

# ***Philosophy, Science, Antiscience***

The Institute of Philosophy Summer School 2020

Zagreb, 15-17 June 2020

## **MONDAY**

9.30-10.00 Registration

10.00-13.00 Course 1

Dr. Luka Boršić (Institute of Philosophy, Zagreb)

*Anti-Aristotelianism and the Emergence of Modern Science*

13.00-16.00 Break

16.00-19.00 Course 2

Professor Robert J. Hankinson (University of Texas at Austin)

*Physics, Mathematics, and Explanation in Aristotle*

## **TUESDAY**

10.00-13.00 Course 3

Dr. Ivana Skuhala Karasman (Institute of Philosophy, Zagreb)

*Astrology: From Science to Pseudoscience*

13.00-15.00 Break

15.00-18.00 Course 4

Professor Jure Zovko (Institute of Philosophy, Zagreb / University of Zadar)

*Does Relativism Threaten the Sciences?*

## **WEDNESDAY**

10.00-13.00 Course 5

Dr. Marija Brajdić Vuković (Institute of Social Research, Zagreb)

*What is an Expert? Scientific and Public Controversies*

13.00-15.00 Break

15.00-18.00 Course 6

Professor Luca Malatesti (University of Rijeka)

*Science in the Courtroom. Some Conceptual and Methodological Issues in Transferring Neuropsychological Science in the Insanity Defence*

18:00-18:30 Break

18.30-20.00 Closing Lecture

Professor Darko Polšek (Department of Anthropology, Faculty of Humanities and Social Sciences, Zagreb)

*Science: Good, Bad and Bogus (New Challenges!)*

## **COURSE 1**

*Anti-Aristotelianism and the Emergence of Modern Science*

### **INSTRUCTOR**

Dr. Luka Boršić (Institute of Philosophy, Zagreb)

### **ABSTRACT**

We are going to inquire into the changes of paradigm that happened notably in the 16th century and which prepared the ground for the emergence of modern science. In more detail we are going to explore the texts of three Renaissance philosophers: Mario Nizolio (*De veris principiis*), Frane Petrić (Francesco Patrizi, *Discussiones peripateticae*) and Jacopo Mazzoni (*In universam Platonis et Aristotelis philosophiam praeludia*). Through various philosophical concepts, and especially through the concept of *scientia*/ἐπιστήμη, we can follow metamorphoses of some basic epistemological and ontological ideas that led to Galileo's quantification of natural philosophy.

## **COURSE 2**

*Physics, Mathematics, and Explanation in Aristotle*

### **INSTRUCTOR:**

Professor Robert J. Hankinson (University of Texas at Austin, USA)

### **ABSTRACT**

It is often said that Aristotle's physical science (or 'science') is more or less entirely qualitative, i.e. non-mathematical, in nature, and also that it relies excessively on supposed a priori givens rather than on anything like empirical investigation. In particular, it is said, Aristotle seeks to impose upon his physics of moving bodies categories that derive from purely formal considerations regarding the nature of what he took to be basic concepts without any regard for predictive testability or empirical adequacy. There is something to these criticisms. Aristotelian science is basically descriptive, and does not have the means or the structure to yield precise empirically-testable consequences, largely because it does not seek to describe the world in terms of a mathematically-precise language of physical quantities. There are indeed cases where Aristotle seems to have been led astray by simply expecting things to be a certain way on the basis of a priori considerations. But things are by no means as simple as this. We shall be looking at a number of texts from Aristotle's physical and cosmological treatises, those concerned with the way in which the material constituents of the world behave. In particular, we will be considering the early chapters of his *On the Heavens*, where he seeks, notoriously, to postulate and defend the existence of a fifth element of the heavenly bodies, in addition to the traditional four of standard Greek physics. We will also look at relevant sections both of this text, and of the *Physics* and *Generation and Destruction* on the sublunary elements and their motions and interactions. These texts will be supplemented by excerpts from Aristotle's *Posterior Analytics*, on the proper structure of scientific knowledge, and of explanation. I will be arguing that, in the crucial passages, Aristotle is not imposing an abstract geometrical account of types of possible perfect movement on the observable phenomena of the world, but rather is treating them as very general constraints within which, and subject precisely to considerations of

empirical adequacy, a fully-explanatory account of matter and motion can be developed.

### **COURSE 3**

*Astrology: From Science to Pseudo-science*

#### **INSTRUCTOR**

Dr. Ivana Skuhala Karasman (Institute of Philosophy, Zagreb)

#### **ABSTRACT**

A full understanding of the position of astrology in philosophy (especially philosophy of nature) from the 12th to the 16th century requires taking into consideration many cultural, political, and scientific activities of the time. Even more important for the understanding of the rise and decline of astrology as a respected science is the crisis of the Medieval worldview and the newly formed concept of a human being. Today we are so deeply steeped in considering as true natural sciences only those branches of knowledge that can be quantified that it may present a “leap of understanding” to accept that a pseudo-science (to use a modern Popperian term) such as astrology might have been taken as a rigorous scientific endeavour among serious and devoted scholars and “scientists” of earlier times.

### **COURSE 4**

*Does Relativism Threaten the Sciences?*

#### **INSTRUCTOR**

Professor Jure Zovko (Institute of Philosophy, Zagreb / University of Zadar)

#### **ABSTRACT**

In its early development, philosophy of science did not allow the possibility of a relativistic approach with regard to explanation of external phenomena. Relativism was seen as justified exclusively with regard to internal phenomena, for example in the realm of moral and aesthetic judgment. In the realm of moral judgment, external realism functions as a necessary hypothesis, according to which our moral judgment and moral decisions have a real effect in the external world, for which we can be held responsible. A paradigm shift in the theory of science, inaugurated by Th. S. Kuhn, led to the rise of relativism with regard to judgment in the realm of external phenomena and specifically with regard to the validity of scientific theories. It is an irony of history that philosophy of science which has argued for precision of reasoning, plausibility and strict methodology, today is characterized by epistemic relativism.

Although it is plausible that relativism is logically inconsistent, in current philosophical discourse it has not been refuted. Relativism remains the “universal language” of academic communication, but it is equally strongly represented in the field of the philosophy of science. The slogan “right to different opinions” seems to have established itself where one least expected – in the philosophy of science. However, if Kuhn’s incommensurability thesis holds, it should not be possible to translate past and disproved theories into our philosophical discourse or into the present language or theories, with the consequence that the ability to argue

scientifically is lost. The most important scientific terms, however, should retain their meaning and reference beyond incommensurability of the paradigms. Putnam basically repeats the old Platonic argument against relativism from the *Theaetetus*. In order to overcome the main assumptions of scientific relativism, representatives of scientific realism (Boghossian, Sokal, Newton-Smith, Psillos, Armstrong etc.) try to prove that our knowledge is not shaped by social conditions and circumstances. In most cases, they plead for the method of Inference to the Best Explanation, because this method is identical to rational argumentation and philosophical reasoning.

## **COURSE 5**

*What is an Expert? Scientific and Public Controversies*

### **INSTRUCTOR**

Dr. Marija Brajdić Vuković (Institute of Social Research, Zagreb)

### **ABSTRACT**

Having expertise is inextricably linked to the possession of knowledge in some domain, whereas to be *lay* person is to lack such knowledge. Expertise is social and performative, being an expert involves familiarity with the formal aspects of knowledge along with capacity to act and respond to circumstances. Controversies such as *Climategate* revealed to public how science works on day to day basis – for many decades only people who knew that were experienced scientists. In the middle of any scientific dispute is a core set of specialists – these are the people who actually do the experiments, build the theories, and meet together to argue at conferences; the core set is being reported and discussed in the outer rings by hundreds of their fellow scientists, by funders and policy makers, by journalists and, to some extent, by the public at large. The key insight is that what happens in the core is hugely complicated – in some fields every waking moment of the scientists is locked in dispute with calculations, arguments, measurements, and judgments of others' capabilities and so on. The outcome with respect of those outside of science is that *distance lends enchantment*. What is nuanced and unclear to those inside the core set, becomes, paradoxically, sharp and clear to those outside it. So, people outside the core are much more certain than the people inside who are making it happen. It is further complicated by the fact that being outside of science doesn't mean that you are not having some kind of specialist knowledge. For example, patients that suffer some chronic illnesses may become better expert in that illness than their doctors.

Also, one of the most important highlights of research on expertise is that expertise is often partial, that experts frequently emphasize some aspects of a problem, but overlook others, and that, even if we could find right experts, they may not have the answers. To add to complexity of the course's topic, technological risks and uncertainties are inextricably mixed with concerns about ultimate value or utility. The debate is not just about or even about the limitations of expertise but about entire research agendas. For example, those opposed to further developments in genetic testing and screening may question their political and moral consequences by stressing the way in which they reinforce existing inequalities, create new forms of discrimination etc. All this draws attention to the ways in which science, like all knowledge, is intimately bound up with particular sets of institutions and relations of power, domination and control. Those choices are never purely technical but always, and at the same time, about the kind of society that is implicated in the preservation and use of science and technology.

## **COURSE 6**

*Science in the Courtroom. Some Conceptual and Methodological Issues in Transferring Neuropsychological Science in the Insanity Defence*

### **INSTRUCTOR**

Professor Luca Malatesti (University of Rijeka)

### **ABSTRACT**

Science is having an increasing impact in the administration of law. The translation of neuropsychological evidence in the insanity defence in the legal practice is a significant example. This translation raises important conceptual and methodological issues concerning the significance that the sciences of the mind-brain and behaviour should have for our self-image and legal decisions. The insanity defence partially or completely exculpates offenders who have certain cognitive or control incapacities that are due to a mental disorder. Legal scholars and philosophers debate in which measure general advancements in the study of the brain-mind and behaviour can inform our exculpatory practices. Some of these discussions concern issues of free will and responsibility. In this case, divergent general views on the relevance of science for the understanding of human action and motivation might be also at stake. The extreme positions are characterised by a neuroscientific hype that borders with pseudoscience. On the other hand, in the literature are voiced sceptical attitudes concerning the significance of neuroscience or even scientific psychology and its capacity to better inform the administration of justice than ordinary understanding of human motivation and behaviour.

However, certain discussions, that are more limited in scope, consider whether specific advancements concerning the neuropsychological underpinning of criminal behaviour would exculpate specific classes of offenders. These discussions consider recent neuropsychological scientific research in some detail and do not touch explicitly upon general issues concerning the nature and general significance of science of the mind and behaviour for our self-image. However, in these discussions, there are underlying assumptions guiding the interpretations of empirical research and in extrapolating its significance for legal practice.

The overall aim of the course is to reflect on how to overcome too general and sterile contrapositions of science/anti-science/pseudo-science in the translation of science in the courtroom. In the course, we will focus on certain guiding assumptions and expectations concerning the scientific study of mind-brain and behaviour that have determined that several scholars and philosophers, who have considered the issue of the criminal responsibility of offenders with antisocial personality, have overlooked several central methodological and conceptual issues. These issues centre around what can be termed the “legal instance” of the practical mind-body problem. This is the problem of establishing, in practically workable ways for the law, the bridging of the psychological incapacities that the law poses as precondition for the insanity defence, and advancements in neuropsychology of antisocial behaviour. We will consider general problems concerning the interaction between the notion of agency involved and the law and the scientific explanatory and descriptive apparatus of the neuropsychology of antisocial behaviour. In addition, we will consider the requirements that neuropsychological evidence should satisfy in order to be relevant for the insanity defence.

## **CLOSING LECTURE**

*Science: Good, Bad and Bogus (New Challenges!)*

### **LECTURER**

Professor Darko Polšek (Department of Anthropology, Faculty of Human and Social Sciences, Zagreb)

### **ABSTRACT**

I am stealing today lecture's title from the landmark book on pseudo-science by Martin Gardner (1981) to pinpoint acute contemporary problems with (pseudo)science that were neither in the focus of great explorers of pseudo-science (Sagan, Rothman, Broad, Wade, Gross, Levitt, Milton), positivist/post-positivist philosophers engaged in the "demarcation" disputes of an earlier age (Popper, Neurath, Feyerabend, Lakatos, et al.), more recent explorers of bad science (Goldacre), nor a topic for other Skeptic society founders (Shermer et al.). I am addressing pressing, life-or-death issues (where science plays a crucial role) arising in from the Coronavirus pandemic: Whom to trust? How to make fast and frugal, science-based decisions? How to evaluate scientific foresight/recommendations from different/competing disciplines (i.e. medicine vs. economics)?, Should we open the economy (and when) or prevent the spread of virus? Lacking standard preconditions/criteria for justifying scientific claims – most notably: proper time for evaluation of competing claims and getting an informed decision – the demarcation philosophy of an earlier age becomes a completely different ball game. My primary thesis is therefore the following: time constraints (to develop vaccine, to seek causes of virus spread etc.) and information glut put a new kind of pressure on science and science evaluators.

This public involvement and interest in assessments of new science points to another murky philosophical topic: which context/justification and how much of it should we embrace while evaluating scientific claims, recommendations and decisions? To answer this question I then review some standard dilemmas that arise from the "rational vs. social" miasma, in order to get some (any) philosophical assistance in the current situation. I review several "orthodox" normative views in science evaluation from philosophy and sociology of science (Popper, Merton, J. R. Brown), find them lacking and insufficient for the same, above mentioned reasons, and conclude/foresee that we shall continue to be plagued by the philosophical problems of the past, while and at the same time we shall have to solve and overcome the burden of the new ones.