

**AGH**AGH UNIVERSITY OF SCIENCE
AND TECHNOLOGY

Module name: Critical thinking - fundamental dilemmas of modern civilization

Academic year: 2019/2020 Code: ZSDA-3-2002-s ECTS credits: 1

Faculty of: Szkoła Doktorska AGH

Field of study: Szkoła Doktorska AGH Specialty: —

Study level: Third-cycle studies Form and type of study: Full-time studies

Lecture language: English Profile of education: Academic (A) Semester: 2

Course homepage: —

Responsible teacher: Indurkhya Bipin (bipin@agh.edu.pl)

Module summary

Using several case studies from popular media and science, we will explore strengths and pitfalls of human reasoning. We will also discuss techniques for validating facts and avoiding knowledge illusion.

Description of learning outcomes for module

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Connections with FLO	Method of learning outcomes verification (form of completion)
Social competence: is able to			
M_K001	Learn to make meaningful, rational and persuasive arguments to convince others of factual knowledge and dispel knowledge illusions.	SDA3A_K01	Activity during classes
Skills: he can			
M_U001	Techniques for validating facts and avoiding knowledge illusion.	SDA3A_U01	Activity during classes
M_U002	How to collectively analyse evidence through discussion to separate factual knowledge from knowledge illusion.	SDA3A_U04	Activity during classes
Knowledge: he knows and understands			
M_W001	What constitutes knowledge and the factors underlying knowledge illusion.	SDA3A_W03, SDA3A_W01	Case study

Number of hours for each form of classes

Suma	Form of classes										
	Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Prace kontrolne i przejściowe	Lektorat
15	0	0	0	0	15	0	0	0	0	0	0

FLO matrix in relation to forms of classes

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Form of classes										
		Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Prace kontrolne i przejściowe	Lektorat
Social competence: is able to												
M_K001	Learn to make meaningful, rational and persuasive arguments to convince others of factual knowledge and dispel knowledge illusions.	-	-	-	-	+	-	-	-	-	-	-
Skills: he can												
M_U001	Techniques for validating facts and avoiding knowledge illusion.	-	-	-	-	+	-	-	-	-	-	-
M_U002	How to collectively analyse evidence through discussion to separate factual knowledge from knowledge illusion.	-	-	-	-	-	-	-	-	-	-	-
Knowledge: he knows and understands												
M_W001	What constitutes knowledge and the factors underlying knowledge illusion.	-	-	-	-	+	-	-	-	-	-	-

Student workload (ECTS credits balance)

Student activity form	Student workload
Udział w zajęciach dydaktycznych/praktyka	15 h
Preparation for classes	5 h
przygotowanie projektu, prezentacji, pracy pisemnej, sprawozdania	5 h
Summary student workload	25 h
Module ECTS credits	1 ECTS

Additional information

Module content

Conversation seminar

Problem of separating factual knowledge from knowledge illusion

- The problem of knowledge
- Examples of knowledge illusion
- Case studies of knowledge illusion from popular media
- Case studies of knowledge illusion from the history of science
- Examples of knowledge illusion facing modern civilisation.

Teaching methods and techniques:

Conversation seminar: This is a discussion-based course. We will discuss several case studies from popular media and history of science to learn how to separate factual knowledge from knowledge illusion

Warunki i sposób zaliczenia poszczególnych form zajęć, w tym zasady zaliczeń poprawkowych, a także warunki dopuszczenia do egzaminu:

This is a participation-based class, so the grades will be decided based on active participation in the class, class presentations and a research report (final project).

Zasady udziału w poszczególnych zajęciach, ze wskazaniem, czy obecność studenta na zajęciach jest obowiązkowa:

Conversation seminar:

- Attendance is mandatory: Yes
- Participation rules in classes: Students will take turns making presentations of case studies in the class, and actively participate in all discussions.

Method of calculating the final grade

Class participation: 20%

Class presentation: 30%

Final project: 50%

Sposób i tryb wyrównywania zaległości powstałych wskutek nieobecności studenta na zajęciach:

Make an extra presentation and/or write an extra report.

Prerequisites and additional requirements

Prerequisites and additional requirements not specified

Recommended literature and teaching resources

Thomas Gilovich (2009) How We Know What Isn't So: Fallibility of Human Reason in Everyday Life, Free Press.

Simon LeVay (2011) When Science Goes Wrong: Twelve Tales from the Dark Side of Discovery, Monday Books.

Yuval Noah Harari (2015) Sapiens: A Brief History of Humankind, Harper

Steven Sloman and Philip Fernbach (2017) The Knowledge Illusion: Why We Never Think Alone, Riverhead books.

Andrew Shtulman (2017) Scienceblind: Why Our Intuitive Theories About the World Are So Often Wrong,

Basic Books.

Scientific publications of module course instructors related to the topic of the module

- B. Indurkha (2019). Is morality the last frontier for machines? *New Ideas in Psychology* 54, 107-111.
- F. Ervas, A. Ledda, A. Ojha, G. A. Pierro, and B. Indurkha (2018). Creative Argumentation: When and Why People Commit the Metaphorical Fallacy. *Frontiers in Psychology* 9: 1815.
- B. Indurkha (2017) Thought experiments, models, and the heuristic power of metaphors in science. *Isonomia Epistemologica* 9, 61-86.
- B. Indurkha (2016) A cognitive perspective on norms, in J. Stelmach, B. Brożek and Ł. Kwiatek (eds.) *The Normative Mind*, Kraków (Poland): Copernicus Center Press, 35-63.
- B. Indurkha (2007) Rationality and reasoning with metaphors, *New Ideas in Psychology* 25 (1), 16-36.
- B. Indurkha (2006) Emergent representations, interaction theory, and the cognitive force of metaphor, *New Ideas in Psychology* 24 (2), 133-162.
- B. Indurkha (1990) Some Remarks on the Rationality of Induction, *Synthese* 85(1), 95-114.

Additional information

None