Critical thinking – wake up your inner critic

1. IMPRINT

Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical sciences
Study Profile	General academic
Level of studies	Uniform MSc
Form of studies	Full time studies
Type of module / course	Non-compulsory (optional)
Form of verification of learning outcomes	Completion
Educational Unit / Educational Units	Department of Medical Informatics and Telemedicine 00-581 Warsaw, 14/16 Litewska St., room 317, III floor phone (+48) 22 116 92 44, (+48) 22 116 92 43 http://zimit.wum.edu.pl/ e-mail: zimt@wum.edu.pl
Head of Educational Unit / Heads of Educational Units	**Dr hab. n. med. Andrzej Cacko**
Course coordinator	**Lek. Jakub Rokicki** e-mail: jakub.rokicki@wum.edu.pl
Person responsible for syllabus	**Lek. Jakub Rokicki** e-mail: jakub.rokicki@wum.edu.pl
Teachers	**Lek. Jakub Rokicki** e-mail: jakub.rokicki@wum.edu.pl

2. BASIC INFORMATION

Year and semester of studies	I-II year, summer, and winter semester	**Number of ECTS credits**	2.00

FORMS OF CLASSES	**Number of hours**	**ECTS credits calculation**
Contacting hours with academic teacher		
Lecture (L)		
Seminar (S)	30 (e-learning)	1.20
Classes (C)		
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)		
Unassisted student's work		
Preparation for classes and completions	20	0.80

3. COURSE OBJECTIVES

O1	Formulation of conclusions
O2	Identification of correct arguements
O3	Skills of critical thinking and fact interpretation

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING

Code and number of the effect of learning in accordance with standards of learning	**Effects in the field of:** *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)*
Knowledge – Graduate* knows and understands:	
B.W26	principles of research for the advancement of medicine.
B.W23	basic IT and biostatistical tools used in medicine;
B.W24	basic methods of statistical analysis used in population and diagnostic studies;
Skills– Graduate* is able to:	

B.U10	classify scientific research methodology, including distinguishing between experimental and observational studies with their sub-types, ranking them according to the reliability of the results provided and correctly assessing the strength of scientific evidence;
B.U8	use medical databases and correctly interpret the information they contain to solve problems in basic and clinical sciences;

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*

Number of effect of learning	**Effects in the fields of:**
Knowledge – Graduate knows and understands:	
K1	Structure of correct argument
K2	Formulation argumentation in specific subjects
Skills– Graduate is able to:	
S1	Formulate a logical expression
S2	Identify flawed arguments
S3	Approach problems in everyday life in methodical manners
Social Competencies – Graduate is ready for:	
SC1	Identify deficits in knowledge and educational needs
SC2	Conduct an academic discussion on high meritorical grounds

6. CLASSES

Form of class	**Class contents**	**Effects of Learning**
Seminar	History of critical thinking and reasoning. Socrates.Plato. Aristotle. St Augustine. Thomas Aquinas. Occam's razor. Rene Descartes. Socratic Questioning - practice. Illumination. Deduction. Induction.	B.W26, B.U10
	History of critical thinking and reasoning. Egnlish empiricism. John Locke, David Hume. Sensualism. Rationalism and Immanuel Kant. A priori and a posteriori propositions. Analytical and synthetical propositions.	B.W26, B.U10
	Objects of critical thinking. Claims and statements. Facts, falsification, opinions. Varieties of claim.	B.W26, B.U10
	Assessing claims. Grounds, reasons, and evidence. Statistical evidence. Outcomes presentation. Inference and explanation	B.W24, B.U9, B.W23

	Inference and explanation. Identifying argument. Analysing argument. Interpretation. Assumptions	B.W26, B.U10
	Evaluating argument. Describing flaws and weaknesses	B.U10
	Appeals. Conditions and conditionals. Hypothetical reasoning. Confusing necessary and sufficient conditions	B.U10
	Constructing argument. Analogies and their use. Planning a longer text. Sources	B.U8
	Verification of hypotheses Construction of a scientific source Assessment of a scientific source	B.W26, B.U10
	Essay writing workshop. Selection of references. Use of reference organization software.	B.U8
	Problem solving – introduction Problem identification Selecting and using information	B.U8, B.U10
	Processing data Working with models	B.W23, B.W24, B.U9
	Solving problems by searching. Writing an essay - practical exercises. Construction of a longer text. Providing a structurized argumentation. Employing online databases for search and support of the thesis.	B.U8, B.W26, B.U10
	Finding methods of solution	B.U10
	Trends in data. Transforming data. Summarised data. Necessary and sufficient conditions. Changing the scenario of a problem.	B.W23, B.W24, B.U9, B.U10

7. LITERATURE

Obligatory

1. Presentation and materials provided during the classes
2. R. Afaro-Defevre Critical Thinking, Clinical Reasoning, and Clinical Judgment

Supplementary

C. Pattersson Critical Thinking And Problem Solving: Advanced Strategies and Reasoning Skills to Increase Your Decision Making. A Systematic Approach to Master Logic

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
B.W26, B.W23, B.W24, B.U10,B.U8 K1, K2	Watching seminars with subsequent solving tasks and tests provided during the classes	*60% points*

S2	Discussion and argumentation competences during the classes	Starting the course
B.W26, B.W23, B.W24, B.U10,B.U8 K1, K2, S1, S3	Asessments of tasks and tests provided during the course	Providing responses on time
SC1, SC2	Individual marking of the participants	Attendance

9. ADDITIONAL INFORMATION

1. Classes are held as e-classes (use of distance learning techniques).
2. materials are published on the platform www.e-learning.wum.edu.pl. I kindly ask each student to check before class if they can log on to the WUM Platform. In case of problems, please contact the person responsible for the course: Jakub Rokicki (jakub.rokicki@wum.edu.pl).
3. After this date, the student will have access to the course: "Critical thinking - informed decisions 2025/2026". After accessing the course, the student is required to read the detailed information in the course. Watching all seminars is mandatory to proceed to tests.
4 The course should be started within 4 weeks of the opening of the course. Completion of the last assignments in the course should take place no later than the end date of the course, i.e. 25.01.2026.
5. closing date of the course: 25.01.2026.
6. continuous contact with the tutor via e-mail is possible during the course: Jakub Rokicki (jakub.rokicki@wum.edu.pl).
7. At the Department there is a Students' Club MedIT which associates students willing to improve their knowledge about medical informatics, artificial intelligence and using advanced omputer methods in Medicine. Shall you be interested in it please contact the tutor: Jakub Rokicki, Jakub.rokicki@wum.edu.pl

ATTENTION

The final 10 minutes of the last class of the block/semester/year should be allotted for students to fill out the Survey of Evaluation of Classes and Academic Teachers