1 Course Details

1.1 Calendar Description
Each offering of this course will focus on a specific issue or set of related issues that are now being debated in Philosophy of Science. Readings will be contemporary works.

Pre-Requisites: 1.00 credits in Philosophy at the 3000 level or 12.50 credits

1.2 Course Description
Knowing why is a singular achievement, distinct from other scientific accomplishments. This course focuses on the philosophy of scientific explanation and related issues including reduction, emergence, idealization and modeling. The emphasis is on contemporary work.

1.3 Timetable
The course meets on Fridays from 12:30 to 3:20 in Thornborough 1200. Students may participate face-to-face or remotely. Each class will be livestreamed via Zoom. The link to the live class is accessed through CourseLink.

1.4 Final Exam
There is no final exam.

2 Instructional Support

2.1 Instructional Support Team
Instructor: Andrew Wayne
Email: awayne@uoguelph.ca
Telephone: +1-519-824-4120 x00000
Office Hours: Wednesdays, 3:00 - 4:00 on Zoom, and by appointment. The link to the Zoom office hour meeting is accessible on CourseLink.

3 Learning Resources

3.1 Required Resources

All readings will be available on CourseLink (Article)

4 Learning Outcomes

4.1 Course Learning Outcomes

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

1. Understand, explain and assess main aspects of the scientific explanation, including causal and non-causal approaches, model-based explanation, and explanatory asymmetry.

2. Understand, explain and assess key philosophical concepts including deduction, causation, reduction, emergence, modeling and idealization.

3. Prepare a sustained piece of philosophical writing in which a topic is articulated clearly and a stance on that topic is supported by appropriate and well thought-through reasons.

4. Argue successfully for your own view and be able to identify and critically evaluate patterns of argumentative reasoning in the work of others.

5 Teaching and Learning Activities

5.1 Tentative Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading</th>
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</thead>
<tbody>
<tr>
<td>Sept. 11</td>
<td>Introduction</td>
<td>Weinberg 2001</td>
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<tr>
<td>Sept. 18</td>
<td>The deductive-nomological account</td>
<td>Hempel 1965, pp. 245-251, 333-354, 412-415</td>
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<tr>
<td>Sept. 25</td>
<td>The unificationist account</td>
<td>Kitcher 1981</td>
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<tr>
<td>Week</td>
<td>Topic</td>
<td>Reading</td>
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<tr>
<td>Oct. 2</td>
<td>The causal-mechanical account</td>
<td>Salmon 1984, Chs. 1 and 5</td>
</tr>
<tr>
<td>Oct. 9</td>
<td>The causal-interventionist account</td>
<td>Woodward 2003, Chs. 1 and 5</td>
</tr>
<tr>
<td>Oct. 16</td>
<td><strong>Synthesis paper #1 due at noon. Graduate students present.</strong></td>
<td><strong>None</strong></td>
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<tr>
<td></td>
<td><strong>2. Current work on scientific explanation</strong></td>
<td></td>
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<tr>
<td>Oct. 23</td>
<td>Explanatory fictions</td>
<td>Bokulich 2012</td>
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<tr>
<td>Oct. 30</td>
<td>Minimal-model explanations</td>
<td>Batterman and Rice 2014</td>
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<td>Nov. 6</td>
<td>The Counterfactual Theory of Explanation</td>
<td>Reutlinger 2016</td>
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<td>Nov. 13</td>
<td>Challenges for non-causal explanation</td>
<td>Saatsi and Pexton 2013</td>
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<tr>
<td>Nov. 20</td>
<td><strong>Synthesis paper #2 due at noon. Undergraduate students present.</strong></td>
<td><strong>None</strong></td>
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| 3. The problem of explanatory asymmetry                                    |
| Nov. 27 | A solution to the problem of explanatory asymmetry                    | Wayne 2020                     |

*Final paper due Dec. 11, 11:30 pm*

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### 6 Assessments

#### 6.1 Course Requirements

- 20% Synthesis paper 1
- 20% Synthesis paper 2
- 20% Presentation
- 40% Term paper

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### 7 Course Statements

#### 7.1 Additional support

Students with special needs or requiring additional support are encouraged to speak with me as early in the term as possible to ensure that appropriate arrangements are made.

#### 7.2 Live and recorded online classes

By enrolling in a course, unless explicitly stated and brought forward to their instructor, it is assumed that students agree to the possibility of being recorded during lecture, seminar or other "live" course activities, whether delivery is in-class or online/remote.
If a student prefers not to be distinguishable during a recording, they may:

1. turn off their camera
2. mute their microphone
3. edit their name (e.g., initials only) upon entry to each session
4. use the chat function to pose questions.

Students who express to their instructor that they, or a reference to their name or person, do not wish to be recorded may discuss possible alternatives or accommodations with their instructor.

7.3 Online Behaviour

Inappropriate online behaviour will not be tolerated. Examples of inappropriate online behaviour include:

- Posting inflammatory messages about your instructor or fellow students
- Using obscene or offensive language online
- Copying or presenting someone else’s work as your own
- Adapting information from the Internet without using proper citations or references
- Buying or selling term papers or assignments
- Posting or selling course materials to course notes websites
- Having someone else complete your quiz or completing a quiz for/with another student
- Stating false claims about lost quiz answers or other assignment submissions
- Threatening or harassing a student or instructor online
- Discriminating against fellow students, instructors and/or TAs
- Using the course website to promote profit-driven products or services
- Attempting to compromise the security or functionality of the learning management system
- Sharing your user name and password
- Recording lectures without the permission of the instructor
8 University Statements

8.1 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.

8.2 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

8.3 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

8.4 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.
8.5 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

8.6 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.uoquelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml

Graduate Calendar - Academic Misconduct https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml

8.7 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.

8.8 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

8.9 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.

8.10 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.