PHL 232

What is Science

S2 Day 2018

Dept of Philosophy

Contents

General Information

Unit convenor and teaching staff
Unit Convenor
Dr Adam Hochman
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Hearing Hub
By appointment

Credit points
3

Prerequisites
(12cp at 100 level or above) or admission to GDipArts

Corequisites

Co-badged status

Unit description
How does science work? Should scientific method be privileged over other ways of knowing? How do scientific theories change over time? Should the history of science be seen as an unfolding tale of intellectual and technological progress, or as a messier and ambivalent process? This unit introduces central issues in the philosophy of science, including: the nature of observation and experiment; the question of scientific realism; the rationality or irrationality of scientific revolutions; the relation between science and values; and the nature of explanation. This unit presumes no particular background in science – it is suitable for students with a background in arts disciplines as well as for students in the social, behavioural, biological, and physical sciences.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

A working knowledge of some of the current major issues connecting philosophy and science

The ability to understand and critically evaluate the theories and arguments studied,

identify their strengths and weaknesses, and develop an appreciation of the ways in which these positions have developed in response to identification of problems in other views

An ability to understand and critically evaluate theories and arguments in the philosophy of science.

An ability to express and expound the positions studied clearly and lucidly

Students should start to develop their own philosophically informed views on the issues studied and defend their views, clearly and courteously in response to critical evaluation from others in discussion and in writing

General Assessment Information

Late Submission Penalty

Unless a Special Consideration request has been submitted and approved, (a) a penalty for lateness will apply – two (2) marks out of 100 will be deducted per day for assignments submitted after the due date – and (b) no assignment will be accepted more than seven (7) days (incl. weekends) after the original submission deadline. No late submissions will be accepted for timed assessments – e.g. quizzes, online tests.

Special Consideration

If you need to apply for special consideration please follow the procedure here: https://students.mq.edu.au/study/my-study-program/special-consideration

Assessment Tasks

Name	Weighting	Hurdle	Due
Participation	20%	No	Weekly
Weekly multiple choice quiz	30%	No	Weekly
Research Essay Plan	10%	No	Week 9
Research Essay	40%	No	Week 13

Participation

Due: **Weekly**
Weighting: **20%**

The unit is held as a seminar, without tutorials. Internal students are required to attend a minimum of 8 seminars and participate in the discussion of the readings. External students are required to contribute to the forum on the iLearn site, where discussion questions will be posted,

at least 8 weeks of the semester.

Class participation marking criteria:

- **Outstanding contributor:** Contributions in class reflect extensive preparation. Ideas offered are usually substantive, and provide major insights and direction for class discussion. Challenges are substantiated and persuasive. Makes an important contribution to class discussion overall.
- **Good contributor:** Contributions in class reflect thorough preparation. Ideas offered are often substantive, and provide useful insights and some direction for class discussion. Challenges are substantiated and often persuasive. Makes a significant contribution to class discussion overall.
- **Adequate contributor:** Contributions in class reflect adequate preparation. Ideas offered are sometimes substantive, and provide some insight but rarely offer direction for class discussion. Challenges are sometimes presented, substantiated and persuasive. Makes a contribution to class discussion overall.
- **Unsatisfactory contributor:** Contributions in class reflect inadequate preparation. Ideas offered are rarely substantive, and rarely provide insight but do not offer useful direction for class discussion. Contributions may be distractions rather than constructive. Does not make a positive contribution to class discussion overall.
- **Non-participant:** This person says little or nothing in class. There is not an adequate basis for evaluation. Makes no contribution to discussion.

(Adapted from Tyler, J. (2004) Class Participation Assessment Guide. Department of Education, Brown University).

External students should provide courteous and relevant feedback on the blog posts of at least one other student in 8 weeks of the semester. The marking criteria are the same as for internal students.

On successful completion you will be able to:

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- An ability to understand and critically evaluate theories and arguments in the philosophy of science.

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Weekly multiple choice quiz

Due: **Weekly**
Weighting: **30%**

Starting from Week 2, every student must complete **10** online quizzes. To do so you must complete the assigned readings for the week and attend/listen to the lecture (available by 5pm Monday each week), and then complete the multiple choice quiz for that week. You must complete the quiz **by 11.59pm on the Saturday night that week.**

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Research Essay Plan

Due: **Week 9**
Weighting: **10%**

Students will produce a detailed plan of the research paper for feedback. A planning worksheet will be provided on iLearn.

Note that it is okay to change topics for your research paper.

Submission: Turnitin submission on iLearn

Grading: Students will receive a grade out of 10 for their plan.

On successful completion you will be able to:

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- An ability to understand and critically evaluate theories and arguments in the philosophy of science.
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Research Essay

Due: **Week 13**
Weighting: **40%**

Students will write an essay of 2,000 words (including all footnotes and references) which provides a careful critical examination, based on reasons, argumentation and evidence, of a set topic. A list of topics will be made available on iLearn, and the essay must answer one of these set questions.

Submission: Turnitin submission on iLearn

Grading: Students will receive a grade out of 100 for the paper.

On successful completion you will be able to:

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Delivery and Resources

Delivery

There are no tutorials for this course. Rather, we meet for a weekly two-hour seminar.

Seminars are held on Mondays,12-2pm, at 17 Wallys Wlk - 238 Tutorial Rm

Note that the first Monday after the mid-semester break is Labour Day, a public holiday, so there will be no class.

Readings

During the semester, will will read the following book, cover to cover:

- Peter Godfrey-Smith's (2003) *Theory and Reality: An Introduction to the Philosophy of Science.*

Additional readings include the following:

- Agnes Petocz's (2015). The scientific status of psychoanalysis revisited. In *Philosophy, Science, and Psychoanalysis*, eds S. Boag, L. A. W. Brakel, and V. Talvitie (London: Karnac), 145–192
- Sharon Crasnow's (2013) Feminist Philosophy of Science: Values and Objectivity. *Philosophy Compass* 8:413-423
- Helen Steward's (2017) Action as Downward Causation. *Royal Institute of Philosophy Supplements* 80:195-215

Recommended (but not required) readings can be found on the iLearn site. These will help you write your essay.

Unit Schedule

WEEK	FIRST HOUR	SECOND HOUR	KEY EVENTS
1	1. Introduction	1. Introduction	Practice Quiz
2	2. Logic Plus Empiricism	3. Induction and Confirmation	Quiz
3	4. Popper: Conjecture and Refutation	Essay writing workshop	Quiz
4	Psychoanalysis: A Case Study I	Psychoanalysis: A Case Study II	Quiz
5	5. Kuhn and Normal Science	6. Kuhn and Revolutions	Quiz
6	7. Lakatos, Laudan, Feyerabend, and Frameworks	8. The Challenge from Sociology of Science	Quiz

7	9. Feminism and Science Studies	Feminist Philosophy of Science: Values and Objectivity	Quiz
Mid Semester Break			
8	Labour day	Public holiday	
9	10. Naturalistic Philosophy in Theory and Practice	11. Naturalism and the Social Structure of Science	Quiz **Essay Plan Due**
10	12. Scientific Realism	13. Explanation	Quiz
11	Causation and free will	Causation and free will	Quiz
12	14. Bayesianism and Modern Theories of Evidence	15. Empiricism, Naturalism, and Scientific Realism?	Quiz
13	Writing week	Writing week	**Essay Due**

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Undergraduate students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/student-conduct

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Macquarie University provides a range of Student Support Services. Details of these services can be accessed at:

http://www.deanofstudents.mq.edu.au/

Or

http://www.campuslife.mq.edu.au/campuswellbeing

Another useful support service is provided by the Learning Skills unit which you can find at: http://www.mq.edu.au/learningskills/.

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Extensions and special consideration

Requests for extensions must be submitted in writing to the convenor at least 3 days prior to the final submission date accompanied by supporting documentation. Note, other study

commitments will not be considered as an acceptable reason for requesting an extension. Email requests should include the unit code in the subject heading.

Where no extension has been granted, up to 5% of the total mark for that assessment may be deducted for each day the assignment is late, including weekends and public holidays.

Special Consideration Policy

http://www.mq.edu.au/policy/docs/special_consideration/policy.html

Applying for Special Consideration

Students applying for Special Consideration circumstances of three (3) consecutive days duration, within a study period, and/or prevent completion of a formal examination must submit an on-line application with the Faculty of Arts. For an application to be valid, it must include a completed Application for Special Consideration form and all supporting documentation.

The online Special Consideration application is found at: http://www.arts.mq.edu.au/current_students/undergraduate/admin_central/special_consideration.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

- The ability to understand and critically evaluate the theories and arguments studied, identify their strengths and weaknesses, and develop an appreciation of the ways in which these positions have developed in response to identification of problems in other views

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Assessment tasks

- Participation
- Weekly multiple choice quiz
- Research Essay Plan
- Research Essay

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcome

- An ability to express and expound the positions studied clearly and lucidly

Assessment tasks

- Participation
- Research Essay

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcome

- The ability to understand and critically evaluate the theories and arguments studied, identify their strengths and weaknesses, and develop an appreciation of the ways in which these positions have developed in response to identification of problems in other views

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

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Assessment tasks

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- Research Essay Plan
- Research Essay

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

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Assessment tasks

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- Research Essay Plan
- Research Essay

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

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from others in discussion and in writing

Assessment tasks

- Weekly multiple choice quiz
- Research Essay Plan
- Research Essay

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- A working knowledge of some of the current major issues connecting philosophy and science
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Assessment tasks

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- Weekly multiple choice quiz
- Research Essay Plan
- Research Essay

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded,

sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcome

- Students should start to develop their own philosophically informed views on the issues studied and defend their views, clearly and courteously in response to critical evaluation from others in discussion and in writing

Assessment tasks

- Participation
- Research Essay

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcome

- An ability to understand and critically evaluate theories and arguments in the philosophy of science.

Assessment task

- Participation