

Prof. Marcel Weber (marcel.weber@unige.ch)
Prof. Christian Wüthrich (christian.wuthrich@unige.ch)

Exploring Possible Worlds: Science and the Modal Frontier

Autumn semester 2026, Wednesdays 12-14, L208, SE

https://wuthrich.net/teaching/_MA_2026_ModalFrontier.html

Program:

16 Sept	<i>No seminar</i>
23 Sept	Introduction Williamson (2017): Modality as a subject for science
30 Sept	Classical empiricist scepticism about modality van Fraassen (1989): <i>Laws and Symmetry</i> , chapter 4
7 Oct	Counterfactuals Lewis (1987): Counterfactual dependence and time's arrow
14 Oct	Woodward (2004): Counterfactuals and causal explanation
21 Oct	The modal turn in recent philosophy of science: models as modal tools Giere (1988): <i>Explaining Science</i> , chapter 3
28 Oct	Frigg and Nguyen (2016): The fiction view of models reloaded
4 Nov	<i>No seminar (semaine de lecture)</i>
11 Nov	Modality in climate science Roussos (2025): Modelling climate possibilities
18 Nov	Modality in physics (taught by Baptiste Le Bihan) Baron, Le Bihan, and Read (2026): Scientific theory and possibility
25 Nov	Modality in biology Dennett (1995): <i>Darwin's Dangerous Idea</i> , chapter 5
2 Dec	Koskinen (2017): Synthetic biology and the search for alternative genetic systems
9 Dec	Modal empiricism Ruyant (2020): The inductive route towards necessity
16 Dec	Ismael (2017): An empiricist's guide to objective modality

Course description:

Much of classic empiricist philosophy of science in the 20th century has been skeptical about modal claims, i.e., claims about possible or necessary states of affairs. While laws of nature were always conceived as carrying some kind of necessity, this necessity was traditionally spelled out in epistemic rather than in metaphysical terms. Examples include Goodman's notion of projectability or Hempel's criterion of counterfactual-supporting force. Modal realists such as Lewis, on the other hand, were criticized for being out of touch with scientific practice. In recent decades, modalities have made a comeback in philosophy of science. Some scientific theories and models, on contemporary views, represent possible entities such as supersymmetric particles or possible life forms such as mirror life. Idealized models and thought experiments may reveal objective possibilities and necessities. Counterfactual conditionals such as "if atmospheric greenhouse gases were at pre-industrial levels, the average global temperature would be about 1.4° less" are thought to have a mind-independent truth value, and so on. In this seminar we will discuss some key texts in which we can see this modal turn in philosophy of science unfold.

This seminar will be conducted in English. The readings will be made available on moodle.