

Interdisciplinary Seminar: History and Philosophy of Science

This is a preliminary version. A final version of the course outline will be available by the third week of classes.

General Information

Course #	HPSC 500 / PHIL 624
Term	Fall 2017
Course pre-requisite(s)	None
Course co-requisite(s)	None
Restrictions	Undergraduates require permission of instructor
Course schedule	Thursdays 11:35 AM-2:25 PM
Number of credits	3
Course location	LEA 927

Instructor Information

Name	Eran Tal
E-mail	eran.tal@mcgill.ca
Office hours for students	Mondays 11:00 AM – 1:00 PM
Office location	LEA 933

Course Overview

The aim of this seminar is to familiarize students with cutting-edge research in history and philosophy of science. External speakers will be invited to give talks on their recent work, and students will prepare for each talk by reading and discussing relevant background literature. Areas covered by the talks include history of medicine, general philosophy of science, philosophy of biology, philosophy of economics, philosophy of measurement and philosophy of physics. Evaluation will be based primarily on an in-class presentation and a final research essay.

Course Materials

Mandatory readings are available for download from myCourses.

The optional readings listed below offer background and additional discussion, and are helpful resources for preparing in-class presentations and final essays.

Course Schedule

The first, introductory meeting on Sept 7th will start at 11:35 AM. Subsequent meetings will start at 11:45 AM.

After the introductory meeting, meetings will alternate between prep sessions and talks. The first four talks (by Wallis, Kao, Malaterre and Claveau) will be advertised as History and Philosophy of Science Lunchtime Talks and will be open to anyone to attend.

An exception to the schedule is the last talk (Barberousse), which is a Philosophy Department Colloquium scheduled on **Friday, December 1st, 3:30-5pm**. The seminar meeting on November 30th is cancelled.

Wk	Date	Description	Content
1	Sept 7 th	Introduction	No mandatory reading.
2	Sept 14 th	History of medicine (prep)	Mandatory reading: <ul style="list-style-type: none">Ballester, L.G. (1995). The Construction of a New Form of Learning and Practicing Medicine in Medieval Latin Europe. <i>Science in Context</i> 8, pp. 75-102.
3	Sept 21 st	History of medicine (talk)	Faith Wallis (McGill University): "Medicine's Academic Turn in the 12th Century: the case of Master Bartholomaeus of Salerno"
4	Sept 28 th	General philosophy of science (prep)	Mandatory reading: <ul style="list-style-type: none">Hoyningen-Huene, P. (2006). Context of discovery versus context of justification and Thomas Kuhn. In Schickore and Steinle (eds.) <i>Revisiting discovery and justification</i>, Dordrecht: Springer, 119-131.
5	Oct 5 th	General philosophy of science (talk)	Molly Kao (Université de Montréal): "Discovery and Justification: Refining the Context Distinction"
6	Oct 12 th	Philosophy of biology (prep)	Mandatory reading: <ul style="list-style-type: none">Malaterre C., Chartier J.-F. (draft). "Shades of Life".
7	Oct 19 th	Philosophy of biology (talk)	Christophe Malaterre (UQAM): "Shades of Life"
8	Oct 26 th	Philosophy of economics (prep)	Mandatory reading: <ul style="list-style-type: none">Peter Dietsch, François Claveau and Clément Fontan (in progress). <i>Do central banks serve the people?</i> Polity Press. Draft of Ch. 4: "Central banking expertise"
9	Nov 2 nd	Philosophy of economics (talk)	François Claveau (Sherbrooke): "Central Banks as Experts: What Can Social Epistemology Say?"
	Monday Nov 6 th		Essay outlines due

10	Nov 9 th	Philosophy of measurement (prep)	Mandatory reading: <ul style="list-style-type: none"> Van Fraassen, B.C. (2008) <i>Scientific Representation: Paradoxes of Perspective</i>, Oxford: Oxford University Press. Ch. 5: "The Problem of Coordination", pp. 115-140.
11	Nov 16 th	Philosophy of measurement (talk)	Eran Tal (McGill): "Making Time: A Study in the Epistemology of Measurement"
12	Nov 23 rd	Role of mathematics in physics (prep)	Readings TBA
	Nov 30 th		No seminar. Additional office hours may be held at this time upon request.
13	Friday 3:30-5pm Dec. 1 st	Role of mathematics in physics (talk)	Anouk Barberousse (Paris-Sorbonne): "Formalism, mathematical interpretation, and physical theories"
	Monday Dec. 4 th		Final essay due

Optional events

The following are optional, but highly recommended, philosophy of science talks that are scheduled at McGill and elsewhere in Montreal during Fall 2017.

For additional information on these talks, and on other history and philosophy of science events in Montreal, please visit the Montreal Philosophy of Science Network web page:

<https://montrealphilscinet.wordpress.com/activites-activities/>

Time	Place	Speaker and title
Friday Sept 8 th 3:30pm	LEA 927 (reception at 3:00pm at LEA 908)	Sorin Bangu (University of Bergen, Norway): "Reductionism, Constructionism and Explanation. The Case of Superconductivity"
Friday Sept 29 th 3:00pm	UQAM, W-5215	Margaret Morrison (Toronto): "Building Theories: Strategies not Blueprints"
Friday Oct 13 th 3:00pm	Université de Montréal, room TBA	Kerry McKenzie (San Diego): title TBA

Evaluation

The final mark will be composed of the following:

Name of Assignment	Due Date	% of final grade
In-class presentation	Once during term	25%
Outline of final essay	November 6th, 2017	15%
Final essay	December 4th, 2017	50%
Participation in class discussion	Ongoing	10%

In-class presentation: This is a 15-minute presentation of the required reading for the week, delivered at the start of each 'prep' meeting. In case two presentations are scheduled for the same week, the instructor will assign a text from the 'optional readings' below to one of the presenters.

The idea behind the in-class presentation is **not** to summarize the entire text but to briefly state the author's main theses and then focus on one or two aspects of the text that you found particularly interesting and / or problematic. End the presentation with one or two questions for class discussion. Using handouts is encouraged.

Essay outline: composed of (i) 2 pages containing your research question, main thesis, brief background and a summary of your argument and (ii) bibliography. Additional instructions on preparing the outline will be given in class.

Final essay: a research essay of about 5000 words. Instructions for writing the essay will be given in class.

Submitting work: essays and outlines are to be submitted online through MyCourses – **not by email**. Submit file in **PDF or DOCX** format only. In other words: if you are using a word-processor other than Microsoft Word, please use the 'save as' or 'export' function to save your work as a PDF before uploading it.

Policy for Late Work: Extensions to deadlines must be requested at least a week in advance of the deadline (except in cases of medical or other emergencies). Essays and essay outlines will be penalized at the rate of 3 percentage points per day overdue.

Participation: prep sessions will be conducted as group discussions, and all students are expected to participate. All students are also required to prepare **two questions about the required reading** for each prep session. These are not submitted to the instructor but may be called upon to invigorate class discussion. Students are strongly encouraged to engage with guest speakers by asking questions during the Q&A period.

Optional reading

Wallis:

- Bylebyl, J. J. (1990) "The Medical Meaning of *Physica*." in *Renaissance Medical Learning: Evolution of a Tradition*, ed. Michael McVaugh and Nancy Siraisi. *Osiris*, 2nd ser. 6:16-41.
- Jacquart, D. (1998) "Medical Scholasticism." In Grmek, Mirko D. (ed.) *Western Medical Thought from Antiquity to the Middle Ages*. 197-240. Cambridge, Mass.: Harvard University Press.
- Jacquart, D. (2013) "Anatomy, Physiology and Medical Theory." *The Cambridge History of Science. Volume 2: Medieval Science*, ed. David C. Lindberg and Michael H. Shank. 592-612. Cambridge: Cambridge University Press.
- Jordan, M.D. (1987) "Medicine as Science in the Early Commentaries on 'Johannitius'." *Traditio* 43:121-145.
- McVaugh, M. (2010) "Medicine and Arts in Thirteenth-Century Paris." *Crossing Boundaries in Medieval Universities*. ed. Spencer E. Young. 189-212. Leiden: Brill.

Kao:

- Three readings from: Schickore, J. and Steinle, F. (eds.) (2006) *Revisiting discovery and justification*, Dordrecht: Springer
 - Schickore, J. and Steinle F. "Introduction: Revisiting the Context Distinction", pp. vii-xix.
 - Nickles, T. "Heuristic Appraisal: Context of Discovery or Justification?", pp. 159-182
 - Arabatzis, T. "On the Inextricability of the Context of Discovery and the Context of Justification", pp. 215-230
- Arabatzis, T. and Kostas, G. (2016) "From Discrepancy to Discovery: How Argon Became an Element". In: T. Sauer and R. Scholl (eds.), *The Philosophy of Historical Case Studies*, Boston Studies in the Philosophy and History of Science Vol. 319, p. 203-222.

Malaterre:

- Bedau, M. A. (2012). A functional account of degrees of minimal chemical life. *Synthese*, 185(1), 73-88.
- Bruylants, G., Bartik, K., & Reisse, J. (2010). Is it useful to have a clear-cut definition of life? On the use of fuzzy logic in prebiotic chemistry. *Origins of Life and Evolution of Biospheres*, 40(2), 137-143.
- Cleland, C.E. & Chyba, C.F. (2007) Does 'life' have a definition? In W.T. Sullivan, III and J.A. Baross (eds.) *Planets and Life: The Emerging Science of Astrobiology*, Cambridge University Press.

Claveau:

- Longino, H. (1990) *Science as Social Knowledge*, Princeton: Princeton University Press. Ch 4. "Values and Objectivity", pp. 62-82.
- Marcussen, M. (2009) Scientization of Central Banking: The Politics of A-Politicization. In K. Dyson and M. Marcussen (eds.) *Central Banks in the Age of the Euro: Europeanization, Convergence, and Power*, Oxford: Oxford University Press. pp. 373-90.
- Mudge, S. L., & Vauchez, A. (2016). Fielding supranationalism: the European Central Bank as a field effect. *The Sociological Review Monographs*, 64(2), 146-169.

Tal:

- Carnap, R., (1966) *Philosophical foundations of physics*, G. Martin (ed.), reprinted as *An Introduction to the Philosophy of Science*, NY: Dover, 1995. Ch. 8: "Time", pp. 78-85.
- Poincaré, H. (1898), "The Measure of Time", in: *The Value of Science*, New York: Dover, 1958. Pp. 26-36.
- Reichenbach, H., (1927). *The Philosophy of Space and Time*, New York: Dover Publications, 1958. Chapter 2. "Time", Sections 16-18, pp. 109-123.
- Tal, E. (2016) "Making Time: A Study in the Epistemology of Measurement", *British Journal for the Philosophy of Science* 67, pp. 297-335.

Barberousse:

- TBA

Language of Submission:

“In accord with McGill University’s Charter of Students’ Rights, students in this course have the right to submit in English or in French any written work that is to be graded.” (Approved by Senate on 21 January 2009 - see also the section in this document on Assignments and Evaluation.)

The FRENCH TRANSLATION about this right may also be used on your course outline:

« Conformément à la Charte des droits de l’étudiant de l’Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l’un des objets est la maîtrise d’une langue). »

Academic Integrity:

“McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures” (see www.mcgill.ca/students/srr/honest/ for more information).

(Approved by Senate on 29 January 2003)

The FRENCH TRANSLATION of the Academic Integrity statement may also be used on your course outline:

« L’université McGill attache une haute importance à l’honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l’on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l’étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site www.mcgill.ca/students/srr/honest/).»