



PhilInBioMed

The Magazine

September & October 2021

New positions

Assistant Professor - Philosophy of Science

The Department of Philosophy in the Faculty of Arts and Sciences at the University of Toronto invites applications for a full-time tenure stream position in the area of philosophy of science. The appointment will be at the rank of Assistant Professor, with an expected start date of July 1, 2022, or shortly thereafter.

Deadline: November 1, 2021.

[Apply now](#)

Postdoctoral Research Fellow - Philosophy of Biology

The Department of Philosophy, Macquarie University is seeking to appoint a Postdoctoral Research Fellow to work with Professor Wendy Rogers and Dr Pierrick Bourrat on a project investigating philosophical issues raised by synthetic biology. The objective of this project is to explore the links between the notions of biological individuality through the lens of synthetic biology. In addition, there will be scope for the successful applicant to develop their own research over the course of the three year position.

Deadline: October 31, 2021, 11:55pm AEST

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Postgraduate Research Scholarship - Help to shape a new understanding of human nutrition

Work with leading researchers in the history and philosophy of biomedicine and in nutrition science to understand the changing relationship between humanity, science, and the food supply and the impact of this on lifestyle disease.

Applicants are invited to submit a proposal for PhD research that aligns directly to this project. Prospective candidates may qualify for direct entry into the PhD program if their research proposal is accepted and they satisfy at least one of the criteria listed below.

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New positions

Postdoctoral and Predoctoral Fellow «Practices of Validation in the Biomedical Sciences»

The newly appointed Predoctoral Fellow will work within the Max Planck Research Group Practices of Validation in the Biomedical Sciences. The research group examines how evaluative categories and methods of validation have been translated and transmuted across scientific approaches to studying health and disease, from the late nineteenth to the early twenty-first century.

The position will be based at the Max Planck Institute for the History of Science. The conferral of the doctorate can take place at the Technische Universität Berlin.

The newly appointed Postdoctoral Fellow will work within the Max Planck Research Group Practices of Validation in the Biomedical Sciences. The research group examines how evaluative categories and methods of validation have been translated and transmuted across scientific approaches to studying health and disease, from the late nineteenth to the early twenty-first century.

Deadline: October 31, 2021, 11:45pm CET.

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Assistant or Associate Professor - Logic and Philosophy of Science, UC Irvine (LPS)

UNIVERSITY OF CALIFORNIA, IRVINE

The Department of Logic and Philosophy of Science at UC Irvine invites applications for a tenure-track or tenured appointment at the rank of Assistant or Associate Professor.

The department also prefers scholars who can make a strong contribution to teaching courses in the MA program in Philosophy, Political Science, and Economics and especially encourages applicants from underrepresented groups in philosophy to apply.

To receive fullest consideration, applications should be received by November 30, although the position will be open until filled. All qualified applicants are encouraged to apply. We particularly seek applicants with a strong research agenda as well as a record of or potential for excellent teaching as well as contributions to inclusive excellence.

Deadline: November 30, 2021, 11:59pm PST

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Visiting Lecturer - Department of History and Philosophy of Science , Univ. of Pittsburgh

The Department of History and Philosophy of Science at the University of Pittsburgh seeks candidates to fill a position as a Visiting Lecturer specializing in History and Philosophy of Medicine for Spring Term 2022.

Deadline: October 30, 2021, 11:59pm EST

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New publications by the PhilinBiomed network members

Findl J., Suárez J. [Descriptive understanding and prediction in COVID-19 modelling](https://doi.org/10.1007/s40656-021-00461-z)
<https://doi.org/10.1007/s40656-021-00461-z>

COVID-19 has substantially affected our lives during 2020. Since its beginning, several epidemiological models have been developed to investigate the specific dynamics of the disease. Early COVID-19 epidemiological models were purely statistical, based on a curve-fitting approach, and did not include causal knowledge about the disease. Yet, these models had predictive capacity; thus they were used to ground important political decisions, in virtue of the understanding of the dynamics of the pandemic that they offered. This raises a philosophical question about how purely statistical models can yield understanding, and if so, what the relationship between prediction and understanding in these models is. Drawing on the model that was developed by the Institute of Health Metrics and Evaluation, we argue that early epidemiological models yielded a modality of understanding that we call descriptive understanding, which contrasts with the so-called explanatory understanding which is assumed to be the main form of scientific understanding. We spell out the exact details of how descriptive understanding works, and efficiently yields understanding of the phenomena. Finally, we vindicate the necessity of studying other modalities of understanding that go beyond the conventionally assumed explanatory understanding.

Brooks D., DiFrisco J., Wimsatt W. [Levels of Organization in the Biological Sciences](#)
Vienna Series in Theoretical Biology

Scientific philosophers examine the nature and significance of levels of organization, a core structural principle in the biological sciences.

Gross F. [Between mechanical clocks and emergent flocks: complexities in biology](#)
Synthese (2021). <https://doi.org/10.1007/s11229-021-03324-z>

Even though complexity is a concept that is ubiquitously used by biologists and philosophers of biology, it is rarely made precise. I argue that a clarification of the concept is neither trivial nor unachievable, and I propose a unifying framework based on the technical notion of “effective complexity” that allows me to do justice to conflicting intuitions about biological complexity, while taking into account several distinctions in the usage of the concept that are often overlooked. (read more online)

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New publications by the PhilinBiomed network members

Gauld C., Micoulaud-Franchi J.A., Gagné-Julien A.M., Giroux E., Demazeux S., [Traduction en français de trois textes clefs contemporains sur de nouvelles propositions de classifications en psychiatrie : RDoC, HiTOP et approche en réseau de la psychopathologie, Annales Médico-psychologiques](#), revue psychiatrique, Volume 179, Issue 1, 2021, Pages 72-74. <https://doi.org/10.1016/j.amp.2020.11.012>

Gauld C., Lopez R., Morin C.M., Maquet J., Mcgonigal A., Geoffroy P.A., Fakra E., Philip P., Dumas G., Micoulaud-Franchi J.A. [Why do sleep disorders belong to mental disorder classifications? A network analysis of the «Sleep-Wake Disorders» section of the DSM-5](#). J Psychiatr Res. 2021 Oct;142:153-159. Epub 2021 Aug 1. PMID: 34359009.

This article proposes to investigate how Sleep disorders have been conceptualized within the DSM-5 through symptom network analysis of the diagnostic criteria of the «Sleep-Wake Disorders» section in the DSM-5. We hypothesize that the analysis of the most central symptoms will allow us to better analyze the position of Sleep disorders in Mental disorders. We thus i) extracted the symptoms of the DSM-5 diagnostic criteria of Sleep-Wake disorders, ii) built the Sleep-Wake disorder DSM-5 network representation, and iii) quantified its structure at local and global levels using classical symptom network analysis. Thirty-four different symptoms were identified among the 53 DSM-5 diagnostic criteria of the 9 main disorders of the «Sleep-Wake Disorders» section. The symptom network structure of this section showed that the most central sleep symptoms are «Daytime Sleepiness», the Insomnia symptoms group («Insomnia initiating», «Insomnia maintaining» and «Non-restorative sleep»), and Behavioral sleep symptoms (such as «Altered oniric activity», «Ambulation», «Abnormal responsiveness»). This network analysis shown that the belonging of Sleep-Wake disorders in the DSM-5 have been associated with central sleep symptoms considered as «Mental», given their phenomenality (qualitative nature of the experience) and subjectivity (in personal mental lives). Such a symptom network analysis can serve as an organizing framework to better understand the complexity of Sleep-Wake disorders by promoting research to connect the architecture of the symptom network to relevant biological, psychological and sociocultural factors.

Gauld C., Darrason M., Dumas G., Micoulaud-Franchi J.A. [Personalized Medicine for OSA Syndrome in a Nutshell: Conceptual Clarification for Integration](#). Chest. 2021 Jan;159(1):451-452. doi: 10.1016/j.chest.2020.07.086. PMID: 33422224.

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New publications by the PhilinBiomed network members

Gauld C., Lopez R., Geoffroy P.A., Morin C.M., Guichard K., Giroux É., Dauvilliers Y., Dumas G., Philip P., Micoulaud-Franchi J.A. [A systematic analysis of ICSD-3 diagnostic criteria and proposal for further structured iteration](#). *Sleep Med Rev.* 2021 Aug;58:101439. doi: 10.1016/j.smrv.2021.101439. Epub 2021 Jan 26. PMID: 33596531.

The main objective of this theoretical review is to systematically analyze the type of International Classification of Sleep Disorders-3 (ICSD-3) diagnostic criteria by labeling each of them in order to propose an overview of the way in which the diagnostic criteria are organized. Labeling of diagnostic criteria using a rigorous iterative process of “aggregation” and “generalization” was conducted and inter-rater reliability calculation (Cohen’s Kappa with three raters) was calculated. 241 criteria from 43 main sleep disorders of the ICSD-3 were labeled into nine types (Clinical manifestation 86.0% of sleep disorders, Objective markers 53.5%, Distress 30.2%, Disability 30.2%, Duration 30.2%, Frequency 58.1%, Age in 18.6%, Exclusion condition 81.4% and Associated condition 34.8%), with a high inter-rater reliability (Cohen’s Kappa = 0.85). This analysis assumes that the structuring of the ICSD-3 diagnostic criteria is based on the Harmful Dysfunction Analysis (HDA). Some criteria correspond to the dysfunction part of the HDA while others refer to the harmful part. However, the approach does not seem to be homogeneous across the nosological classification. The use of a structured definition of sleep disorder and a framework to organize the ICSD diagnostic criteria is discussed with regard to the reliability and validity of criteria for diagnosing sleep disorders.

Bourrat, Pierrick. [Facts, Conventions, and the Levels of Selection](#). Cambridge, Cambridge University Press.

Debates concerning the units and levels of selection have persisted for over fifty years. One major question in this literature is whether units and levels of selection are genuine, in the sense that they are objective features of the world, or merely reflect the interests and goals of an observer. Scientists and philosophers have proposed a range of answers to this question. This Element introduces this literature and proposes a novel contribution. It defends a realist stance and offers a way of delineating genuine levels of selection by invoking the notion of a functional unit.

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New publications by the PhilinBiomed network members

Kaminski H., Lemoine M., Pradeu T. [Immunological exhaustion: How to make a disparate concept operational?](https://doi.org/10.1371/journal.ppat.1009892) <https://doi.org/10.1371/journal.ppat.1009892>

In this essay, we show that 3 distinct approaches to immunological exhaustion coexist and that they only partially overlap, generating potential misunderstandings. Exploring cases ranging from viral infections to cancer, we propose that it is crucial, for experimental and therapeutic purposes, to clarify these approaches and their interconnections so as to make the concept of exhaustion genuinely operational.

Lemoine M. [The Evolution of the Hallmarks of Aging](https://doi.org/10.3389/fgene.2021.693071) <https://doi.org/10.3389/fgene.2021.693071>

The evolutionary theory of aging has set the foundations for a comprehensive understanding of aging. The biology of aging has listed and described the “hallmarks of aging,” i.e., cellular and molecular mechanisms involved in human aging. The present paper is the first to infer the order of appearance of the hallmarks of bilaterian and thereby human aging throughout evolution from their presence in progressively narrower clades. Its first result is that all organisms, even non-senescent, have to deal with at least one mechanism of aging – the progressive accumulation of misfolded or unstable proteins. Due to their cumulation, these mechanisms are called “layers of aging.” A difference should be made between the first four layers of unicellular aging, present in some unicellular organisms and in all multicellular opisthokonts, that stem and strike “from the inside” of individual cells and span from increasingly abnormal protein folding to deregulated nutrient sensing, and the last four layers of metacellular aging, progressively appearing in metazoans, that strike the cells of a multicellular organism “from the outside,” i.e., because of other cells, and span from transcriptional alterations to the disruption of intercellular communication. The evolution of metazoans and eumetazoans probably solved the problem of aging along with the problem of unicellular aging. However, metacellular aging originates in the mechanisms by which the effects of unicellular aging are kept under control – e.g., the exhaustion of stem cells that contribute to replace damaged somatic cells. In bilaterians, additional functions have taken a toll on generally useless potentially limited lifespan to increase the fitness of organisms at the price of a progressively less efficient containment of the damage of unicellular aging. In the end, this picture suggests that geroscience should be more efficient in targeting conditions of metacellular aging rather than unicellular aging itself.

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Forthcoming events

Translating Validity in Psychiatric Research

This working group brings together philosophers, historians, and researchers in psychiatry, psychology, and neuroscience to examine how validity has been conceptualized and translated within psychiatric research.

25th November 2021 [The Network Approach to Psychopathology](#)

16th December 2021 [Non-specific \(Generic\) Psychopathology: Considerations from the Theory of Open Concepts](#)

20th January 2022 [Responsible Mental Health Measures that are Valid and Fit for their Purpose](#)

10th February 2022 [Thick descriptions in psychopathology: Ryle meets Kraepelin](#)

KLI events

11th November 2021 Gregor GRESLEHNER (University of Vienna), [Two Dogmas of Molecular Biology: What Is the Explanatory Role of the Sequence – Structure-Function Relationship?](#)

18th November 2021 Daniel BROOKS (University of Toronto), [The Major Metaphors of Evolution: Darwinism then and now](#)

1st December 2021 [Global Epistemologies and Philosophies of Science](#)

13th January 2022 [Seeing Clearly through COVID-19: Current and Future Questions for the History and Philosophy of the Life Sciences](#)

DIU [Philosophie et épistémologie de la psychiatrie 2021-2022](#)

«Cancer and Evolution»

Bertrand Daignan-Fornier (Bordeaux), Mathieu Giraudeau (La Rochelle) and Thomas Pradeu (Bordeaux) develop a new research program on «Cancer and Evolution», with a strong focus on comparative oncology and experimental evolution. People interested in interacting with them on these topics should contact Thomas Pradeu (thomas.pradeu@u-bordeaux.fr)

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Forthcoming events

PhillinBioMed Seminars

24th November 2021

5.30pm: Marie I. Kaiser (Department of Philosophy at Bielefeld University, Germany), [“Individual-level Mechanisms in Ecology and Evolution”](#).

14th January 2022

2pm: Johanna Joyce (University of Lausanne, Switzerland) [Title TBC](#).

Fourth Philosophy of Cancer Biology Workshop

6th - 7th - 8th December 2021

Cancer is one of the main causes of death globally according to the World Health Organization. The biological complexity and heterogeneity of this disease (or group of diseases) make it very difficult to apprehend, control, and cure. For a long time, cancer has been little studied by philosophers of science. Most of the work in the humanities and the social sciences has focused on the social, anthropological, psychological, and ethical dimensions of cancer. Yet cancer is now becoming increasingly an object of study for philosophers of biology and philosophers of medicine. In particular, the scientific explanation, definition, classification and prediction of cancer as a biological and medical phenomenon face many epistemological challenges. Cancer research raises a host of experimental, theoretical, and conceptual issues that connect with most, if not all, the domains of today's biology and medicine.

The main goal of this workshop is to provide a forum where philosophers of biology/medicine, scientists, and medical doctors meet to discuss the biological and medical science of cancer.

[More information](#) | Programme soon available | [Registrations are open](#)

Plenary speakers

- **Maria Blasco** (Centro Nacional de Investigaciones Oncológicas, Madrid, Spain)
- **Eric Solary** (Gustave Roussy, Villejuif, France)
- **Andrew Ewald** (Johns Hopkins, USA)
- **Carlo Maley** (Arizona State University, USA)
- **Nicholas McGranahan** (London, UK)
- **Anya Plutynski** (Washington University, USA, via Zoom)

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