GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Myths and magic in science, or where conspiracy and pseudoscientific theories come from, PG_00066598		
Field of study	Mathematics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	second-cycle studies	Subject group	Humanistic-social subject group
Mode of study	Full-time studies	Mode of delivery	e-learning
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department Of Philosophy And Science Methodology -> Faculty Of Management And Economics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Przemysław Parszutowicz	
	Teachers	dr hab. Przemysław Parszutowicz	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	0.0	0.0	30

E-learning hours included: 30.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	2.0	18.0	50

Subject objectives

The aim of the course is to present the main mechanisms of mythical and magical thinking, which is one of the main forces driving conspiracy and pseudo-scientific theories. Participants will be introduced to basic critical thinking techniques to identify logical fallacies leading to pseudoscientific narratives. They will also become familiar with examples and some of the reasons for the presence of mythical and magical thinking in contemporary science.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W71] has general knowledge in humanistic, social, economic or legal sciences, including their fundamentals and applications	Student is able to recognise basic methodological errors in scientific research. He/she is able to identify and name the processes leading to conspiracy and pseudo-scientific theories.	[SW1] Assessment of factual knowledge
[K7_U71] is able to apply knowledge from humanistic, social, economic or legal sciences in order to solve problems	Students will be able to argue for the validity of scientific concepts effectively, pointing out key features constituting their universal validity and certainty. He/she is able to recognise elements of magical and mythical thinking in so-called alternative and pseudo-scientific explanations.	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject
[K7_K71] is able to explain the need to apply knowledge from humanistic, social, economic or legal sciences in order to function in a social environment	Student is familiar with the basic mechanisms of the development of scientific concepts and theories, as well as with the basic categories of mythical thinking. He/she knows the principles of critical thinking and of identifying cognitive errors. Is able to apply these principles in his/her own research work and recognise them in existing research results.	[SK5] Assessment of ability to solve problems that arise in practice

Subject contents

Magic, myth, religion, metaphysics, science; anecdotal evidence; sympathetic and contagious magic; cargo cult as an example of mythical thinking; Weber and the disenchantment of the world; truth and relativity in science; from substance to function; basic principles of critical philosophy; basic categories of mythical thinking; metabasis eis allo genos and pars pro toto; science and pseudoscience - ways of demarcation; Popper's falsificationism; Feyerabend's methodological anarchism; an overview of popular conspiracy theories; mythical thinking in the exact sciences; the myth of scientism; political myth techniques.

Prerequisites and co-requisites		
Assessment methods and criteria		

Subject passing criteria	Passing threshold	Percentage of the final grade
final test	50.0%	100.0%

Recommended reading	Basic literature	• E. Cassirer, *Mit państwa*, przeł. A. Staniewska, Warszawa 2006. • A. Chalmers, *Czym jest to, co zwiemy nauką?: Rozważania o naturze, statusie i metodach nauki: Wprowadzenie do współczesnej filozofii nauki*, przeł. A. Chmielewski, Wrocław 1997. • M. Gardner, *Pseudonauka i pseudouczeni*, przeł. B. Krzyżanowski i W. Zon, Warszawa 1966. • *Pogranicza nauki. Protonauka Paranauka Pseudonauka*, red. J. Zon, Lublin 2009. • A. K. Wróblewski, *Prawda i mity w fizyce*, Warszawa 1987. • I. Lakatos, *Nauka a pseudonauka*, 1974, przeł. W. Sady (www.sady.up.krakow.pl/filnauk.lakatos.naukapseudonauka.htm). • S. Rithie,*Science fiction. Oszutwa, uprzedzenia, zaniedbania i szum informacyjny w nauce*, przeł F. Tryl, Warszawa 2024.
	Supplementary literature	• J. Bricmont, A. Sokal, *Modne bzdury. O nadużyciach nauki popełnianych przez postmodernistycznych intelektualistów*, przeł. P. Amsterdamski, Warszawa 2004. • M. Grabowski, *Istotne i nieistotne w nauce : szkice z aksjologii nauki*, Toruń 1998. • P. Parszutowicz, *Ernst Cassirer i deontologizacja nauki*, [w:] Archai, t. 1 Filozofia a nauka, red. M. Czarnocka, Warszawa 2011. • P. Parszutowicz, *Fenomenologia form symbolicznych*, Warszawa 2013. • M. Rotkiewicz, *Kto i dlaczego wierzy w pseudonaukowe bzdury*, w: www.polityka.pl/niezbednik/1773196,1,kto-i-dlaczego-wierzy-w-pseudonaukowe-bzdury.read • A. Stanisławska, P. Stanisławski, *Fakt, nie mit*, Wydawnictwo W.A.B 2019. • www.crazynauka.pl • www. mitologiawspolczesna.pl
	eResources addresses	Adresy na platformie eNauczanie: Mity i magia 2025 - Moodle ID: 43988 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=43988
Example issues/ example questions/ tasks being completed	What are the main mechanisms of mythical thinking?What is the fallacy of metabasis eis allo genos?What is falsificationism?What is the difference between the understanding of causality in mythical and scientific thinking?What is anecdotal evidence?What is methodological anarchism?What is cargo cult and voodoo?	
Work placement	Not applicable	

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