc@purdue.edu or by phone: at 765-494-1247.

Wellness and Safety

Generally, you may contact or see the Office of the Dean of Students if you need support and information about options and resources. Call 765-494-1747. Hours of operation are M-F, 8 am- 5 pm.

- **If you are beginning to feel some stress, anxiety, and slightly overwhelmed, try [WellTrack](#).** Sign in and find information and tools at your fingertips, available to you at any time.
- **If you are trying to find a healthy balance among academics, social life, stress, etc.,** sign up for free one-on-one virtual or in-person sessions with a [Purdue Wellness Coach at RecWell](#). Student coaches can help you navigate through barriers and challenges toward your goals throughout the semester. Sign-up is free and can be done on BoilerConnect.
- **If you're struggling and need mental health services:** Purdue University is committed to advancing its students' mental health and well-being. Services are available if you or someone you know feels overwhelmed or depressed and needs mental health support. For help, such individuals should contact [Counseling and Psychological Services \(CAPS\)](#) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS office on the second floor of the Purdue University Student Health Center (PUSH) during business hours.
- [Student of concern reporting](#) Anyone on campus can submit a report if they are unsure where to go or how they can help a student; it does not need to be an emergency.
- The [Center for Advocacy, Response & Education \(CARE\)](#) (open to the entire Purdue community) “provides support and advocacy for survivors of sexual violence, dating violence, and stalking.”
- **If you are facing challenges with getting food or housing and believe it may affect your class performance,** contact the Dean of Students for support. No appointment is needed, and Student Support Services is available to serve students 8 a.m.-5 p.m. Monday through Friday. The [ACE Campus Food Pantry](#) (open to the entire Purdue community) is available to students. Also, students may request emergency assistance from the [Critical Need Fund](#).

You are also welcome to set up a conversation with your instructor (Spaf) about these or any other issues at any time. I am a certified Mental First Aid instructor, have completed Purdue LGBTQ Safe Zone training, have experience as a counselor, and have been on the faculty at Purdue for 35 years. That doesn't mean I can address *all* issues you bring my way, but I will try to help.

Class Etiquette

Your instructor and fellow students wish to foster a safe online learning environment. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea, but you are not to attack an individual.

Please consider that sarcasm and humor can be misconstrued in online interactions and generate unintended disruptions. Working as a community of learners, we can build a polite and respectful course ambiance. Please read the Netiquette rules for this course:

- Do not dominate any discussion. Allow other students to join in the discussion.
- Do not use offensive language. Present ideas appropriately.
- Be cautious in using Internet language. For example, do not capitalize all letters since this suggests shouting.
- Avoid using vernacular and slang language. This could lead to misinterpretation.
- Keep an “open mind” and be willing to express even your minority opinion.

- Think and edit before you push the “Send” button.
- Do not hesitate to ask for feedback.

Emergency Preparation

In a major campus emergency, course requirements, deadlines, and grading percentages are subject to changes that may necessitate a revised semester calendar or circumstances beyond the instructor’s control. Relevant changes to this course will be posted on the course website or can be obtained by contacting the instructor or TA via email or phone. You are expected to read your @purdue.edu email frequently.

Disclaimer Special Note

This syllabus is subject to change. If there are changes, I will announce them by email and on the class site.