UNIVERSITY of GUELPH

PHIL*6760 Science and Ethics

Winter 2020
Section(s): C01

Department of Philosophy
Credit Weight: 0.50
Version 1.00 - January 02, 2020

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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. We will begin with a consideration of classic themes from the philosophy of science, the philosophy of technology, and ethical frameworks for emerging technologies as these relate to data science, artificial intelligence, and machine learning. Next, we will examine whether and how the recent proliferation of deep learning applications challenges a range of fundamental philosophical concepts including: responsibility, explanation, knowledge, autonomy, human rights, informed consent, etc. Finally, we will consider the many issues that arise in the context of programming morality into machines, or creating artificial moral agents.

1.3 Timetable

This course will meet once a week, on Wednesdays, from 2:30 – 5:20 PM. Please see CourseLink for the most up-to-date information (schedules, readings, etc.)

1.4 Final Exam

There will be no final exam for this course.

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2 Instructional Support

2.1 Instructional Support Team

Instructor:	Joshua Skorburg
Email:	skorburg@uoguelph.ca
Telephone:	+1-519-824-4120 x56464
Office:	MCKN 336

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3 Learning Resources

3.1 Required Resources

Wallach, W., & Allen, C. (2008). Moral machines: Teaching robots right from wrong. Oxford University Press. (Textbook)
  https://global.oup.com/academic/product/moral-machines-9780199737970?cc=ca&lang=en&

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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: Foundations in Science, Ethics, Technology

UNIT II: Deep Learning and Some Challenges to Fundamental Philosophical Concepts

UNIT III: Artificial Moral Agents

5.1 Tentative Schedule

UNIT I: Foundations in Science, Ethics, Technology

Week 1 (January 8): Introduction to Science & Ethics, generally

Week 2 (Jan 15): Introduction to Data Science & Ethics, specifically

Week 3 (Jan 22): Addiction by design; "sticky" apps

UNIT II: Deep Learning and the Challenge to Fundamental Philosophical Concepts

Week 4 (Jan 29): Philosophical intro to deep learning

Week 5 (Feb 5): Responsibility and responsibility gaps

Week 6 (Feb 12): Explanation & Knowledge

Week 7 (Feb 19): WINTER BREAK, NO CLASS

Week 8 (Feb 26): Autonomy & Human Rights

Week 9 (Mar 4): Research Ethics: human subjects, consent, intervention

UNIT III: Artificial Moral Agents

Week 10 (Mar 11): Morality and Machines

Week 11 (Mar 18): Moral Agents

Week 12 (Mar 25): Top-down, Bottom-up, Hybrid Accounts

Week 13 (Apr 1): Robot Minds, Human Ethics

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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, one major piece of writing, and one presentation

6.1 Assessment Details

Engagement (20%)

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 responses, due Sunday evening** about the readings for the upcoming week. These responses should be between 200 and 400 words (1-2 pages double-spaced). 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 I will sometimes quote from them, so please take them seriously.

Presentation (30%)

Over the course of the term, each of you will make one in-class presentation of 20-30 minutes. The presentation will do two things. First, it will identify a single crucial item (argument, concept, theme, etc.) in each of the assigned readings for that day. Second, it will delve more deeply into one of those items. Think of your presentation as a cross

between a teaching demonstration and a conference presentation. It makes sense to use PowerPoint or a handout for this, but probably not both.

Research Paper (50%)

The central assessment for this course is a research paper of around 3,000 words. Arguably, editing and revising your writing is the most important (and most difficult!) part of scholarly research. So, the research paper will be assessed progressively throughout the course. You will first prepare a thesis statement, due around Week 8. Next, you will submit an abstract or extended outline (~250 words). Around Week 10 or 11, you will submit your first draft. Then, in the style of a peer-reviewed journal submission, I will provide a "referee report" on the draft and you will then "revise and resubmit" your final draft at the end of the term. Ideally, your research paper could serve as the basis for a conference submission, thesis/dissertation chapter, etc.

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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

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