

# PHIL 29300: Ethics for Data Sciences

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Office Hours: TBD

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Mondays, 1:30-2:20pm

WALC 3154

1 credit hour

## Course Description

Data science is powerful, but with this power comes a host of obligations and responsibilities that professionals in this field need to be aware of, and to negotiate in an ethical manner. As “big data” gets bigger and bigger, and applications of data science permeate a wider and wider range of different aspects of our lives, new and important ethical issues are arising all the time. Facebook can influence how we vote, what we buy, and what kinds of images children see. Target’s marketing department can determine that a woman is pregnant even before her own family members can. Algorithms used in the criminal justice system can reflect and amplify racial biases. Yet reasoning clearly about the ethical implications of these new powers isn’t easy; we’re entering uncharted territory, where few precedents exist.

This course addresses these issues by providing (1) a conceptual framework for ethical reasoning in the professional setting, and (2) a procedure for case-study analysis designed to give students practice in employing this conceptual framework. Together, these components work toward students’ development as ethical professionals and responsible global citizens. After applying the case-study procedure to a range of important, real-world cases, students write a final essay in which they identify, research, and analyze a case of their own.

## Prerequisites

None.

## Learning Outcomes

At the end of PHIL 293 (Ethics of Data Science), students will be able to:

1. identify ethical issues associated with applications of data science in a variety of professional settings by reading assigned texts and viewing/listening to assigned media content;
2. assess and critique the actions of individuals, corporations, governments and other organizations as ethical or unethical by participating in classroom and group discussions;
3. apply general ethical principles to the specific, concrete actions of individuals, corporations, governments and other organizations by completing written projects related to case study analysis;
4. formulate sound, well-reasoned arguments, and communicate them clearly, by writing reports implementing the case study procedure developed in class;
5. generate a case study of their own, by submitting a final case study report implementing the case study procedure developed in class.

## Required Texts

Most readings will be supplied online, through the Blackboard website, but two readings will be drawn from the following textbook, which is available free online through the Purdue Libraries:

*Global Engineering Ethics* (2017), by Heinz Luegenbiehl and Rockwell Clancy, Elsevier Press

In addition, your original research will require consultation of various news sources, academic articles, books, etc.

## Course Requirements

The format for this course is based on reading and reflection, along with in-class discussion and written exercises. The primary focus will be on discussion of the assigned readings and completion of the corresponding exercises. Accordingly, in order to contribute to discussions in a meaningful way it is important that you do the assigned readings. Please check Blackboard regularly to keep up with assignments, any schedule or policy changes, and other general course information. It is your responsibility to do so.

The course is organized into eight modules (listed below), each of which addresses a different topic over 2 class periods. For two of the modules, students will hand in a short written case study of their own (500-1,000 words), addressing cases discussed in class. The last module differs from the others in that it is devoted to generating a final essay (2500-3,000 words) in which students research and analyze a case of their own choosing. The first two assignments will each be worth 15% of the final grade, while the final essay will comprise 50%. The remaining 20% is based on participation.

For the final essay, students will be responsible for researching, writing, and submitting an original case study analysis. After first providing a narrative synopsis relaying the relevant events of the case, the essay will present an ethical analysis of these events, utilizing at least three *reputable* sources. Wikipedia, for example, may not be a bad place to start learning about a new topic, but is not itself a reputable source. In some cases – especially those involving new technologies and people’s perceptions of them – blogs may also be useful resources. Students may use and refer to blogs if they are credible, but no more than one of the three required sources may be a blog. Papers must use 12-point font, APA style. Late papers will be penalized 7 points per day.

Any student who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact the instructor as soon as possible to discuss any accommodations necessary, and to ensure full participation.

## How to Succeed in This Course

Students can best equip themselves to succeed in this course by doing all the assigned readings before class and participating in class discussion. Students are also encouraged to take advantage of the instructor’s office hours, especially when questions regarding instructor feedback on written assignments arise.

## Class Schedule

<b>Topic</b>	<b>Reading</b>
<u>Module 1: Introduction and Overview</u>	<u>Chapter 1</u>
What is ethics? Why ethics for data scientists? The difference between ethics and law	
<u>Module 2: Working with Cases</u>	<u>Chapter 2</u>
Why study cases? Procedure for analyzing cases	
<u>Module 3: Case -- Facebook and Rules for Removing Content</u>	<u>RadioLab Podcast</u>
Ethics of autonomy Professional role responsibilities Corporate responsibility Formal codes of ethics	
<u>Module 4: Case -- Facebook &amp; Cambridge Analytica</u>	<u>Web Article</u>
Big data and privacy	
<u>Module 5: Case -- The “It Gets Better” Project</u>	<u>YouTube video</u>

Ethics of harm  
Professional role responsibilities

Module 6: Case -- Target® and Marketing Algorithms Web Article

Ethics of privacy  
Obligations for organizations vs. individuals

Module 7: Case -- Biased Algorithms Web Article

Justice and racial/ethnic bias  
Environmental justice

Module 8: Final Essay N/A

Students identify and analyze their own cases

## Policies

### General Course Policies

Please foster a learning atmosphere by respecting classmates and the instructor. Students are asked to turn off their cell phones when class begins. Laptops are allowed *only* for taking notes; virtually anything else will be distracting to others, and such distractions are quite conspicuous from the perspective of the instructor at the front of the room.

Students are encouraged to ask in class, for the benefit of other students, questions about the assigned readings and/or writing assignments. However, students may also e-mail the instructor at any time. The instructor will aim to respond within 24 hours whenever possible.

### Grading

Participation (attendance, readings, exercises): 20%  
Short Case Studies (2 x 15%): 30%  
Final Case Study: 50%

Letter grades will be assigned as follows:

Final average	Course grade	Final average	Course grade
98% and above	A+	77% and above	C+
93% and above	A	73% and above	C
90% and above	A-	70% and above	C-
87% and above	B+	60% and above	D
83% and above	B	59.9 and below	F
80% and above	B-		

## Academic Dishonesty

The Purdue guidelines on academic integrity state:

*Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-a, Student Regulations] Furthermore, the University Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972]*

Students should refer to [Purdue's student guide for academic integrity](https://www.purdue.edu/odos/academic-integrity/) for further clarification on the University policies regarding academic honesty:  
<https://www.purdue.edu/odos/academic-integrity/>

## Use of Copyrighted Materials

All work handed in for this class must be your own. The inclusion of any data, words, or ideas from any other source must be acknowledged, and that source must be given proper credit. Failure to do so will be considered plagiarism. For this course, plagiarism is defined as:

- a) The use of any passage of **three words or longer** from another source without proper attribution. Use of any phrase of three words or more must be enclosed in quotation marks ("**example, example, example**"). The source of the material must be identified in the text, by a parenthetical reference, footnote, or endnote.
- b) Use of material from an un-cited source, making very minor changes (like word order or verb tense) simply to avoid the three-word rule.
- c) Inclusion of **facts, data, ideas, or theories** originally thought of by someone else, without giving that person (organization, etc.) credit. You must identify the source, whether in an endnote, footnote, parenthetical reference, or in the text.
- d) **Paraphrasing** ideas or theories (writing them in your own words) without giving the original thinker proper credit.
- e) Allowing another person to make extensive changes to your paper. This is considered "unauthorized aid." (Allowing a friend to check your work for typos or grammar is fine.)

Please note that **even partially plagiarized assignments will receive a failing grade**, so it is in your best interest to do your work on your own. Even assignments that you have struggled with will probably result in a grade higher than that of

plagiarized work. If you have any questions about what constitutes or how to avoid plagiarism, do not hesitate to ask.

Further, the University Regulations on these policies state:

*Students are expected, within the context of the Regulations Governing Student Conduct and other applicable University policies, to act responsibly and ethically by applying the appropriate exception under the Copyright Act to the use of copyrighted works in their activities and studies. The University does not assume legal responsibility for violations of copyright law by students who are not employees of the University.*

*A Copyrightable Work created by any person subject to this policy primarily to express and preserve scholarship as evidence of academic advancement or academic accomplishment. Such works may include, but are not limited to, scholarly publications, journal articles, research bulletins, monographs, books, plays, poems, musical compositions and other works of artistic imagination, and works of students created in the course of their education, such as exams, projects, theses or dissertations, papers and articles.*

Students should refer to the [University Regulations on the Use of Copyrighted Materials](#) at:

<http://www.purdue.edu/policies/academic-research-affairs/ia3.html>

## **Attendance**

Class attendance is required. However, participation consists in not only attendance but also answering questions, asking questions if the material is unclear, participating in in-class exercises, etc. You will be responsible for all the material covered in class, including lecture content, schedule and policy changes, and other general information. It is recommended that you ask for contact information of classmates so that if you miss class you can find out what you missed.

Students arriving to class more than 10 minutes late, or leaving more than 10 minutes early, without having previously notified the instructor, will be counted as absent for that class period.

Further, the University policy for student attendance states:

*Students are expected to be present for every meeting of the classes in which they are enrolled. Only the instructor can excuse a student from a course requirement or responsibility. When conflicts or absences 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 absences when advance notification to an instructor is not possible, the student should contact the instructor as soon as possible by email, or by contacting the*

*main office that offers the course. 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, the student or the student's representative should contact the Office of the Dean of Students.*

Students should refer to the complete [University attendance policy](#) and its implications at:

[http://www.purdue.edu/studentregulations/regulations\\_procedures/classes.html](http://www.purdue.edu/studentregulations/regulations_procedures/classes.html)

### **Missed or Late Work**

Late papers will be penalized 7 points per day. If a student encounters legitimate conflict between the due date for a written assignment in this course and the date of a major assignment in another course (e.g., midterm exams, in-class presentation, writing assignment), or with University-sanctioned extracurricular activities (e.g., athletic events, student organization events, job fairs), she should contact the instructor as soon as she becomes aware of the conflict. The instructor may, in certain cases, grant an extension on the due date to the student. Students must receive written confirmation of an extension in an e-mail from the instructor for it to apply.

### **Grief Absence Policy for Students**

Purdue University recognizes that a time of bereavement is very difficult for a student. The University therefore provides the following rights to students facing the loss of a family member through the Grief Absence Policy for Students (GAPS). GAPS Policy: Students will be excused for funeral leave and given the opportunity to earn equivalent credit and to demonstrate evidence of meeting the learning outcomes for misses assignments or assessments in the event of the death of a member of the student's family.

See the [University's website](#) for additional information:

[http://www.purdue.edu/studentregulations/regulations\\_procedures/classes.html](http://www.purdue.edu/studentregulations/regulations_procedures/classes.html)

### **Violent Behavior Policy**

Purdue University is committed to providing a safe and secure campus environment for members of the university community. Purdue strives to create an educational environment for students and a work environment for employees that promote educational and career goals. Violent Behavior impedes such goals. Therefore, Violent Behavior is prohibited in or on any University Facility or while participating in any university activity.

See the [University's website](#) for additional information:

<http://www.purdue.edu/policies/facilities-safety/iva3.html>

## **Emergencies**

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructors or TAs via email or phone. You are expected to read your @purdue.edu email on a frequent basis.

Purdue's Emergency Procedures Guide and other important [emergency planning information](#) are available online at:

[https://www.purdue.edu/ehps/emergency\\_preparedness/](https://www.purdue.edu/ehps/emergency_preparedness/)

## **Accessibility and Accommodations**

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 that we can discuss options. You are also encouraged to contact the Disability Resource Center at: [drc@purdue.edu](mailto:drc@purdue.edu) or by phone: 765-494-1247.

## **Nondiscrimination**

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own 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.

Purdue University views, evaluates, and treats all persons in any University related activity or circumstance in which they may be involved, solely as individuals on the basis of their own personal abilities, qualifications, and other relevant characteristics.

Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran. The University will conduct its programs, services and activities consistent with applicable federal, state and local laws, regulations and orders and in conformance with the procedures and limitations as set forth in Purdue's Equal Opportunity, Equal Access and Affirmative

Action policy which provides specific contractual rights and remedies. Additionally, the University promotes the full realization of equal employment opportunity for women, minorities, persons with disabilities and veterans through its affirmative action program.

Any question of interpretation regarding this Nondiscrimination Policy Statement shall be referred to the **Vice President for Ethics and Compliance** for final determination.

## Disclaimer

This syllabus is subject to change.