



PHIL*6760 Science and Ethics

Winter 2021

Section(s): C01

Department of Philosophy

Credit Weight: 0.50

Version 1.00 - January 11, 2021

1 Course Details

1.1 Calendar Description

A consideration of the problems which arise in the conjunction of science and ethics.

1.2 Course Description

This course will explore the broad philosophical implications (ethical, legal, social, political, epistemological, etc.) of recent developments in data science, artificial intelligence, and machine learning, especially as these pertain to the life sciences. We will consider important themes from the philosophy of science, the philosophy of technology, ethics, and social/political philosophy as these relate to recent developments data science, artificial intelligence, and machine learning.

1.3 Timetable

Schedule: Tuesdays 12:30-2:20 on Teams

1.4 Final Exam

There will be no final exam for this course.

2 Instructional Support

2.1 Instructional Support Team

Instructor:	Joshua Skorburg
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Instructor: Stefan Linqvist
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3 Learning Resources

3.1 Required Resources

The Promise of Artificial Intelligence: Reckoning and Judgment (MIT Press) (Textbook)
<https://mitpress.mit.edu/books/promise-artificial-intelligence>

4 Learning Outcomes

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Identify and critically evaluate a wide range of philosophical issues related to data science, artificial intelligence, and machine learning
 2. Produce professional, academic philosophical writing and commentary related to philosophical implications of data science, artificial intelligence, and machine learning
 3. Contribute to ongoing academic and popular discussions about the ethics of emerging technologies.
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5 Teaching and Learning Activities

UNIT I: Philosophy of Technology

UNIT II: Philosophy of Science

5.1 Tentative Schedule

Week 1: January 12

Technological Neutrality

Week 2: January 19

Addiction by design

Week 3: January 26

Privacy & Human Rights

Week 4: February 2

Corporate Research

Week 5: February 9

Responsibility and Accountability

Week 6: February 16

WINTER BREAK NO CLASS

Week 7: February 23

Trust in Science and the “Black Box” problem in AI.

Week 8: March 2

The Replication Crisis

Week 9: March 9

Big Data and the Epistemology of Science

Week 10: March 16

Implications of Deep Learning for Cognitive Science

Week 11: March 23

Why neural networks (supposedly) can't think: traditional philosophical objections to AI.

Week 12: March 30

Intentionality and object re-identification

6 Assessments

You need to develop the skills that are most important to launching and sustaining your career: scholarly research and the ability to present it. To that end, you will be assessed on course engagement, two major pieces of writing, and one presentation

6.1 Assessment Details

Engagement (30%)

This includes showing up on time, speaking up in class, paying attention to what the other students have to say, taking notes, asking questions, etc. Engagement also includes weekly discussion posts (submitted under the “discussions” tab on the CourseLink navigation bar), **due Sunday evening** about the readings for the upcoming week. These responses should be around 200 words. The content of the response is up to you, but all responses should deal directly with the reading assigned for that week. You may want to choose a sentence or paragraph you found especially provocative, difficult, or remarkable, then explain why you found it provocative, difficult, or remarkable. Alternatively, you may want to argue that one of the authors is right or wrong in making some particular claim. Or you may wish to connect two passages in the reading that illuminate each other. You may even just pick a passage and ask questions about it. Your responses will guide what we address in class, and we will sometimes quote from them, so please take them seriously.

Presentation (20%)

Over the course of the term, each of you will record a video presentation of around 15 minutes. These will be “asynchronous” (that is, you won’t present during the “live” class time, instead you will record and upload your presentation by **5PM on the Sunday before our “live” meeting on Tuesday**; more instructions about this below). These presentations are low-key and *simply meant to help stimulate discussion on the topics at hand*. You do not need to incorporate any fancy editing, graphics, animations, etc. Simply recording yourself discussing the issues will be totally fine.

The content is up to you, but in general, the presentations should identify and elaborate upon a central theme, argument, concept, etc. from the week’s readings. It may be helpful to think of your presentation as a cross between a teaching demonstration and a conference presentation. Taking the first week’s reading as an example, a good strategy for a presentation could be any of the following:

- Briefly summarizing the two main ways that Winner thinks values, principles, and power-relations are embedded within socio-technical systems and then developing an argument for where deepfake technology ought to fit in this framework, or developing an argument for why deepfakes don't easily fit within Winner's framework.
- Reviewing newer literature on deepfakes and developing an argument about how more recent findings might support or undermine Rini's claims about the epistemic threats of deepfakes, perhaps providing specific examples of how deepfakes are currently being used.
- Summarize relevant technical literature on Generative Adversarial Networks to develop an argument that ethicists have misunderstood/ oversimplified/ overstated/ overlooked/ underappreciated, etc., some important aspect of the technology and its applications.
- And in general, you can always summarize the readings from the "additional literature" and connect them with themes from the required readings. In any case, you will ideally use your presentations as an opportunity to bring your unique research interests and background to bear on the assigned readings.

Logistics

First of all, a few days before your scheduled presentation date, please send a brief e-mail to Stefan and Gus with a few sentences about your plan for the presentation so that we don't have too much overlapping content. Regarding the recording: There are many ways to record your presentation and we want to stress again that this is a low-key assignment. Basic methods will work just fine. You can simply write your presentation notes and then record yourself using the native "Camera" app on your laptop or smartphone. You can then easily upload powerpoint slides or "handouts" to accompany your video. Alternatively, you can feel free to use any of the available screencasting apps which allow you to record from your webcam while presenting powerpoint slides. UofG recommends Screencast-o-matic (<https://screencast-o-matic.com/>) but you can also use Teams for this (https://answers.microsoft.com/en-us/education_ms/forum/all/how-would-you-record-a-presentation-along-with/1f72e5d3-073e-470a-86ef-50004aeb6a88)

In order to minimize issues with compatibility, we ask that you upload your video file to Microsoft Stream (<https://docs.microsoft.com/en-us/stream/portal-upload-video>) and then submit a word .doc containing the Microsoft Stream link to the Courselink dropbox.

You will need to upload your presentation by **5:00 PM Sunday evening**, so that your classmates will have time to view it before our Tuesday meetings.

Research Paper (50%)

Research Papers (2 papers, each worth 25% of final grade)

The central assessments for this course are two short research papers of ~2,000 words each. The first research paper should deal with themes from the first unit, and the second research paper should deal with themes from the second unit. Ideally, your research papers could serve as the basis for a conference submission, thesis/dissertation chapter, etc. You should also plan to set up a short meeting with either Stefan or Gus to discuss your topic. More details about the papers will be discussed in class.

7 University Statements

7.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

7.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

7.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester.

This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

7.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

7.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

For Guelph students, information can be found on the SAS website

<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website

<https://www.ridgetownc.com/services/accessibilityservices.cfm>

7.6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community-faculty, staff, and students-to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of

their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

7.7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

7.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>

7.9 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings and academic schedules. Any such changes will be announced via CourseLink and/or class email. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

7.10 Illness

The University will not normally require verification of illness (doctor's notes) for fall 2020 or winter 2021 semester courses. However, requests for Academic Consideration may still require medical documentation as appropriate.
