



## PHIL-2780H-A: Philosophy of Science 2018FA - Peterborough Campus

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### Instructor:

Instructor: Amanda Bryant

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Phone Number: 705-748-1011 x7118

Office: CC G15

Office Hours: Tuesday, 1:00-2:00pm

### Meeting Times:

MON, 2:00-2:50pm, ESC B319

WED, 2:00-3:50PM GCS 112

Please check the on-line [Timetable](#) to confirm times and locations.

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### Department:

Academic Administrative Assistant: Kathy Axcell

Email Address: [philosophy@trentu.ca](mailto:philosophy@trentu.ca)

Phone Number: 705-748-1011, x7166

Office: Eaton College S118.1

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### Description:

Science seems to be a very good way of knowing about the world — perhaps our best way. It is massively successful at explaining and predicting phenomena and it enables astonishing technological development and medical advancement. But what *is* science and what is its characteristic *way of knowing*? Philosophy of science seeks to understand what science is, how it operates, *whether* and *how* it generates knowledge about the world. This course will examine a number of classic questions in the philosophy of science:

- What is science? How do we distinguish it from other forms of inquiry?
  - Is there a 'scientific method'?
  - How does science explain?
  - How does science progress?
  - Are current scientific theories true or approximately true?
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## Learning Outcomes:

I have developed the course to address several learning outcomes. By the end of the course a successful student should have:

- a developed knowledge of many key concepts, methodologies and theoretical approaches, along with knowledge of the historical background and current advances, in philosophy of science.
  - an ability to gather, review, evaluate and interpret information concerning philosophy of science.
  - an ability to review, present and develop lines of argument, orally and in writing, pertaining to philosophy of science.
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## Texts:

All readings will be available via Blackboard.

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## Assessments, Assignments and Tests:

1. Type of Assignment: **Participation**  
Description: attendance, in-class discussion, in-class low stakes writing assignments  
Due: Ongoing
2. Type of Assignment: **Presentation**  
Description: one 20-30 minute oral presentation, summarizing and raising questions or criticisms about the reading  
Due: Ongoing
3. Type of Assignment: **Essay**  
Description: a 6-8 page written paper on one of several topics to be distributed in advance of the due date  
Due: Oct 15
4. Type of Assignment: **Final Exam**  
Description: an exam testing students' knowledge of and ability to critically respond to course material  
Due: During Exam Period

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## Grading:

1. Type of Assignment: **Participation** - Weighting: 15%
  2. Type of Assignment: **Presentation** - Weighting: 25%
  3. Type of Assignment: **Essay** - Weighting: 35%
  4. Type of Assignment: **Final Exam** - Weighting: 25%
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## Schedule:

Note: this schedule is subject to change.

### MON SEP 10 - Introduction

- No reading

### WED SEP 12 - Scientific Method and the Demarcation Problem

- Karl Popper, "A Survey of Some Fundamental Problems," in *The Logic of Scientific Discovery*
- Paul Thagard, "Why Astrology Is a Pseudoscience"

### MON SEP 17 - Academic Skills presentation on essay-writing and citation practices

- No reading

### WED SEP 19 - Scientific Method and the Demarcation Problem

- Barbara Forest, "Navigating the Landscape Between Science and Religious Pseudoscience"
- Noretta Koertge, "Belief Buddies Versus Critical Communities: The Social Organization of Pseudoscience"

### MON SEP 24 - Scientific Method and the Demarcation Problem

- Thomas S. Kuhn, "The Nature and Necessity of Scientific Revolutions"

### WED SEP 26 - Theory Change

- Ernan McMullin, "Rationality and Paradigm Change in Science"
- Alexandra Argamakova, "Modeling Scientific Development: Lessons from Thomas Kuhn"

### MON OCT 01 - Theory Change

- Larry Laudan, "Kuhn's Critique of Methodology"

### WED OCT 03 - Theory Change / Scientism

- Heather Douglas, "Pure Science and the Problem of Progress"
- Ian James Kidd, "Is Scientism Epistemically Vicious"

**MON OCT 08** - NO CLASS (Thanksgiving)

**WED OCT 10** - Scientism

- James Ladyman and Don Ross, "In Defence of Scientism"
- Susan Haack, *Defending Science Within Reason* (selection)

**MON OCT 15** - Catch-up and Review

- No new reading
- **Essay Due**

**MON OCT 22 & WED OCT 24** - NO CLASS (Reading Week)

**MON OCT 29** - Scientific Explanation

- Carl Hempel, "Aspects of Scientific Explanation" (selections)

**WED OCT 31** - Scientific Explanation

- Wesley Salmon, "Scientific Explanation: Three General Conceptions"
- Philip Kitcher, "Explanatory Unification"

**MON NOV 05** - Scientific Explanation

- Nancy Cartwright, "Causal Laws and Effective Strategies"

**WED NOV 07** - Scientific Explanation

- Holly Andersen, "The Case for Regularity in Mechanistic Causal Explanation"
- Derek Skillings, "Mechanistic Explanation of Biological Processes"

**MON NOV 12** - Scientific Explanation

- Laura Felling, "Mechanisms Meet Structural Explanation"

**WED NOV 14** - Scientific Realism

- Stathis Psillos, "In Defence of Scientific Realism"
- Michael Devitt, "Why Be a Scientific Realist?"

**MON NOV 19** - Scientific Realism

- P. D. Magnus & Craig Callender, "Realist Ennui and the Base Rate Fallacy"

**WED NOV 21** - Scientific Realism

- Larry Laudan, "A Confutation of Convergent Realism"
- Bas van Fraassen, "Arguments Concerning Scientific Realism"

### **MON NOV 26** - Scientific Realism

- Steven French, "Metaphysical Underdetermination: Why Worry?"

### **WED NOV 28** - Scientific Realism

- John Worrall, "Structural Realism: The Best of Both Worlds?"
- Stathis Psillos, "Is Structural Realism the Best of Both Worlds?"

### **MON DEC 03** - Scientific Realism

- Michael Devitt, "Resurrecting Biological Essentialism"

### **WED DEC 05** - Wrap-up and Review

- No reading

Final Exam Date TBA

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## **Course Guidelines:**

### **Classroom Behaviour**

- Be respectful. Our classroom should be a place where everyone feels comfortable contributing to discussion.
- If you're bursting with questions and comments all the time, great! Just make sure you share the discussion. Let others speak, too.
- Give your attention to the person speaking (no side-conversations, no texting, no Facebooking, etc.).
- Be on time. If you must be late, try to enter the classroom in the least distracting manner possible.
- Cell phones, laptops, and other noise-making devices should be silenced.

### **Attendance**

Attendance is expected. Repeated, unexcused absences and latenesses will harm your grade. You must be present for all exams. Make-up exams will only be given to students with legitimate extenuating circumstances.

### **24-Hour Rule**

When an assignment or exam is returned to you, please wait at least 24 hours before contacting me about your grade.

### **Email**

I get a lot of email, so please email me just when necessary. Make sure the answer to your question isn't already on the syllabus. If you have a question that might require a long answer, see me in my office hours.

Please note that I don't discuss grades by email. If you wish to discuss a grade, please make an appointment with me.

### Safe Assignment

Assignments must be submitted electronically to the SafeAssign drop box in Blackboard. SafeAssign utilizes plagiarism-checking software. Further information about SafeAssign will be provided on the class Blackboard site.

### Late Assignments

Unless you have some well-documented excuse and my prior permission, late assignments will be subject to the following penalty:

2% deducted on the first day of lateness, 5% additional deduction for each subsequent day of lateness (including weekends). These penalties add up fast!

I will not accept assignments that are more than one week late. If you fail to hand in an assignment within one week of the deadline, your grade for that assignment will be 0.

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## Departmental Policies:

### Final departmental deadline for submission of work:

No term work will be accepted for evaluation in the Philosophy Department later than one week after the last day of classes. One week after the last day of classes is also the deadline for the filing of Request for Incomplete Standing Forms to the Chair with all the relevant documentation.

Note: Most instructors will have deadlines well before this final departmental deadline. It is the student's responsibility to be familiar with instructor's deadlines and deadline policies.

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## University Policies:

### Academic Integrity

Academic dishonesty, which includes plagiarism and cheating, is an extremely serious academic offence and carries penalties varying from failure on an assignment to expulsion from the University. Definitions, penalties, and procedures for dealing with plagiarism and cheating are set out in Trent University's *Academic Integrity Policy*. You have a responsibility to educate yourself – unfamiliarity with the policy is not an excuse. You are strongly encouraged to visit Trent's Academic Integrity website to learn more: [www.trentu.ca/academicintegrity](http://www.trentu.ca/academicintegrity).

### Access to Instruction

It is Trent University's intent to create an inclusive learning environment. If a student has a disability and documentation from a regulated health care practitioner and feels that they may

need accommodations to succeed in a course, the student should contact the Student Accessibility Services Office (SAS) at the respective campus as soon as possible.

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