

Title and Code of Course: Logics of the Social Sciences ERPB-MTVN-9004

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Credit Point Value: 6	Number of Lessons per Week: 2	Type of Course: Seminar <input checked="" type="checkbox"/> Lecture <input type="checkbox"/>	Method of Evaluation: Oral Examination <input type="checkbox"/> In-Class Presentation <input checked="" type="checkbox"/> Other <input type="checkbox"/>
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Logics of the Social Sciences

This course offers a tender introduction into four different logics successfully applied within the social sciences: Classical First Order Logic, what in the last 25 years has turned out to be an unavoidable tool for clarifying concepts and argumentation; Modal Logics what has an amazing width of applications ranging from modelling decision making processes under the conditions of bounded rationality to the emergence of prejudice; Dynamic Logics, that allows for modelling argumentation within theories that are still in flux; and Bayesian Probabilistic models of cognitive processes, and the avenues of research opened up due to these models.

The course is organized into four three week long modules covering these topics. No knowledge of logic(s) is presupposed, but some might turn out to be useful. The ability and willingness to think a bit abstractly might offer an alternative route.

Bibliography:

Module 1 Arguments in Classical Logic

1. Péli G, Bruggeman Jeroen, Masuch Michael, Ó Nualláin Breandán:
A Logical Approach to Formalizing Organizational Ecology,
AMERICAN SOCIOLOGICAL REVIEW 59: (4) pp. 571-593.
2. Péli Gábor, Pólos László, Hannan Michael T.:
Back to inertia: Theoretical implications of alternative styles of logical formalization
SOCIOLOGICAL THEORY 18: (2) pp. 195-215
3. Péli G:
The Niche Hiker's Guide to Population Ecology:
A logical reconstruction of organization ecology's niche theory,
SOCIOLOGICAL METHODOLOGY 27: (1) pp. 1-46.

Module 2 Modal Approaches

1. Z. Huang, M. Masuch, and L. Pólos.:
A Preference Logic for Rational Actions.” In: Blanning and King(eds) Artificial Intelligence in Organizational Design. 1996.
2. [LÁSZLÓ PÓLOS](#), [MICHAEL T. HANNAN](#), [GRETA HSU](#)
Modalities in Sociological Arguments
Mathematical Sociology (2010)
3. [Greta Hsu](#), [Michael T. Hannan](#) & [László Pólos](#)
[Typecasting, Legitimation, and Form Emergence: A Formal Theory](#)
[Sociological Theory](#) 29 (2):97-123 (2011)

Module 3 Dynamic Approaches

1. F. Veltman:
Defaults in Update Semantics
[Journal of Philosophical Logic](#)
volume 25, pages 221–261 (1996)
2. László Pólos, Michael T. Hannan:
[Reasoning with Partial Knowledge](#)
SOCIOLOGICAL METHODOLOGY 32 pp. 133-181. , 49 p. (2002)
3. Hannan, M.T., Pólos L., Carroll, G.R.
Logics Of Organization Theory
Princeton University Press 2007

Module 4 A Bayesian / Cognitive Approach

Hannan et al.: Concepts and Categories Columbia University Press (2019)

Topics to be covered:

1. Semantic Spaces, Categorisation Probabilities Bayesian Updates
2. Conceptual interferences
3. Social Cognition and Reasoning