Laurea / B.A.
in Global Governance

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Academic Year 2021-2022
Syllabus
Logic and Philosophy of Science
CFU 6
Dr. Gabriele Pulcini

Course Description

Reasoning is the process of extracting useful consequences from some sort of preassigned background knowledge. Logic concerns itself with correct reasoning and so, specularly, with detecting fallacious arguments. Needless to say, logic proves fundamental in any intellectual arena, including economics and politics; It also provides the basic toolkit for reflecting upon the methodology of empirical sciences and the nature of scientic knowledge.

The course is organized in two parts. The first will serve as an introduction to both classical propositional logic and the predicate calculus. Students will learn how to 'extract' the logical structure of sentences expressed in the natural language by means of the formalization process. They will also be trained to analyze formalized sentences by computing truth-tables and applying the method of refutation trees. Special attention will be devoted to the notions of valid and sound argument.

In the second part, students will be introduced to some of the central topics in the philosophy of science. In particular, we will focus attention upon the problem of inductivism. After analyzing the most important types of inductive reasoning (simple induction, statistical syllogism, induction by analogy, generalizations), we will consider Russell's position about inductivism as well as Popper's criticism. We will finally dwell on the most salient aspects of Popper's falsificationism.

Teaching Method

The instructor will give lectures (around 70% of the time) and also lead practicals (around 30% of the time). During practicals, students will have the opportunity to interact with each other, as well as with the techaer, in order to solve given exercises and face concrete situations.

Schedule of Topics

Topic 1	The language of propositional classical logic
Topic 2	Truth tables, tautologies, and contradictions
Topic 3	The language of predicate calculus and the identity relation
Topic 4	Truth in a model, logical validity
Topic 5	Formalization of natural language sentences
Topic 6	Deductive *vs* inductive rasoning
Topic 7	Types of inductive inferences
Topic 8	Russell on inductive knowledge
Topic 9	Poppers criticism of inductivism in the philosophy of science
Topic 10	Popper's falsificationism

Textbooks

J. Nolt, A. Rohatyn, and A. Varzi. *Logic*, McGraw-Hill (Selected parts)

B. Russell. *The Problems of Philosophy*, OUP (Selected parts)

S. Okasha. *Philosophy of Science,* OUP

Assessment

The final exam consists in a written test in which the students will be asked to solve some exercises in logic (propositional and first order) as well as to answer open questions concerning the second part of the course.

Office hours

Schedule a Skype meeting by contacting me at the following address:

gabriele.pulcini@uniroma2.it