

# HPSC20014 Philosophy of Science 2

## Course Syllabus

2019-20 session | Erman Sozudogru | erman.sozudogru@ucl.ac.uk

### Course Information

This course is a continuation of HPSC 1003 Philosophy of Science, intended for students that have completed that course or studied a similar introduction to philosophy of science elsewhere. The course explores some central debates in general philosophy of science, including: realism and antirealism about scientific theories, scientific explanation and representation, values in science, and the unity of science. It also addresses some areas that are beyond analytical philosophy of science, such as pragmatism and social epistemology. After this course you should possess a fairly well-rounded view of the field, as well as a set of skills that will allow you to work further on your own.

### Basic course information

Course website:	Not available
Moodle Web site:	Search HPSC2003
Assessment:	One video entry (5 minutes, worth 10% of the final mark); one essay (2500 words, worth 50% of the final mark), and a final examination (worth 40% of the final mark)
Timetable:	<a href="http://www.ucl.ac.uk/sts/hpsc">www.ucl.ac.uk/sts/hpsc</a>
Prerequisites:	Students must have taken HPSC 1003 (or equivalent), or must have tutor's approval.
Required texts:	See the reading list
Course tutor(s):	Dr Erman Sozudogru
Contact:	<a href="mailto:erman.sozudogru@ucl.ac.uk">erman.sozudogru@ucl.ac.uk</a>
Web:	<a href="http://www.ucl.ac.uk/silva/sts/staff/[insert where applicable]">www.ucl.ac.uk/silva/sts/staff/[insert where applicable]</a>
Office location:	22 Gordon Square, Room [insert room]
Office hours:	

## Schedule

Week	Topic
6	Lecture: Realism & Anti-realism
	Seminar: How to build an argument
7	Lecture: Experimental Realism
	Seminar: From theory to practice
8	Lecture: Active Realism
	Seminar: Philosophy of science in practice
9	Lecture: Scientific Explanations
	Seminar: Contents of science
10	Lecture: Scientific Representation
	Seminar: Scientific modelling
11	Reading Week
12	Lecture: Values in Science I
	Seminar: Underdetermination and Inductive Risk
13	Lecture: Values in Science II
	Seminar: Feminist Epistemologies
14	Lecture: The Unity of Science
	Seminar: Vienna Circle and the Encyclopaedia of Unified Science
15	Lecture: Pluralism in Science □
	Seminar: Unity in Action
16	Lecture: Pragmatism – Old and New
	Seminar: Ameliorative action

**Students are expected to attend every Lecture and Seminar and do the assigned reading for each session. See the reading list for more details.**

## Assessments

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### Summary

	Description	Deadline	Word limit
<b>Coursework</b>	Video	13 November 2019 4 pm	N/A (5mins video)
<b>Coursework</b>	Essay	16 December 2019 5 pm	2500 words
<b>Exam</b>	Written Exam	Term 3 Date TBC	N/A

### Assignments

Assessment is by a written examination (40%) in term 3, a 5 minutes video entry (10%) and one essay (2,500 words, contributing 50% of the final mark).

**You must submit all the coursework and sit the exam in order to complete this course unit.**

**The video is due on Monday 13 November at 4pm.** This is a new form of assessment on this module, aimed at developing your presentation and oral argumentation skills. It will assess your capacity to use critically the frameworks and philosophical positions we covered in the first part of the course. It will also serve as a general opportunity to ensure that the material we covered in the first part of the course is clear, before we move on to part 2.

The pedagogical rationale behind this assignment is that, at least since Socrates, philosophy has taken a *dialogic* form. When we write philosophy we often forget the fact that we are *in dialogue* with authors that have developed the ideas and positions we are using to construct an argument: a *supported* argument is very much one in which that dialogical component takes centre stage.

This assignment will help you engage with the dialogical component of philosophy in two ways: first, because your video will ultimately consist in a dialogue with one of your peers; and secondly because you will have to engage with a particular philosopher's perspective by placing it in dialogue with another philosopher's.

You will work in pairs, and you will film an "imaginary dialogue" between two of the philosophers you have studied in the first part of the course. Each of you will "be" a philosopher (e.g. Ian Hacking and Bas Van Fraassen, or Hilary Putnam and Ian Hacking etc.). Think broadly: you may consider philosophers from the suggested readings, as well as those covered in the required readings.

How would your chosen philosophers respond to each other's ideas? For example, how would Ian Hacking use his entity realism to respond to Bas van Fraassen's empirical adequacy? It will be useful to make a short literature search and see whether the two philosophers you have chosen *did* interact in print (this is the case, for example, of Hacking and Van Fraassen). You can use the literature and the further readings as a springboard for your discussion. One of the things you might want to think creatively about is how to resolve your argument at the end of the video. Does one of the two parties have to retreat and be "defeated", necessarily? Are there any alternatives?

You are welcome to be creative, but note that you will not be assessed on the quality of your filming (just make sure the video is good enough to be watched and followed – for this

purpose it will be OK to use a good camera on your phone or your computer camera). You can film and edit the video down to five minutes, or rehearse until you get the timing right. Keep in mind that you will need a clear structure behind your discussion – don't just improvise, but be prepared!

You will submit your videos on a pen drive in the STS departmental office. As a back-up, you can upload your videos on a private Vimeo or You Tube account, so that I will be able to open them in case anything happen to your files on the pen drive.

**The essay is due on Monday 16 December at 5pm.** The essay must be submitted via Turn-It-In. The date of Moodle submission will count as the official submission date.

It is essential that you submit your essay on time. If you do not, or you are not granted a formal extension, penalties apply for late submissions as outlined in the STS Student Handbook. All final versions of the essay must be word processed. Penalties for over-length coursework apply as described in the STS Student Handbook.

The essay *must* explore topics in greater depth than in class lectures. Essays should not be based solely on class notes and required reading materials. You should also focus on *further readings* and also feel free to use material not on the reading lists. The essay must include footnotes and a bibliography.

Please note that the essay should NOT provide an overview or a summary of the topic. Try to be focused in answering the essay question, and to articulate your answer by considering the main thesis, possible objections to it and possible replies to those objections. The aim of a philosophy essay is to help you to develop critical and argumentative skills by:

1. giving an accurate description of the main philosophical thesis;
2. being able to give a fair and not-question-begging criticism of it in the light of the literature, and
3. being able to identify the strengths and weaknesses of the view in question and possible ways of defending it (even if you personally may think that it is untenable).

### **Criteria for assessment**

The departmental marking guidelines for individual items of assessment can be found in the STS Student Handbook.

### **Aims & objectives**

The course explores some recent debates in general philosophy of science, including: realism and antirealism about scientific theories, scientific explanation, laws of nature, reductionism and the unity of science. It also addresses some areas that are beyond analytical philosophy of science, such as social epistemology and pragmatism. After this course, students should possess a fairly well-rounded view of the field, as well as a set of skills that will allow them to work further on their own.

## Reading list

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### Week 6 Realism & Anti-Realism: How to build an argument

#### Essential

Putnam, H. 1975. "What Is Realism?" *Proceedings of the Aristotelian Society* 76:177-194.  
 van Fraassen B. "Arguments concerning scientific realism" in Curd, Cover and Pincock, pp. 1060-1082. □

#### Additional

Laudan, L. 1981. "A Confutation of Convergent Realism." *Philosophy of Science* 48 (1):19-49.  
 Kitcher, P. 1993. "The advancement of science" Philip Kitcher. New York ; Oxford: New York ; Oxford : Oxford University Press.  
 Psillos, S. 1996. "Scientific realism and the pessimistic induction" *Philosophy of Science* 63 (3): S306-S314.

### Week 7 Experimental Realism: Theory to Practice

#### Essential

Hacking, I. "Experimentation and scientific realism" in Curd, Cover and Pincock, pp. 1140-1155. □

#### Additional

David Resnik, "Hacking's experimental realism" in Curd, Cover and Pincock, pp. 1156-1171.  
 Massimi, M. (2004), "Non-defensible middle ground for experimental realism: why we are justified to believe in colored quarks", *Philosophy of Science* 71, 36–60.

### Week 8 Active Realism: Philosophy of Science in Practice

#### Essential

Chang H. 2012, "Active Realism and the Reality of H<sub>2</sub>O", in: *Is Water H<sub>2</sub>O? Evidence, Realism and Pluralism*. Dordrecht: Springer, pp. 201-251.

#### Additional

Ankeny, R., H. Chang, M. Boumans, and M. Boon. 2011. "Introduction: philosophy of science in practice." *European Journal for Philosophy of Science* 1 (3):303.  
 Soler, L., S. Zwart, M. Lynch, and V. Israel-Jost. 2014. *Science After the Practice Turn in the Philosophy, History, and Social Studies of Science*: Taylor & Francis.

### Week 9 Scientific Explanation: Contents of Science

#### Essential

Hempel C. G. "Two basic types of scientific explanation" in Curd, Cover and Pincock, pp. 657- 666.  
 Woody, A. I. 2015. "Re-orienting discussions of scientific explanation: A functional perspective." *Studies in History and Philosophy of Science Part A* 52:79-87.

#### Additional

Reutlinger, A. 2017. Explanation beyond causation? New directions in the philosophy of scientific explanation. *Philosophy Compass*. 12(2): e12395.

### Week 10 Scientific Representations: Models in Philosophy of Science

**Essential**

Bailer-Jones, Daniela M. "CHAPTER 1: SCIENTIFIC MODELS." In *Scientific Models in Philosophy of Science*, 1-20. Pittsburgh, Pa: University of Pittsburgh Press, 2009.

**Additional**

Toon, Adam. "The Ontology of Theoretical Modelling: Models as Make-Believe." *Synthese* 172, no. 2 (2010): 301-15.

Suárez, M. (2010), Scientific Representation. *Philosophy Compass*, 5: 91-101.

**Week 11 READING WEEK****Week 12 Values in Science I: Underdetermination and Inductive Risk****Essential**

Douglas, H. 2015. "Values in Science." In *The Oxford Handbook of Philosophy of Science*, edited by Paul Humphreys. Oxford University Press.

**Additional**

Douglas, H. 2000. "Inductive Risk and Values in Science." *Philosophy of Science* 67 (4):559-579.

Longino, H. E. 2004. "How values can be good for science." In *Science, values, and objectivity*, edited by Peter Machamer and Gereon Wolters, 127-142. Pittsburgh.

Brown, M. J. 2013. "Values in Science beyond Underdetermination and Inductive Risk." *Philosophy of Science* 80 (5):829-839.

Biddle, J. B. 2018. "'Antiscience Zealotry'? Values, Epistemic Risk, and the GMO Debate." *Philosophy of Science* 85 (3):360-379.

Kuhn, T. S. 1977. "Objectivity, value judgment, and theory choice." *Arguing About Science*:74-86.

**Week 13 Values in Science: Feminist Epistemologies****Essential**

Wylie, A., & Nelson, L. (2007-04-05). Coming to Terms with the Values of Science: Insights from Feminist Science Studies Scholarship. In *Value-Free Science?: Ideals and Illusions*. : Oxford University Press.

**Additional**

Wylie, Alison. "Doing Philosophy As a Feminist: Longino on the Search for a Feminist Epistemology." *Philosophical Topics* 23, no. 2 (1995): 345-58.

Longino, H. E. 1994. "In search of feminist epistemology." *The Monist* 77 (4):472-485.

Nelson, L. H. 1990. *Who Knows From Quine to a Feminist Empiricism*: Temple University Press

Dotson, K. 2011. "Tracking Epistemic Violence, Tracking Practices of Silencing." *Hypatia* 26 (2):236-257.

**Week 14 The Unity of Science - Vienna Circle and the Encyclopaedia of Unified Science****Essential**

Romizi, D. 2012. The Vienna Circle's "Scientific World-Conception": Philosophy of Science in the Political Arena," *HOPOS*. 2(2): 205-242.

### **Additional**

Uebel, T. 2008. Writing a Revolution: On the Production and Early Reception of the Vienna Circle's Manifesto. *Perspectives on Science*. 16(1): 70-102.

O'Neill, J. 2003. "Unified science as political philosophy: positivism, pluralism and liberalism." *Studies in History and Philosophy of Science Part A* 34 (3):575-596.

Uebel, T. 2014. "Vienna Circle." *The Stanford Encyclopedia of Philosophy*.

### **Week 15 Pluralsim in Science: Unity in action**

#### **Required**

Kellert, S., H. Longino, and K. Waters, eds. 2006. "Introduction" in: *Scientific Pluralism, Minnesota Studies in the Philosophy of Science*. Minneapolis: University of Minnesota Press.

Galison, P. 1996. "Introduction: the context of disunity" In P. Galison and D. Stump (eds.) *The Disunity of Science* (Stanford: Stanford University Press).

#### **Additional**

Van Bouwel, J. 2015. "Towards democratic models of science: exploring the case of scientific pluralism." *Perspectives on Science*.

Wylie, A. 2015. "A plurality of pluralisms: Collaborative practice in archaeology." In *Objectivity in science*, 189-210. Springer.

### **Week 16 Pragmatism: Ameliorative Action**

#### **Required**

Legg, Catherine and Hookway, Christopher, "Pragmatism", *The Stanford Encyclopedia of Philosophy* (Spring 2019 Edition), Edward N. Zalta (ed.)

And one pick a reading from the additional reading list that interest you the most.

#### **Additional**

Brown, M. J. 2012. "John Dewey's Logic of Science." *HOPOS: The Journal of the International Society for the History of Philosophy of Science* 2 (2):258-306.

Lake, D. 2014. "Jane Addams and Wicked Problems: Putting the Pragmatic Method to Use." *The Pluralist* 9 (3):77-94.

Shields, P. M. 2003. "The Community of Inquiry: Classical Pragmatism and Public Administration." *Administration & Society* 35 (5):510-538.

David Boersema (2009), *Pragmatism and Reference*. Bambridge, Mass: The MIT Press.

Susan Haack (2013), *Putting Philosophy to Work*, Amherst: Prometheus Books.

Christopher Hookway (2000), *Truth, Rationality and Pragmatism*, Oxford: Oxford University Press.

Kitcher, P. 2012. *Preludes to Pragmatism: Toward a Reconstruction of Philosophy*. Oxford University Press, USA.

Talisse, R. and S. Aikin (eds.), 2008. *Pragmatism: a Guide for the Perplexed*, London: Continuum. Thayer, H.S. (ed.), 1982. *Pragmatism: The Classic Writings*, Hackett.

**Course expectations**

Students are expected to attend the lectures and seminars, complete the assignments by the due dates and do the assigned readings in preparation for the seminars.

**Important policy information**

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Details of college and departmental policies relating to modules and assessments can be found in the STS Student Handbook [www.ucl.ac.uk/sts/handbook](http://www.ucl.ac.uk/sts/handbook)

All students taking modules in the STS department are expected to read these policies.

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