



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



Actividad Académica: Curso – Scientific Representation					
Clave:	Semestre: 2019-2	Campo de conocimiento: Filosofía de la ciencia			
Carácter: Obligatoria () Optativa (X) de Elección ()			Horas por semana		No. Créditos:
Tipo:			Teóricas:	Prácticas:	
			3		
Modalidad: Presencial			Duración del programa: 1 semestre		

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

Introducción: It is being increasingly recognized in contemporary philosophy of science that models play a central role in scientific practice. The objective of this course is to better understand how scientific models represent, how they are used, the relationship between models and theories, between models and experience, and the philosophical problems posed by modeling practices, for example concerning the nature of explanations and the role of idealisations and simulations.

Objetivo general: Learn about the philosophical aspects of scientific representation

Objetivos específicos:

1. Learn about the different conceptions of scientific theories that have been entertained in philosophy, and how models became prominent in recent debates
2. Get an overview of the different accounts of scientific representation and corresponding contemporary debates
3. Address specific problems linked to modeling practice, in particular, explanations, empirical confrontation and simulations

Contenido Temático			
Unidad	Temas	Horas	
		Teóricas	Prácticas
1	The syntactic, semantic and pragmatic conceptions of theories	16	
2	Scientific representation: the model/target/user relationship	16	
3	Modeling practices: explanation, simulation, empirical confrontation	16	
4			
Total de horas:		48	

Suma total de horas:	48
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Bibliografía y actividades:

On the structure of scientific theories (semantic vs syntactic view)

Bailer-Jones, Daniela. 2013. *Scientific Models in Philosophy of Science*. Vol. 43. University of Pittsburgh Press.

Cartwright, Nancy, Towfic Shomar, et Mauricio Suárez. 1995. « The tool box of science: Tools for the building of models with a superconductivity example ». *Poznan Studies in the Philosophy of the Sciences and the Humanities* 44: 137–149.

Chakravartty, Anjan. 2001. « The semantic or model-theoretic view of theories and scientific realism ». *Synthese* 127 (3): 325–345.

French, Steven, et James Ladyman. 1999. « Reinflating the semantic approach ». *International Studies in the Philosophy of Science* 13 (2): 103–121.

French, Steven, et Juha Saatsi. 2006. « Realism about Structure: The Semantic View and Nonlinguistic Representations ». *Philosophy of Science* 73 (5): 548–559.

Frigg, Roman. 2006. « Scientific representation and the semantic view of theories ». *Theoria* 21 (1): 49–65.

Halvorson, Hans. 2012. « What Scientific Theories Could Not Be ». *Philosophy of Science* 79 (2): 183–206.

Jebeile, Julie, et Anouk Barberousse. 2016. « Empirical agreement in model validation ». *Studies in History and Philosophy of Science Part A* 56: 168–174.

Krause, Décio, et Otávio Bueno. 2007. « Scientific Theories, Models, and the Semantic Approach ». *Principia* 11 (2): 187–201.

Lutz, Sebastian. 2012. « On a Straw Man in the Philosophy of Science: A Defense of the Received View ». *HOPOS* 2 (1): 77–120.

———. 2015. « What Was the Syntax-Semantics Debate in the Philosophy of Science About? » *Philosophy and Phenomenological Research* 91 (2).

Morgan, Mary, et Margaret Morrison. 1999. *Models as Mediators: Perspectives on Natural and Social Science*. Cambridge University Press.

Suárez, Mauricio. 2005. « The Semantic View, Empirical Adequacy, and Application (Concepción semántica, adecuación empírica y aplicación) ». *Critica* 37 (109): 29–63.

Suárez, Mauricio, et Nancy Cartwright. 2007. « Theories: Tools versus models ». *Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics* 39 (1): 62–81.

Suppe, Frederick. 1972. « What's wrong with the received view on the structure of scientific theories? » *Philosophy of Science* 39 (1): 1–19.

Thomson-Jones, Martin. 2012. « Modeling without Mathematics ». *Philosophy of Science* 79 (5):

On scientific representation

- Bartels, Andreas. 2006. « Defending the structural concept of representation ». *Theoria* 21 (55): 7–19.
- Berenstain, Nora. 2017. « The Applicability of Mathematics to Physical Modality ». *Synthese* 194 (9): 3361–3377.
- Boesch, Brandon. 2017. « There Is a Special Problem of Scientific Representation ». *Philosophy of Science* 84 (5): 970–981.
- Bolinska, Agnes. 2013. « Epistemic Representation, Informativeness and the Aim of Faithful Representation ». *Synthese* 190 (2): 219–34. <https://doi.org/10.1007/s11229-012-0143-6>.
- Bueno, Otavio, et Steven French. 2011. « How Theories Represent ». *British Journal for the Philosophy of Science* 62 (4): 857–894.
- Callender, Craig, et Jonathan Cohen. 2006. « There Is No Special Problem About Scientific Representation ». *Theoria: Revista de Teoría, Historia y Fundamentos de la Ciencia* 21 (1): 67–85.
- Contessa, Gabriele. 2007. « Scientific representation, interpretation, and surrogate reasoning ». *Philosophy of Science* 74 (1): 48–68.
- Currie, Adrian. 2017. « From Models-as-Fictions to Models-as-Tools ». *Ergo, an Open Access Journal of Philosophy* 4 (20180524). <https://doi.org/10.3998/ergo.12405314.0004.027>.
- Fraassen, Bas van. 2008. *Scientific Representation: Paradoxes of Perspective*. Vol. 70. Oxford University Press.
- Frisch, M. 2015. « Users, Structures, and Representation ». *The British Journal for the Philosophy of Science* 66 (2): 285–306. <https://doi.org/10.1093/bjps/axt032>.
- Giere, Ronald N. 2004. « How models are used to represent reality ». *Philosophy of Science* 71 (5): 742–752.
- Hughes, R. I. G. 1997. « Models and Representation ». *Philosophy of Science* 64 (décembre): S325–36. <https://doi.org/10.1086/392611>.
- Kennedy, Ashley Graham. 2012. « A non representationalist view of model explanation ». *Studies in History and Philosophy of Science Part A* 43 (2): 326–32. <https://doi.org/10.1016/j.shpsa.2011.12.029>.
- Mormann, Thomas, et Andoni Ibarra. 2006. « Scientific theories as intervening representations ». *Theoria* 21 (1): 21–38.
- Nguyen, James. 2016. « On the pragmatic equivalence between representing data and phenomena ». *Philosophy of Science* 83 (2): 171–191.
- Stefanov, Anguel. 2012. « Theoretical Models as Representations ». *Journal for General Philosophy of Science* 43 (1): 67–76. <https://doi.org/10.1007/s10838-012-9178-0>.

Suárez, Mauricio. 2003. « Scientific representation: Against similarity and isomorphism ». *International Studies in the Philosophy of Science* 17 (3): 225–244.

———. 2004. « An inferential conception of scientific representation ». *Philosophy of Science* 71 (5): 767–779.

———. 2010. « Scientific representation ». *Philosophy Compass* 5 (1): 91–101.

———. 2015. « Deflationary Representation, Inference, and Practice ». *Studies in History and Philosophy of Science Part A* 49 (février): 36–47. <https://doi.org/10.1016/j.shpsa.2014.11.001>.

Suárez, Mauricio, et Nancy Cartwright. 2007. « Theories: Tools versus models ». *Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics* 39 (1): 62–81.

On idealisations, explanations, modelisation

Batterman, Robert W. 2005. « Critical phenomena and breaking drops: Infinite idealizations in physics ». *Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics* 36 (2): 225–44. <https://doi.org/10.1016/j.shpsb.2004.05.004>.

Bokulich, A. 2008. « Can Classical Structures Explain Quantum Phenomena? » *The British Journal for the Philosophy of Science* 59 (2): 217–35. <https://doi.org/10.1093/bjps/axn004>.

Bokulich, Alisa. 2016. « Fiction As a Vehicle for Truth: Moving Beyond the Ontic Conception ». *The Monist* 99 (3): 260–79. <https://doi.org/10.1093/monist/onw004>.

Elgin, Mehmet, et Elliott Sober. 2002. « Cartwright on Explanation and Idealization ». In , 165–74. Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-94-017-1009-1_9.

Foster, John. 1982. « Induction, Explanation and Natural Necessity ». *Proceedings of the Aristotelian Society* 83: 87–101.

Frigg, Roman. 2010. « Models and fiction ». *Synthese* 172 (2): 251–268.

Mäki, Uskali. 2009. « MISSing the World. Models as Isolations and Credible Surrogate Systems ». *Erkenntnis* 70 (1): 29–43. <https://doi.org/10.1007/s10670-008-9135-9>.

McMullin, Ernan. 1985. « Galilean idealization ». *Studies in History and Philosophy of Science Part A* 16 (3): 247–73. [https://doi.org/10.1016/0039-3681\(85\)90003-2](https://doi.org/10.1016/0039-3681(85)90003-2).

Saatsi, Juha. 2016. « Models, Idealisations, and Realism ». In , 173–89. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-28163-6_10.

Weisberg, Michael. 2013. *Simulation and Similarity: Using Models to Understand the World*. Oxford University Press.

Nota: (en caso que exista alguna)

Medios didácticas:	Métodos de evaluación:
Exposición profesor(a) (X)	Exámenes o trabajos parciales (X)
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 ()
Lecturas obligatorias (X)	Participación en clase (X)
Trabajo de investigación ()	Asistencia ()
Prácticas de campo ()	Prácticas ()
Otros: ()	Otros: ()

Evaluación y forma de trabajo

- **20% seminar attendance and participation**
- **40% presentation in class**
- **40% book review**

Imparte: Quentin Ruyant

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Día y hora del curso o seminario (dos propuestas):

Martes y Miercoles 10h30 – 12h