UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO
PROGRAMA DE POSGRADO EN
FILOSOFÍA DE LA CIENCIA

Actividad Académica: Filosofía de la Biología					
Clave:	**Semestre: 2020-1**	**Campo de conocimiento: Filosofía de la Ciencia, Historia de la Ciencia, Estudios Filosóficos y Sociales de la Ciencia y la Tecnología**			
Carácter: Obligatoria ( ) Optativa (X) de Elección ( )		**Horas por semana**		**Horas al semestre**	**No. Créditos:**
Tipo: Curso		**Teóricas:**	**Prácticas:**		
		4	0	64	
Modalidad: Presencial		**Duración del programa: 1 semestre**			

Seriación: Si ( ) No (x) Obligatoria ( ) Indicativa ( )

Introducción:
In the last decades, philosophy of science has moved on from the prevalent idea that physics constitutes the paradigmatic example of science. As a consequence, other disciplines became objects of philosophical investigations. This especially holds for biology (or the life sciences more generally), which many consider to become the leading science of the 21st century. Philosophy of biology is a relatively young and lively discipline. It deals with the conceptual and ontological foundations as well as the epistemic and methodological frameworks of biology. It addresses questions like: What do central concepts like 'selection', 'adaptation', or 'organism' actually mean? What is biological information or the unit of selection (the gene, organism or species)? What is the structure and character of explanations and theories in biology compared to other disciplines? Do genes determine our actions or do we control the actions of our genes? By drawing on these and other topics the seminar will provide an introduction to central questions and problems in today's philosophy of biology. In the seminar recent publications in the field will be read and discussed. No particular knowledge in biology is required.

Objetivo general:
The course will provide an introduction to central questions and problems in today's philosophy of biology.

Objetivos específicos:
This course will provide a framework to link current discussions in philosophy of science to topics on the philosophy of biology.

Contenido Temático			
Unidad	**Temas**	**Horas**	
		Teóricas	**Prácticas**
1	**Introduction: The philosophy of biology**	8	0
2	**The gene concept**	4	0
3	**Biological explanation**	4	0
4	**Evolution: Adaptation and Teleology**	4	0

5	**Conceptual change in biology**	4	0
6	**Organisms and individuals**	4	0
7	**Anthropology and biology**	4	0
8	**Model organisms** Models in biology Model organisms as 'models' Philosophical issues about model organisms	12	0
9	**Case-based reasoning in biology** Thinking in cases Cases in developmental biology	8	0
10	**Standardisation** Standards and standardisation Objects, instruments and experimentation Standards and biology	12	0
	Total de horas:	64	0
	Suma total de horas:	64	

Bibliografía y actividades:

Introduction
1) Griffiths, P. (2011). Philosophy of Biology, in: Zalta, E.N. (ed.): The Stanford Encyclopedia of Philosophy (Summer 2011). [http://plato.stanford.edu/archives/sum2011/entries/biology-philosophy/]

The gene concept
2) Rheinberger, H.J. & Müller-Wille, S. (2008). Gene Concepts, in: Sarkar, S. & Plutynski, A. (eds.): A Companion to the Philosophy of Biology. Blackwell: Hoboken, 3-21.

3) Griffiths, P. & Stotz, K. The Reactive Genome, in: Id. (eds.): Genetics and Philosophy: An Introduction. Cambridge: CUP, 67-107.

Biological explanation
4) Potochnik, A. (2013). Biological Explanation. In: Kampourakis, K. (ed.): The Philosophy of Biology: A Companion for Educators. Dordrecht: Springer, 49–65. [esp. until p. 59]
Evolution: Adaptation, Teleology etc.

5) Gould, S.J. & Lewontin, R. (1979). The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme. Proceedings of the Royal Society of London B 205: 581-98.

Conceptual change in biology
6) Pigliucci, M. (2013). The Nature of Evolutionary Biology: At the Borderlands Between Historical and Experimental Science, in: Kampourakis, K. (ed.): The Philosophy of Biology: A Companion for Educators. Dordrecht: Springer, 87-100.

7) Laland, K.N. et al. (2014): Does Evolutionary Theory Need a Rethink? Nature News 514, 161–64.

Organisms and individuals

8) Clarke, E. (2010). The Problem of Biological Individuality. Biological Theory 5: 312–25.

9) Nicholson, D.J. (2014): The Return of the Organism as a Fundamental Explanatory Concept in Biology. Philosophy Compass 9: 347–359.

Anthropology and biology

10) Gilbert, S.F. (2014). A Holobiont Birth Narrative: The Epigenetic Transmission of the Human Microbiome. Frontiers in Genetics 5: 282.

Model organisms

11) Laubichler M.D. & Müller G.B. (eds.) (2007) Modeling biology: structures, behaviors, evolution. Chapters 1-3.

12) Ankeny, R.A. (2001) Model Organisms as Models: Understanding the 'Lingua Franca' of the Human Genome Project. Philosophy of Science, 68:S251-S261.

13) Ankeny, R.A. & Leonelli, S. (2011) What's so special about model organisms?. Studies in History and Philosophy of Science 42:313-323.

14) Levy, A. & Currie, A. (2015). Model Organisms are Not (Theoretical) Models. British Journal of Philosophy of Science 66:327–348.

15) Burian, R. (1993) How the Choice of Experimental Organism Matters: Epistemological Reflections on an Aspect of Biological Practice. Journal of the History of Biology 26: 351-367.

16) Leonelli, S. (2008) Performing abstraction: two ways of modelling Arabidopsis thaliana. Biology and Philosophy 23:509–528.

17) Leonelli, S. (2013) Integrating data to acquire new knowledge: Three modes of integration in plant science. Studies in History and Philosophy of Science Part C 44:503-514.

18) Minelli A. & Baedcke J. (2014) Model organisms in evo-devo: promises and pitfalls of the comparative approach. HPLS 36:42–59

19) Meunier R. (2010) Stages in the development of a model organism as a platform for mechanistic models in developmental biology: Zebrafish, 1970–2000. Studies in History and Philosophy of Biological and Biomedical Sciences 43:522–531

20) Nelson, N. (2012) Modeling mouse, human, and discipline: Epistemic scaffolds in animal behavior genetics. Social Studies of Science 43: 3–29.

Case-based reasoning

21) Forrester, J. (1996) If p then what? Thinking in cases. History of the human sciences 9:1-25.

22) Morgan, M.S. (2007) Reflections on exemplary narratives, cases, and model organisms. In: Creager, A.N.H. et al. Science without laws: Model systems, cases, exemplary narratives. Durham and London: Duke University Press, 264-274.

23) Ankeny, R.A. (2007) Wormy logic: model organisms as case-based reasoning. In: Creager, A.N.H. et al. Science without laws: Model systems, cases, exemplary narratives. Durham and London: Duke University Press, 46-58.

24) Ankeny, R.A. (2012) Detecting Themes and Variations: The Use of Cases in Developmental Biology. Philosophy of Science 79: 644-654.

Standardisation

25) Lampland, M. & Star, S.L. (2009) Standards and their stories: how quantifying, classifying, and formalizing practices shape everyday life. Cornell University press.

26) Timmermans, S. & Berg, M. (1997) Standardization in action: achieving local universality through medical protocols. Social Studies of Science 27:273-305.

27) Howlett, P. & Morgan, M.S. (2010) How well do facts travel? The dissemination of reliable knowledge. Cambridge University Press.

28) Radder, H. (2003) The philosophy of scientific experimentation. University of Pittsburgh Press.

29) Jordan, K. & Lynch, M. (1998) The dissemination, standardization, and routinization of a molecular biological technique. Social Studies of Science 28:773-800.

30) Mackenzie, A. et al (2013) Classifying, constructing, and identifying life: Standards as transformations of "The biological". Science, technology & human values 38:701-722.

31) Kirk, R.G.W. (2012) "Standardization through mechanization": Germ-free life and the engineering of the ideal laboratory animal. Technology and culture 53:61-93.

Medios didácticas:		**Métodos de evaluación:**	
Exposición profesor(a)	(X)	Exámenes o trabajos parciales	( )
Exposición alumnos	(X)	Examen o trabajo final escrito	( )
Ejercicios dentro de clase	( )	Trabajos y tareas fuera del aula	( )
Ejercicios fuera del aula	( )	Exposición de alumnos	(X)
Lecturas obligatorias	(X)	Participación en clase	(X)
Trabajo de investigación	(X)	Asistencia	(X)
Prácticas de campo	( )	Prácticas	( )
Otros: _____	( )	Otros: _____	( )

Nota: (en caso que exista alguna)

Evaluación y forma de trabajo
To pass the course, students must actively partake in the discussions, and conduct a presentation (or take other course activities). There will be also a final exam or essay.

Imparte: Dr. Jan Baedke, Dr. Miguel Lopez Paleta
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Día y hora del curso o seminario (dos propuestas):
Martes 12:00-16:00
Jueves 11:00-15:00