

CS 3390 / DS 3390: Ethics in Data Science

Pre-requisites: C or better in CS 2420 AND Full Major or Minor status in Computer Science OR Full Major status in Data Science.
Credit hours: 3.0

Class: TuTh / 03:40PM-05:00PM
Location: WEB L105
Instructor: Sameer Patil, *Ph.D.*, Associate Professor
<sameer.patil@utah.edu>
Office Hours: *Tuesdays 5-6pm* at MEB 3408 or
via Zoom by appointment

NOTE: This syllabus is meant to serve as an outline and guide for the course. It may be modified with reasonable notice. The course schedule may be modified to accommodate the needs of the class. Any significant changes will be announced in class and posted on Canvas under Announcements.

Course Description:

In this course, students will explore the technical, social, and ethical ramifications of the choices we make 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 basics of ethical thinking in science, understand the history of ethical dilemmas in scientific work, and study the distinct challenges associated with ethics in modern data science.

Learning Objectives:

- Become aware of the (ethical) choices when designing and implementing systems for data collection and analysis.
- Learn about foundational theories of ethics and their application.
- Understand the data science pipeline and recognize the harms that might be introduced downstream.
- Formulate and articulate actionable outcomes consistent with an ethical analysis of a task.
- Learn about *moral salience*: the components of actions that are morally relevant.
- Understand the difference between *moral responsibility* and *blame* and their influence on ethical thinking.
- Learn to face and deal with *moral distress*: helplessness in the face of hierarchy and power.
- Learn to work in groups and come to *group* ethical decisions.

Course and Communication Etiquette and Policies:

- Follow the guidelines for respectful discussions posted on Canvas.
- Be on time for each class session. Being late or absent will count against the class participation grade.

- Laptops and mobile devices should be used during class only when instructed, and the use is limited strictly to in-class activities.
- Be responsible for monitoring announcements sent via Umail or Canvas. Not seeing an announcement will not be accepted as an excuse.
- It is the student's responsibility to maintain computer and related equipment in order to participate in the online components of the course. Equipment failure will not be an acceptable excuse for late or absent assignments.
- Check and use your Umail frequently. We cannot use personal email addresses.
- Please email all instructors (i.e., the professor and the teaching assistants) so that the first person available can address the email. When replying to instructor emails, be sure to use "reply all" so that all instructors are kept in the loop.
- Allow *at least 24 hours* for email response from the instructors.
- Submit assignments on time. Late submissions will NOT be accepted and will automatically receive 0 points.
- It is the student's responsibility to be familiar with the policies regarding plagiarism and academic honesty under the University's [Code of Student Rights and Responsibilities](#) and the [School of Computing's Policy on Academic Misconduct](#). If you are unsure, please check with the instructors. There is ZERO tolerance for plagiarism and academic dishonesty in the course. Any assignment in which academic misconduct is detected will receive 0 points, and the incident will be reported to relevant university administrators. If a second instance of academic misconduct is detected harsher penalties will be imposed, including but not limited to receiving an F grade for the whole course.
- Discussion threads, emails, and chat rooms are all considered equivalent to classrooms, and student behavior within those environments shall conform to the Student Code. Specifically:
 - Photos or comments that would be off-topic in a classroom are still off-topic in an online posting.
 - Disrespectful language and photos are never appropriate.
 - Using angry or abusive language is not acceptable and will be dealt with according to the Student Code. The instructor may remove online postings that are inappropriate.
 - Do not use ALL CAPS, except for titles or overuse of certain punctuation marks such as exclamation points and question marks.
 - Course e-mails, e-journals, and other online course communications are part of the classroom and, as such, are University property and subject to the Student Code. Privacy regarding these communications between correspondents must not be assumed and should be mutually agreed upon in advance, in writing.
- Students are required to submit your assignments to a plagiarism detection service as part of the assignment submission process.
- Students are responsible for submitting the assignment with the required naming convention, correct file extension, and using the software type and version required for the assignment.

Course Materials:

All readings for the course will be freely available on Canvas and/or the Internet.

Important Due Dates:

Canvas Discussion Posts	<i>Approximately every week</i>
Course Assessment 1	<i>08/28 by 11:59pm Mountain Time</i>
Block Reflection 1	<i>10/06 by 11:59pm Mountain Time</i>
Block Reflection 2	<i>11/10 by 11:59pm Mountain Time</i>
Block Reflection 3	<i>12/08 by 11:59pm Mountain Time</i>
Course Assessment 2	<i>12/09 by 11:59pm Mountain Time</i>
Final	<i>12/11 by 11:59pm Mountain Time</i>

Grading Weights:

Class participation (in-class activities and quizzes)	<i>40%</i>
Canvas Discussions (approximately every week)	<i>40%</i>
Block Reflections	<i>10%</i>
Final	<i>10%</i>

Grading Scale:

A+	<i>97%+</i>
A	<i>94-96.9%</i>
A-	<i>90-93.9%</i>
B+	<i>87-89.9%</i>
B	<i>84-86.9%</i>
B/-	<i>80-83.9%</i>
C+	<i>77-79.9%</i>
C	<i>74-76.9%</i>
C-	<i>70-73.9%</i>
D+	<i>67-69.9%</i>
D	<i>64-66.9%</i>
D-	<i>60-63.9%</i>
F	<i>< 60%</i>

Course Outline:

Week	Dates	Topic
<i>INTRODUCTION AND BACKGROUND</i>		
1	08/23-08/25	Introduction and the Data Science Pipeline
2	08/30-09/01	Ethical Frameworks
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<i>BLOCK 1:</i>		<i>DATA</i>
3	09/06-09/08	Conceptions of Data
4	09/13-09/15	Directed vs. Undirected Data Collection
5	09/20-09/22	What Data Should Be Used: Issues of Privacy and Personal Property
6	09/27-09/29	Who Should Collect and Use Data: Power Structures, Moral Responsibility, and Informed Consent
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<i>BLOCK 2:</i>		<i>ANALYSIS</i>
7	10/04-10/06	Basics and Extrapolation
8	-	<i>FALL BREAK</i>
9	10/18-10/20	Questions of Weights and Answers
10	10/25-10/27	Explanation
11	11/01-11/03	Human Interaction
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<i>BLOCK 3:</i>		<i>REAL-LIFE APPLICATIONS</i>
12	11/08-11/10	The Good (and Bad) from Machine Learning
13	11/15-11/17	Responsibility: The Role We Play
14	-	<i>THANKSGIVING</i>
15	11/29-12/01	What to Do about All of This
16	12/06-12/08	Looking Forward: Societal Changes

Student Names and Personal Pronouns:

Class rosters are provided to the instructor with the student's legal name as well as "Preferred first name" (if previously entered by the student in the Student Profile section of the CIS account, which can be managed by the student at any time). While CIS refers to this as merely a preference, the instructors will honor students by referring to them with the name and pronoun that feels best for them in class or on assignments. Please advise the instructors of any name or pronoun changes so that they can help create a learning environment in which the students, their names, and their pronouns are respected. For any assistance or support, please reach out to the LGBT Resource Center: https://lgbt.utah.edu/campus/faculty_resources.php

Diversity/Inclusivity Statement:

The instructors intend that students from all diverse backgrounds and perspectives be well served by this course, that learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. The instructors intend to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Student suggestions are encouraged and appreciated. Please let the instructors know of ways to improve the effectiveness of the course for students or student groups. In addition, if any class meetings conflict with individual religious events, please let the instructors know to make arrangements for you.

Student Mental Health Resources:

Rates of burnout, anxiety, depression, isolation, and loneliness have noticeably increased during the pandemic. If students need help, they can reach out for [campus mental health resources](#), including counseling, trainings, and other support.

Consider participating in a [Mental Health First Aid](#) or other [wellness-themed](#) training provided by the Center for Student Wellness and sharing these opportunities with peers.

Administrative and University Polices:

The administrative policies for the current semester are available at:

School of Computing: <https://handbook.cs.utah.edu/current/Academics/policies.php>

College of Engineering: <https://www.coe.utah.edu/students/current/semester-guidelines/>

Drop/Withdrawal Policies. Students may drop a course within the first two weeks of a given semester without any penalties. Students may officially withdraw (W) from a class or all classes after the drop deadline through the midpoint of a course. A “W” grade is recorded on the transcript and appropriate tuition/fees are assessed. The grade “W” is not used in calculating the student’s GPA. For deadlines to withdraw from full-term, first, and second session classes, see the U's Academic Calendar.

The last day to drop classes is September 2, 2022; the last day to withdraw from this course is October 21, 2022. Please check the academic calendar for more information pertaining to dropping and withdrawing from a course. Withdrawing from a course and other matters of registration are the student’s responsibility.

The Americans with Disabilities Act. The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If anyone will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

Given the nature of this course, attendance is required and adjustments cannot be granted to allow non-attendance. Students who may need to seek an ADA accommodation to request an exception to this attendance policy due to a disability should contact the Center for Disability and Access (CDA). CDA will work with the instructors to determine what, if any, ADA accommodations are reasonable and appropriate.

University Safety Statement. The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). Students will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit <https://safeu.utah.edu>.

Addressing Sexual Misconduct. Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran’s status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

COVID-19 Fall 2022 Statement:

The COVID-19 guidelines for the University of Utah are adapted often due to the ever-changing status of the pandemic. For the most up-to-date information regarding the campus guidelines, visit <https://coronavirus.utah.edu>.

University leadership has urged all faculty, students, and staff to **model the vaccination, testing, and masking behaviors** we want to see in the campus community.

These include:

- [Vaccination](#)
- Masking remains required in Utah Health facilities. In non-University of Utah Health facilities, indoor masking recommendations are based on [current conditions](#) and health department [recommendations](#)
- If unvaccinated, weekly asymptomatic coronavirus [testing \(available on campus, consider testing before conferences, travel, etc.\)](#)
- **[Self-reporting](#) positive COVID-19 test results**

As a reminder:

- [What to do if you experience symptoms ...](#)
- [What to do if you have had a known exposure ...](#)

Diverse Student Support:

Student success at the University of Utah is important to all of us! The U is here for anyone who feels the need for extra support in academics, overcoming personal difficulties, or finding community.

Student Support Services (TRIO)

TRIO federal programs are targeted to serve and assist low-income individuals, first-generation college students, and individuals with disabilities. Student Support Services (SSS) is a TRIO program for current or incoming undergraduate university students who are seeking their first bachelor's degree and need academic assistance and other services to be successful at the University of Utah. For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Student Support Services (TRIO)

801-581-7188

<https://trio.utah.edu>

Room 2075

1901 E. S. Campus Dr.

Salt Lake City, UT 84112

American Indian Students

The American Indian Resource Center (AIRC) works to increase American Indian student visibility and success on campus by advocating for and providing student centered programs and tools to enhance academic success, cultural events to promote personal well-being, and a supportive “home-away-from-home” space for students to grow and develop leadership skills. For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

American Indian Resource Center

801-581-7019

<https://diversity.utah.edu/centers/airc>

Fort Douglas Building 622

1925 De Trobriand St.

Salt Lake City, UT 84113

Black Students

Using a pan-African lens, the Black Cultural Center seeks to counteract persistent campus-wide and global anti-blackness. The Black Cultural Center works to holistically enrich, educate, and advocate for students, faculty, and staff through Black centered programming, culturally affirming educational initiatives, and retention strategies. For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Black Cultural Center

801-213-1441

<https://diversity.utah.edu/centers/bcc>

Fort Douglas Building 603

95 Fort Douglas Blvd.

Salt Lake City, UT 84113

Students with Children

Our mission is to support and coordinate information, program development and services that enhance family resources as well as the availability, affordability and quality of childcare for University students, faculty and staff. For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Center for Childcare & Family Resources

801-585-5897

<https://childcare.utah.edu>

408 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

Students with Disabilities

The Center for Disability Services is dedicated to serving students with disabilities by providing the opportunity for success and equal access at the University of Utah. They also strive to create an inclusive, safe, and respectful environment. For more information about what support they provide and links to other resources, view their website or contact:

Center for Disability Services

801-581-5020

<https://disability.utah.edu>

162 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

Students across Intersectional Identities and Experiences

The Center for Equity and Student Belonging (CESB) creates community and advocates for academic success and belonging for students across intersectional identities and experiences among our African, African American, Black, Native, Indigenous, American Indian, Asian, Asian American, Latinx, Chicanx, Pacific Islander, Multiracial, LGBTQ+, Neurodiverse, and Disabled students of color. For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Center for Equity and Student Belonging (CESB)

801-581-8151

<https://diversity.utah.edu/centers/cesb/>

235 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

English as a Second/Additional Language (ESL) Students

If you are an English language learner, there are several resources on campus available to help you develop your English writing and language skills. Feel free to contact:

Writing Center

801-587-9122

<https://writingcenter.utah.edu>

2701 Marriott Library, 295 S 1500 E

Salt Lake City, UT 84112

English Language Institute
801-581-4600
<https://continue.utah.edu/eli>
540 Arapeen Dr.
Salt Lake City, UT 84108

Undocumented Students

Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles that prevent you from engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center.

Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. For more information about what support they provide and links to other resources, view their website or contact:

Dream Center
801-213-3697
<https://dream.utah.edu>
1120 Annex (Wing B)
1901 E. S. Campus Dr.
Salt Lake City, UT 84112

LGBTQ+ Students

The LGBTQ+ Resource Center acts in accountability with the campus community by identifying the needs of people with a queer range of [a]gender and [a]sexual experiences and responding with university-wide services. For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

LGBTQ+ Resource Center
801-587-7973
<https://lgbt.utah.edu>
409 Union Building
200 S. Central Campus Dr.
Salt Lake City, UT 84112

Veterans & Military Students

The mission of the Veterans Support Center is to improve and enhance the individual and academic success of veterans, service members, and their family members who attend the university; to help them receive the benefits they earned; and to serve as a liaison between the student veteran community and the university. For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Veterans Support Center
801-587-7722
<https://veteranscenter.utah.edu>
418 Union Building
200 S. Central Campus Dr.
Salt Lake City, UT 84112

Women

The Women's Resource Center (WRC) at the University of Utah serves as the central resource for educational and support services for women. Honoring the complexities of women's identities, the WRC facilitates choices and changes through programs, counseling, and training grounded in a commitment to advance social justice and equality. For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Women's Resource Center
801-581-8030
<https://womenscenter.utah.edu>
411 Union Building
200 S. Central Campus Dr.
Salt Lake City, UT 84112

Inclusivity at the U

The Office for Inclusive Excellence is here to engage, support, and advance an environment fostering the values of respect, diversity, equity, inclusivity, and academic excellence for students in our increasingly global campus community. They also handle reports of bias in the classroom as outlined below:

Bias or hate incidents consist of speech, conduct, or some other form of expression or action that is motivated wholly or in part by prejudice or bias whose impact discriminates, demeans, embarrasses, assigns stereotypes, harasses, or excludes individuals because of their race, color, ethnicity, national origin, language, sex, size, gender identity or expression, sexual orientation, disability, age, or religion.

For more information about what support they provide and links to other resources, or to report a bias incident, view their website or contact:

Office for Inclusive Excellence
801-581-4600
<https://inclusive-excellence.utah.edu>
170 Annex (Wing D)
1901 E. S. Campus Dr.
Salt Lake City, UT 84112

Other Student Groups at the U

To learn more about some of the other resource groups available at the U, check out:

<https://getinvolved.utah.edu/>
<https://studentsuccess.utah.edu/resources/student-support>