Syllabus

Philosophy of Cognitive Science, Spring 2024

Lecturer
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Purpose of the course

From the study regulations: *The purpose of the course is to provide students with the knowledge and competences required to develop an understanding of cognitive science in its broader historical, philosophical, and social contexts.*

The course focuses on general topics in the philosophy of science, the history of cognitive science, and the philosophy of cognitive science. The course also includes material on research ethics and meta-scientific reflection on methods in cognitive science.

This course places the conceptual content taught in the Introduction to Cognitive Science, Cognition and Communication, and Applied Cognitive Science courses into their broader historical and philosophical context. The course provides opportunity for critical meta-scientific reflection on the methodological content taught in the Methods courses. The course provides critical knowledge of research ethics necessary for graduating students to apply their knowledge in the workplace.

Academic objectives

From the study regulations: *In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:*

Knowledge:
- demonstrate understanding of the intellectual history of cognitive science
- explain the central scientific paradigms guiding cognitive science research.

Skills:
- discuss ethical research, and/or evaluate existing empirical research relative to international ethical standards
- critically evaluate best research practices in cognitive science.

Competences:
- debate the strengths and weaknesses of scientific paradigms in cognitive science
- orally present arguments.

Class activities

We will run through a set of activities that will prepare you for the exam and hone your written and oral presentation skills. The idea behind these activities is that learning to argue and think is facilitated by being able to formulate one's ideas and arguments both in writing and orally. The first round of each activity will include a short introduction to the format.

1. Debate contests

Four members per team. First speaker sets the stage and defines the terms. Second speaker makes the argument. Third speaker gives the rebuttal. Fourth member takes notes and supplies the third speaker with these notes.

2. Writing a short paper

Each student writes a short paper on a question or case within the common theme. The question or case is revealed at the beginning of the class, and the paper should be handed in at the end of the class.

3. Mock oral exams

In the first half, students prepare a presentation based on their paper – in the second half they present to another student and get feedback.

4. Free-for-all

Students come up with questions that they first try to answer with fellow students before the teacher or the instructor is included. All questions and answers are added to a common document.

There will also be one journal club session, one peer feedback session and a map-of-terms session.

Examination

From the study regulations: ***Ordinary examination and re-examination:***
The exam is an individual oral exam including preparation time. The student draws a question which must be prepared for the oral presentation. The oral exam is based on the student's presentation followed by a dialogue between the student and the examiner in which the rest of the course syllabus is included.

Preparation time: 30 minutes.
Duration: 30 minutes.

All aids are permitted.

Assessment: 7-point grading scale

Grading: Internal co-examination

Dates: June 17-20, 2024

Register for re-exam: June 23, 2024

Re-exam: August 15-16, 2024

Time and place

Lectures: Thursdays 08.00 – 10.00 in 1441-113, Aud. 3, except Lectures 10 & 13 which is Wednesday from 8-00 – 10.00 in 1441-112, Aud. 2

Class 2: Mondays 10.00 – 12.00 in room 1483-444

Class 1: Mondays 12.00 – 14.00 in room 1485-240

Course outline and required readings

Lecture 1 (week 05) – Introduction and course aims

Readings:

- (Chapter 1) Dienes, Z., 2008. Understanding Psychology as a Science: An Introduction to Scientific and Statistical Inference. Palgrave Macmillan, Basingstoke. *This is mostly an appetiser to get you thinking.* Book extract made available on Brightspace

Class 1 (week 06) – Introduction to class format: (10-12 Caroline; 12-14 Caroline)

Part 1 – Philosophy of science

Lecture 2 (week 06) – Philosophical foundations

Readings:

- Descartes, R., (1641/2000). Meditations On First Philosophy. Infomotions, Inc., South Bend, United States. (available online at Royal Library (kb.dk))
    - Meditations I and II
- Hume David, (1739-1740/2009). A Treatise of Human Nature Being an Attempt to Introduce the Experimental Method of Reasoning into Moral Subjects. The Floating Press, Auckland. (available online at Royal Library (kb.dk))
    - Book I, Part I, Section I, *Of the origin of our ideas*
    - Book I, Part III, Sections XIV-XV, *Of the idea of necessary connexion* and *Rules by which to judge of causes and effects*
- Kant, I., (1787/1998). Critique of Pure Reason, The Cambridge Edition of the Works of Immanuel Kant. Cambridge University Press, Cambridge. https://doi.org/10.1017/CBO9780511804649 (available online at Royal Library (kb.dk))
    - Preface to the second edition: (B VII-B XIX)
    - Introduction (as in the second edition): Sections I-V
    - Transcendental doctrine of elements: (B33-B76)
- Sellars, W., 1963. Philosophy and the scientific image of man, in: Colodny, R.G. (Ed.), Frontiers of Science and Philosophy. University of Pittsburgh Press, Pittsburgh, pp. 35–78. https://doi.org/10.2307/jj.5973228

Class 2 (week 07) – Essay writing (10-12 Caroline; 12-14 Caroline)

Lecture 3 (week 07) – Science, non-science and pseudoscience

Readings:

- Sober Elliott, 2000. Philosophy of biology, 2. ed. ed, Dimensions of philosophy series. Westview Press, Boulder, Colo.
  - Chapter 2 – (will be made available on Brightspace)
- Bem, D.J., 2011. Feeling the future: Experimental evidence for anomalous retroactive influences on cognition and affect. Journal of Personality and Social Psychology 100, 407–425. https://doi.org/10.1037/a0021524
- Hansson, S.O., 2008. Science and Pseudo-Science. https://plato.stanford.edu/entries/pseudo-science/?utm_source=instantmagazine&utm_medium=organic&utm_campaign=OImrt19

Class 3 (week 08) – Debate contest (10-12 Lau; 12-14 Lau)

After a short introduction to the procedure, the following two questions will be debated two teams will be contesting, one team arguing *yes* and team arguing *no*.

1. Is precognition research pseudoscience?
2. Is psychological research pseudoscience?

Lecture 4 (week 08) – Demarcation of science: Logical positivism

Readings:

- Carnap, Rudolf (1959). The Elimination of Metaphysics Through Logical Analysis of Language. In A. J. Ayer (ed.), Logical Positivism. New York: The Free Press. pp. 60-81.
- Carnap, R. Psychology in Physical Language in Philosophy of mind: classical and contemporary readings (2002) (ed. Chalmers, D). Oxford University Press, New York. (will be made available on Brightspace)
- Quine, W., 1976. Two Dogmas of Empiricism, in: Harding, S.G. (Ed.), Can Theories Be Refuted? Essays on the Duhem-Quine Thesis, Synthese Library. Springer Netherlands, Dordrecht, pp. 41–64. https://doi.org/10.1007/978-94-010-1863-0_2

Class 4 (week 09) – Essay writing: (10-12 Lau; 12-14 Lau)

Lecture 5 (week 09) – Demarcation of science: Falsificationism

Readings:

- (Chapters 1&3) Popper, K., 2002. The Logic of Scientific Discovery, 2nd ed. Routledge, London. https://doi.org/10.4324/9780203994627
- Bechtel, W. (1988). *Philosophy of Science: An Overview for Cognitive Science.* Erlbaum. Read pages 17-37. Available on Brightspace

Class 5 (week 10) – Map of terms (10-12 Lau; 12-14 Lau)

Lecture 6 (week 10) – Demarcation of science: Paradigms

Readings:

- Sections I, II & X Kuhn TS, 1973. The structure of scientific revolutions, 2nd enl. ed., 4th impress. ed, International Encyclopedia of Unified Science ; vol. 2, no. 2. University of Chicago Press, Chicago. Book extract made available on Brightspace
- Bechtel, W., Abrahamsen, A., and Graham, G. (2001). Cognitive science: History. *International Encyclopedia of the Social and Behavioral Sciences.* New York: Elsevier, pp. 2154-2158.

Class 6 (week 11) – Mock oral exams (10-12 Caroline; 12-14 Caroline)
After a short introduction to the format, students will prepare a presentation on a question. Students will work in pairs where each student has a unique question. Following the preparation, students will take turns being the examiner and the examinee.

Part 2 – Philosophy of cognitive science

Lecture 7 (week 11) – Behaviourism + mid-way evaluation

Readings:

- Skinner, B. F. (1990). Behaviourism. In *Reason at Work: Introductory Readings in Philosophy* (S. M. Kahn, P Kitcher, G Sher, & P. J. Markie, Eds.) pp. 683-700. [Extract from Skinner's Science and Human Behaviour]. Book extract made available on Brightspace
- Dennett, D. C. (1981). Skinner skinned. In *Brainstorms: Philosophical Essays on Mind and Psychology* (D. C. Dennett, Ed.) pp. 53-70. Book extract made available on Brightspace
- Hampton, R.R., 2009. Multiple demonstrations of metacognition in nonhumans: Converging evidence or multiple mechanisms? Comp Cogn Behav Rev 4, 17–28. *Are monkeys capable of introspection?*

Class 7 (week 12) – Free-for-all (10-12 Lau; 12-14 Lau)

Lecture 8 (week 12) – Computationalism

Readings:

- Marr, D. (1982). *Vision: A Computational Investigation into the Human Representation and Processing of Visual Information.* New York: Freeman. *Chapter 1 will be made available on Brightspace*
- Rescorla, M. (2015). The computational theory of mind. *The Stanford Encyclopedia of Philosophy*, Edward N. Zalta (ed.), http://plato.stanford.edu/entries/computational-mind/

No class

Lecture 9 (week 14) – Critique of computationalism

Readings:

- Searle, J. R. (1990). Is the brain's mind a computer program? *Scientific American, Jan,* 26-31.
- Harnad, S. (1995). Computation is just interpretable symbol manipulation; cognition isn't. *Minds and Machines, 4,* 379-390.

Class 8 (week 15) – Essay writing (10-12 Caroline; 12-14 Caroline)

Lecture 10 (week 15) – Connectionism (NB! different room)

Readings:

- Churchland, P. M. & Churchland, P. S. (1990). Could a machine think? *Scientific American, Jan*, 32-37.
- Churchland, P. S. & Sejnowski, T. J (1990). Neural representation and neural computation. *Philosophical Perspectives, 4*, 343 – 382.

Class 9 (week 16) – Mock oral exam (10-12 Caroline; 12-14 Caroline)

Lecture 11 (week 16) – Predictive processing

Readings:

- Hohwy, J., 2013. Perception as causal inference; Chapters 1, 4 and 12 The Predictive Mind. Oxford University Press, p. 0. https://doi.org/10.1093/acprof:oso/9780199682737.003.0002

Class 10 (week 17) – Free-for-all (10-12 Lau; 12-14 Lau)

Lecture 12 (week 17) – Consciousness

Readings:

- Dehaene, S., Changeux, J.-P., Naccache, L., Sackur, J., Sergent, C., 2006. Conscious, preconscious, and subliminal processing: a testable taxonomy. Trends in cognitive sciences 10, 204–11. https://doi.org/10.1016/j.tics.2006.03.007
- Lamme, V.A.F., 2006. Towards a true neural stance on consciousness. Trends in cognitive sciences 10, 494–501. https://doi.org/10.1016/j.tics.2006.09.001

Class 11 (week 18) – Debate contest (10-12 Caroline; 12-14 Caroline)

Lecture 13 (week 18) – Final evaluation: What have we learnt? Wrap-up of course (NB! different room)

Readings: None

Class 12 (week 19) – Mock oral exam – (10-12 Lau, 12-14 Lau)

Class 13 (week 20) – Free-for-all (10-12 Caroline and Lau; 12-14 Caroline, Lau)