CUNY Common Core
Course Submission Form

Instructions: All courses submitted for the Common Core must be liberal arts courses. Courses may be submitted for only one area of the Common Core. All courses must be 3 credits/3 contact hours unless the college is seeking a waiver for another type of Math or Science course that meets major requirements. Colleges may submit courses to the Course Review Committee at any time. Courses must also receive local campus governance approval for inclusion in the Common Core.

College	Lehman College
Course Prefix and Number (e.g., ANTH 101, if number not assigned, enter XXX)	PHI 227
Course Title	Ethics of Data Science
Department(s)	Philosophy Department
Discipline	Philosophy
Credits	3
Contact Hours	3
Pre-requisites (if none, enter N/A)	n/a
Co-requisites (if none, enter N/A)	n/a
Catalogue Description	Ethical challenges posed by collecting data and basing decisions on inferences drawn from that data, especially when aided by machine learning, as well as challenges posed by the use of generative AI to create content.
Special Features (e.g., linked courses)	
Sample Syllabus	Syllabus must be included with submission, 5 pages max recommended

Indicate the status of this course being nominated:

☒ current course ☐ revision of current course ☐ a new course being proposed

CUNY COMMON CORE Location

Please check below the area of the Common Core for which the course is being submitted. (Select only one.)

Required	Flexible	
☐ English Composition	☐ World Cultures and Global Issues	☒ Individual and Society
☐ Mathematical and Quantitative Reasoning	☐ US Experience in its Diversity	☐ Scientific World
☐ Life and Physical Sciences	☐ Creative Expression	

Waivers for Math and Science Courses with more than 3 credits and 3 contact hours

Waivers for courses with more than 3 credits and 3 contact hours will only be accepted in the required areas of "Mathematical and Quantitative Reasoning" and "Life and Physical Sciences." Three credit/3-contact hour courses must also be available in these areas.

If you would like to request a waiver please check here:	☐ Waiver requested
If waiver requested: Please provide a brief explanation for why the course will not be 3 credits and 3 contact hours.	
If waiver requested: Please indicate whether this course will satisfy a major requirement, and if so, which major requirement(s) the course will fulfill.	

Learning Outcomes **In the left column explain the course assignments and activities that will address the learning outcomes in the right column.**	
I. Required Core (12 credits)	
A. English Composition: Six credits A course in this area must meet all the learning outcomes in the right column. A student will:	
	• Read and listen critically and analytically, including identifying an argument's major assumptions and assertions and evaluating its supporting evidence.
	• Write clearly and coherently in varied, academic formats (such as formal essays, research papers, and reports) using standard English and appropriate technology to critique and improve one's own and others' texts.
	• Demonstrate research skills using appropriate technology, including gathering, evaluating, and synthesizing primary and secondary sources.
	• Support a thesis with well-reasoned arguments, and communicate persuasively across a variety of contexts, purposes, audiences, and media.
	• Formulate original ideas and relate them to the ideas of others by employing the conventions of ethical attribution and citation.
B. Mathematical and Quantitative Reasoning: Three credits A course in this area must meet all the learning outcomes in the right column. A student will:	
	• Interpret and draw appropriate inferences from quantitative representations, such as formulas, graphs, or tables.
	• Use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems.
	• Represent quantitative problems expressed in natural language in a suitable mathematical format.
	• Effectively communicate quantitative analysis or solutions to mathematical problems in written or oral form.
	• Evaluate solutions to problems for reasonableness using a variety of means, including informed estimation.
	• Apply mathematical methods to problems in other fields of study.

C. Life and Physical Sciences: Three credits A course in this area must meet all the learning outcomes in the right column. A student will:	
	• Identify and apply the fundamental concepts and methods of a life or physical science.
	• Apply the scientific method to explore natural phenomena, including hypothesis development, observation, experimentation, measurement, data analysis, and data presentation.
	• Use the tools of a scientific discipline to carry out collaborative laboratory investigations.
	• Gather, analyze, and interpret data and present it in an effective written laboratory or fieldwork report.
	• Identify and apply research ethics and unbiased assessment in gathering and reporting scientific data.
II. Flexible Core (18 credits) Six three-credit liberal arts and sciences courses, with at least one course from each of the following five areas and no more than two courses in any discipline or interdisciplinary field.	
A. World Cultures and Global Issues	
A Flexible Core course must meet the three learning outcomes in the right column.	
	• Gather, interpret, and assess information from a variety of sources and points of view.
	• Evaluate evidence and arguments critically or analytically.
	• Produce well-reasoned written or oral arguments using evidence to support conclusions.
A course in this area (II.A) must meet at least three of the additional learning outcomes in the right column. A student will:	
	• Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring world cultures or global issues, including, but not limited to, anthropology, communications, cultural studies, economics, ethnic studies, foreign languages (building upon previous language acquisition), geography, history, political science, sociology, and world literature.
	• Analyze culture, globalization, or global cultural diversity, and describe an event or process from more than one point of view.
	• Analyze the historical development of one or more non-U.S. societies.
	• Analyze the significance of one or more major movements that have shaped the world's societies.
	• Analyze and discuss the role that race, ethnicity, class, gender, language, sexual orientation, belief, or other forms of social differentiation play in world cultures or societies.
	• Speak, read, and write a language other than English, and use that language to respond to cultures other than one's own.

B. U.S. Experience in its Diversity A Flexible Core course must meet the three learning outcomes in the right column.	
	• Gather, interpret, and assess information from a variety of sources and points of view.
	• Evaluate evidence and arguments critically or analytically.
	• Produce well-reasoned written or oral arguments using evidence to support conclusions.
A course in this area (II.B) must meet at least three of the additional learning outcomes in the right column. A student will:	
	• Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring the U.S. experience in its diversity, including, but not limited to, anthropology, communications, cultural studies, economics, history, political science, psychology, public affairs, sociology, and U.S. literature.
	• Analyze and explain one or more major themes of U.S. history from more than one informed perspective.
	• Evaluate how indigenous populations, slavery, or immigration have shaped the development of the United States.
	• Explain and evaluate the role of the United States in international relations.
	• Identify and differentiate among the legislative, judicial, and executive branches of government and analyze their influence on the development of U.S. democracy.
	• Analyze and discuss common institutions or patterns of life in contemporary U.S. society and how they influence, or are influenced by, race, ethnicity, class, gender, sexual orientation, belief, or other forms of social differentiation.
C. Creative Expression	
A Flexible Core course must meet the three learning outcomes in the right column.	
	• Gather, interpret, and assess information from a variety of sources and points of view.
	• Evaluate evidence and arguments critically or analytically.
	• Produce well-reasoned written or oral arguments using evidence to support conclusions.
A course in this area (II.C) must meet at least three of the additional learning outcomes in the right column. A student will:	
	• Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring creative expression, including, but not limited to, arts, communications, creative writing, media arts, music, and theater.
	• Analyze how arts from diverse cultures of the past serve as a foundation for those of the present, and describe the significance of works of art in the societies that created them.
	• Articulate how meaning is created in the arts or communications and how experience is interpreted and conveyed.
	• Demonstrate knowledge of the skills involved in the creative process.
	• Use appropriate technologies to conduct research and to communicate.

D. Individual and Society

A Flexible Core course must meet the three learning outcomes in the right column.

Students will examine case studies drawn from the popular press as well as scholarly articles that use a variety of ethical theories and come to different conclusions about concrete ethical issues in data science.	• Gather, interpret, and assess information from a variety of sources and points of view.
After modeling argument reconstruction and evaluation during class discussion students will complete discussion board writing assignments that will ask them to analyze and evaluate the evidence presented in case studies and arguments offered in the course readings.	• Evaluate evidence and arguments critically or analytically.
Students will deliver an oral presentation that takes and defends a position on a controversial issue in the ethics of data science. They will also write a philosophy paper that defends their own position on an issue and that engages closely with at least several of the scholarly course readings. For both the presentation and the paper, students will be asked to consider the best possible objections to their own positions, and to either defend their position against these objections or to modify their position to accommodate them.	• Produce well-reasoned written or oral arguments using evidence to support conclusions.

A course in this area (II.D) must meet at least three of the additional learning outcomes in the right column. A student will:

Students will read seminal articles in philosophy on general ethical theories, privacy, ownership of data, fairness, discrimination, and consent, and respond to reading questions asking them to identify the main points and premises in these readings. They will also use the distinctive methods of contemporary moral philosophy to arrive at and defend their own conclusions in assignments, a presentation and a paper.	• Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring the relationship between the individual and society, including, but not limited to, anthropology, communications, cultural studies, history, journalism, philosophy, political science, psychology, public affairs, religion, and sociology.
	• Examine how an individual's place in society affects experiences, values, or choices.
Nearly all of the assigned readings will make ethical arguments, at either an abstract or more applied level. Students will complete discussion board assignments that will require them to reconstruct the premises of those arguments and to evaluate the plausibility of those premises using the methods of moral philosophy.	• Articulate and assess ethical views and their underlying premises.
One of the main questions of the course is about the ethics of the collection and use of data, especially when these activities are automated. In various assignments, students will be required to articulate potential threats to privacy and other rights, and to assess the limitations of measures to safeguard those rights through informed consent and anonymization.	• Articulate ethical uses of data and other information resources to respond to problems and questions.
In discussion board assignments, presentations, and papers, students will identify and to evaluate the effects that machine-learning algorithms have on decision-making in various contexts, such as bail determinations, policing, health care, and banking.	• Identify and engage with local, national, or global trends or ideologies, and analyze their impact on individual or collective decision-making.

E. Scientific World

A Flexible Core course must meet the three learning outcomes in the right column.

	• Gather, interpret, and assess information from a variety of sources and points of view.
	• Evaluate evidence and arguments critically or analytically.
	• Produce well-reasoned written or oral arguments using evidence to support conclusions.

A course in this area (II.E) must meet at least three of the additional learning outcomes in the right column. A student will:

	• Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring the scientific world, including, but not limited to: computer science, history of science, life and physical sciences, linguistics, logic, mathematics, psychology, statistics, and technology-related studies.
	• Demonstrate how tools of science, mathematics, technology, or formal analysis can be used to analyze problems and develop solutions.
	• Articulate and evaluate the empirical evidence supporting a scientific or formal theory.
	• Articulate and evaluate the impact of technologies and scientific discoveries on the contemporary world, such as issues of personal privacy, security, or ethical responsibilities.
	• Understand the scientific principles underlying matters of policy or public concern in which science plays a role.

The Ethics of Data Science
3 Credits
PHI 227

Catalog Description: Ethical challenges posed by collecting data and basing decisions on inferences drawn from that data, especially when aided by machine learning, as well as challenges posed by using generative AI to create content.

Longer Description: When does the collection or use of data violate rights to privacy? When might adverse algorithmic decisions in contexts like bail determinations, sentencing, policing, medicine, and banking, violate a right to be treated as an individual, a right against discrimination, or a right to an explanation? Other topics include the implications of generative AI for the informational environment, climate justice, education, and employment.

Rationale: Artificial intelligence has greatly enhanced our ability to gather, store, search, and draw inferences from data. These powers can help us to make more accurate predictions and decisions, but they can also be deployed in ways that might infringe rights and threaten important values. It is important for students studying data science, as well as for students who will work in fields where data science will play an important role, to understand both the potential benefits as well as the potential ethical objections to various ways of collecting and using data, especially since technological advances in this area are outpacing regulations. This course will acquaint students with philosophical theories of the rights and other values that might be threatened by uses of AI, and also enable students to use the methods of philosophy to arrive at their own conclusions about the proper and improper uses of these new technologies.

Learning Outcomes:

- Understand recent developments in data science, such as using machine learning to detect patterns in data, and emerging controversies about the uses of new artificial intelligence tools.
- Recognize the choices that must be made at each stage of a data science project, and how even seemingly technical choices still raise ethical questions.
- Become acquainted with philosophical theorizing about the nature and scope of various moral rights.
- Learn the methods of moral philosophy and gain practice using those methods to arrive at and defend conclusions of one's own about controversial applications of artificial intelligence.

Assignments:

- Question Sets and Informal Writing Assignments: These will typically ask you to identify the main points and premises in the reading, and to evaluate the author's argument. They are due on the discussion board before each class. Students must satisfactorily complete ten over the semester.
- Book Presentations: You will select a chapter from one of the following books, explain the author's main point and summarize the supporting evidence, and evaluate the author's argument. A brief Q&A will follow.
    - Colin Koopman, How We Became Our Data (2019); Frank Pasquale, The Black Box Society (2016); Luciano Floridi, The Fourth Revolution (2014); Cathy O'Neil, Weapons of Math Destruction (2016); Virginia Eubanks, Automating Inequality (2018); Safiya Umoja Noble, Algorithms of Oppression (2018).
- Midterm Exam
- Philosophy Paper: 1,500 word minimum. See Shelly Kagan, "How to Write a Philosophy Paper," on how a philosophy paper is different from both a book or article report and from a series of reflections on a topic. You will submit a draft, and then revise and resubmit your draft in light of the instructor's feedback.

Week 1: **Introduction to moral philosophy and its methods.**

- Shelly Kagan, "Preliminaries," from Normative Ethics (1997).
- Russ Shafer-Landau, from The Fundamentals of Ethics (2023).

Ethics of Data Collection

Week 2: **What is privacy and what ways of acquiring personal information about someone, observing them, or enabling others to do so, would violate someone's right to privacy?**

- Monday
    - Judith Jarvis Thomson, "The Right to Privacy," *Philosophy & Public Affairs* (1975).
    - Andrei Marmor, "What is the Right to Privacy?" *Philosophy & Public Affairs* (2015).
- Wednesday
    - Carissa Veliz, The Ethics of Privacy and Surveillance (2023).
    - Niko Kolodny, "Privacy and Its Violation" (unpublished manuscript).

Week 3: **What mechanisms are available for preserving the anonymity of data subjects and what are the vulnerabilities of these mechanisms? In intentionally making our personal data public, have we thereby forfeited our rights against any inferences that might be drawn from this data?**

- Monday:
  - Case Studies:
    - Michael Kosinski et al., "Private Traits and Attributes Are Predictable from Digital Records of Human Behavior" *PNAS* (2013).
    - Kashmir Hill, "The Secretive Company that Might End Privacy as We Know It" (2020).
  - Michael Kearns and Aaron Roth, "Algorithmic Privacy: The Power of Randomization," from The Ethical Algorithm (2019).
- Wednesday:
  - Benedict Rumbold and James Wilson, "Privacy Rights and Public Information," *Journal of Political Philosophy* (2019).
  - Mark L. Hanin, "Privacy Rights Forfeiture," *Journal of Ethics and Social Policy (*2022).

Week 4: Who owns behavioral data? Is it the individual who generates it or the organization that collects it? When is obtaining someone's consent to the use of their data necessary, and what information must they be given for their consent to be valid?

- Monday:
  - Case Studies:
    - Nicholas Confessore, "Cambridge Analytica and Facebook: The scandal and the Fallout So Far," *The New York Times* (2018).
    - Haskmir Hill, "OKCupid Lied to Users about their Compatibility as an Experiment" (2021).
    - Adam Kramer et al., "Experimental Evidence of Massive-Scale Emotional Contagion Through Social Networks," *Proceedings of the National Academy of Sciences* (2014).

- Wednesday:
  - Shoshanna Zuboff, from The Age of Surveillance Capitalism (2019).
  - Imanol Arrieta Ibarra, Leonard Goff, Diego Jiménez, Hernández, Jaron Lanier, and E. Glen Weyl, "Should We Treat Data as Labor?" *AEA Papers and Proceedings* (2018).
  - Solon Barocas and Helen Nissenbaum, "Big Data's End Run Around Anonymity and Consent" (2014).

Algorithmic Bias

Week 5: Is there a right to be treated as an individual and not merely as a statistic, and if so, when would decisions based on demographic or other statistical evidence violate such a right?

- Monday:
  - Case Study: Kelsey Piper, "The UK Used a Formula to Predict Students' Scores for Canceled Exams."
- Wednesday:
  - Kasper Lippert-Rasmussen, "Statistical Discrimination and the Right to Be Treated as an Individual," *Journal of Ethics* (2011).
  - Erin Beeghly, "Failing to Treat Persons as Individuals," *Ergo* (2018).

Week 6: Algorithmic bias: when do decisions about distributing benefits or burdens based on algorithmic predictions wrongfully discriminate against members of protected groups?

- Monday:
  - Case studies:
    - Joy Buolamwini, "Algorithms Aren't Racist, Your Skin is Just Too Dark."
    - Nabil Hassein, "Against Black Inclusion in Facial Recognition."

- Wednesday:
  - T.M. Scanlon, Chapter 4, from Why Does Inequality Matter? (2018).
  - Michael Kearns and Aaron Roth, "Algorithmic Fairness," from The Ethical Algorithm (2019).

Week 7: What would an unbiased or fair algorithm look like?

- Monday:
  - Case Studies:
    - Julia Angwin et al., Pro Publica "Machine Bias" (2016).
    - Ziad Obermeyer et al., "Dissecting Racial Bias in an Algorithm Used to Manage the Health of Population," *Science* (2019).
- Wednesday:
  - Marcello di Bello and Collin O'Neil, "Profile Evidence, Fairness, and the Risks of Mistaken Conviction" *Ethics* (2020).
  - Lily Hu, "What is 'Race' in Algorithmic Discrimination on the Basis of Race?" *Journal of Moral Philosophy* (2023).

Is There a Right to an Explanation?

Week 8: When predictions are based on machine-learning algorithms, no one knows or even could know why the prediction was made. If we are treated adversely on the basis of such a

prediction, might this violate our right to an explanation? Do we even have such a right? If so, why?

- Monday
  - Solon Barocas and Andrew Selbst, "The Intuitive Appeal of Explainable Machines," *Fordham Law Review* (2018).
- Wednesday:
  - Kate Vredenburgh, "The Right to Explanation," *Journal of Political Philosophy* (2022).

The Ethics of Large Language Models

Week 9: LLMs raise a host of ethical challenges: the use of web-scraped data without user consent raises privacy concerns; LLMs can generate convincing yet false content, which can be used to manipulate public opinion; the automation of tasks by LLMs may lead to job displacement; training large LLMs requires significant computational power, leading to high energy consumption and a large carbon footprint.

- Monday:
  - Case Study: The use of GPT in content creation.
    - Farhad Manjoo, "How Do You Know a Human Wrote this?" *International New York Times* (2020).
- Wednesday:
  - Laura Weidinger et al., "Taxonomy of Risks Posed by Language Models," *Proceedings of the 2022 ACM Conference on Fairness, Accountability, and Transparency* (2022).
  - Joseph Keller et al., "The U.S. Must Balance Climate Justice Challenges in the Era of Artifical Intelligence" *Brookings* (2024).
  - Ariel Cohen, "AI is Pushing the World Toward an Energy Crisis," *Forbes* (2024).

Social Implications of Artificial Intelligence

Week 9: Data science is being used to deliver targeted interventions to influence our behavior? Is this wrong?

- Claire Benn and Seth Lazar, "What Wrong with Automated Influence?" *Canadian Journal of Philosophy* (2022).
- C. Thi Nguyen, Meica Magnati, and Susan Kennedy, "Twitter Gamifies the Conversation" (2023).

Week 10: Trust and Technology

- C. Thi Nguyen, "How Much Should We Trust Technology?" *New Statesman* (2021).
- Mona Simion and Christoph Kelp, "Trustworthy Artificial Intelligence," *Asian Journal of Philosophy* (2023).

Week 11: Technological Unemployment

- John Danaher, "Will Life Be Worth Living in a World Without Work? Technological Unemployment and the Meaning of Life" *Science and Engineering Ethics* (2017)
- James Lenman, "On Becoming Redundant or What Computers Shouldn't Do" *Journal of Applied Philosophy* (2001).

Week 12: The alignment problem

- Stuart Russell, Human Compatible: Artificial Intelligence and the Problem of Control (2019).

Week 13: AI and moral status: Is AI intelligent? Could it be conscious?

- David Chalmers, "Could a Large Language Model Be Conscious?" *Boston Review* (2023).
- S. Matthew Liao, "The Moral Status and Rights of Artificial Intelligence," from Ethics of Artificial Intelligence (2020).

Week 14: Artificial Intelligence, Social Media, and Freedom of Expression

- Seana Shiffrin, "A Thinker-Based Approach to Freedom of Speech" (2011).
- Eugene Volokh, Mark Lemley, and Mark Henderson, "Freedom of Speech and AI Output," *Journal of Free Speech Law* (2023).
- Tarleton Gillespie, Custodians of the Internet (2021).