

**DOCTORAL SCHOOL OF WROCLAW UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

SUPERVISOR DECLARING/CONDUCTING COURSE: Mateusz Kotowski, Ph.D.
DEPARTMENT: Department of Humanities and Social Sciences
SCIENTIFIC DISCIPLINE: not applicable

COURSE CARD

Course name in Polish: Wybrane zagadnienia filozofii i metodologii nauk empirycznych
Course name in English: Selected topics in philosophy and methodology of empirical sciences

Course language: Polish / English

University-wide general course type*:

The course is intended for all PhD students: YES / NO

- 1) BASIC COURSE
- 2) SPECIALIST COURSE
- 3) SEMINAR
- 4) HUMANISTIC COURSE
- 5) LANGUAGE

Subject code: DHQ100038W

* delete as applicable

	Lecture	Foreign language course	Seminar	Mixed forms
Number of hours of organized classes in university (ZZU)	30			
Grading	Exam	Exam	Oral presentation	Exam, inspection, evaluation classes
ECTS	0			

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

Basic knowledge in humanities and social sciences.

COURSE OBJECTIVES

- C1 Introduce students to basic concepts and issues of philosophy and methodology of empirical sciences
- C2 Introduce students to selected results of contemporary metascientific studies
- C3 Make students aware of the social role of scientists and their responsibilities
- C4 Introduce students to contemporary approaches in science management and to make them aware of the related meta-scientific and social problems

PROGRAM CONTENTS

**DOCTORAL SCHOOL OF WROCLAW UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

Form of classes		Number of hours
L1	Introduction: Subject and scope of philosophy and methodology of empirical sciences	2
L2	Conventional image of science and its inadequacy	2
L3	Basic assumptions of confirmationist methodologies	2
L4	Do crucial experiments exist? Methodological implications of the Duhem Thesis	2
L5	Extra-empirical criteria of theory assessment	2
L6	Epistemological lessons from the historical and sociological studies of science	2
L7	The question of the epistemic status of scientific theories	2
L8	The demarcation problem of distinguishing between science and non-science and non-science in the context of the contemporary ideal of science	2
L9	Methodological foundations of scientific ethics	2
L10	Case studies of selected cases of scientific misconduct and their social consequences	2
L11	Methodological analysis of formal instruments for evaluating research and researches	2
L12	Replication crisis in science – causes and consequences	2
L13	Science in the face of pseudoscience	2
L14	Scientific communication	2
L15	Recapitulation	2
Total hours		30

TEACHING TOOLS USED
N1. Informative lecture N2. Interactive lecture N3. Multimedia presentation N4. Discussion

ACHIEVED SUBJECT LEARNING OUTCOMES		
Type of learning outcome	Code of learning outcome	Assessment of learning outcome
Knowledge	P8S_WK	Oral exam
Social competences	P8S_KO	Discussion

**DOCTORAL SCHOOL OF WROCLAW UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

- [1] Lipton P., *Inference to the Best Explanation*, Routledge (1991)
- [2] Morawski R.Z., *Technoscientific Research. Methodological and Ethical Aspects*, de Gruyter (2019)
- [3] Papineau D. (ed.), *The Philosophy of Science*, Oxford University Press (1996)
- [4] Pigliucci M., Boundry M. (eds.), *Philosophy of Pseudoscience: Reconsidering the Demarcation Problem*, The University of Chicago Press (2013)
- [5] Psillos S., *Philosophy of Science A–Z*, Edinburgh University Press (2007)
- [6] Stanford Encyclopedia of Philosophy, <https://plato.stanford.edu/>

SECONDARY LITERATURE:

- [1] Carnap R., *Philosophy and Logical Syntax*, Ams Pr Inc (1979)
- [2] Cartwright N., *How the Laws of Physics Lie*, Oxford University Press (1983)
- [3] Duhem P., *The Aim and Structure of Physical Theory*, P.P. Wiener (trans), Princeton University Press (1954)
- [4] Feyerabend P.K., *Against Method*, Verso Books (1975)
- [5] Hossenfelder S., *Lost in Math: How Beauty Leads Physics Astray*, Hachette (2018)
- [6] Kragh H., *Higher Speculations: Grand Theories and Failed Revolutions in Physics and Cosmology*, Oxford University Press (2015);
- [7] Krimsky S., *Science in the Private Interest: Has the Lure of Profits Corrupted Biomedical Research?*, Rowman & Littlefield Publishers (2003)
- [8] Kuhn T.S., *The Structure of Scientific Revolutions*, University of Chicago Press (1962)
- [9] Lakatos I., *The Methodology of Scientific Research Programmes*, Cambridge University Press (1978)
- [10] Park R., *Superstition: Belief in the Age of Science*, Princeton University Press (2008)
- [11] Park R., *Voodoo Science: The Road from Foolishness to Fraud*, Oxford University Press (2000)
- [12] Pigliucci M., *Nonsense on Stilts: How to Tell Science from Bunk*, The University of Chicago Press (2010)
- [13] Poincaré H., *The Value of Science: Essential Writings of Henri Poincaré*, Modern Library (2001)
- [14] Popper K.R., *Conjectures and Refutations*, Routledge (1963)
- [15] Popper K.R., *The Logic of Scientific Discovery*, Routledge (2002)

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

Mateusz Kotowski
mateusz.kotowski@pwr.edu.pl