John Paul II Catholic University of Lublin
Faculty of Philosophy

academic year 2012/2013

field of study   **philosophy (course in English)**

first-cycle studies
full-time studies

Subject catalogue Formal Logic				
Type:	lecture with classes			
Hours:*	winter semester	15+30	summer semester	15+30
*If a subject consists of e. g. lecture and classes, the proper hours to any classes should be given.				
ECTS:	winter semester	4	summer semester	5
Language of tuition:	English			
Method of assessment:*	winter semester	C+CM	summer semester	E+CM
*If a subject consists of lecture and classes, the proper method of assessment to any classes should be given.				
SUBJECT SPECIFIC OBJECTIVES				
1.	Knowledge of main concepts, problems, and achievements in logic, including meta-logic			
2.	Knowledge of propositional logic: classical and non-classcial systems			
3.	Ability to solve logical problems			
4.	Sensitivity to logical validity and logical fallacies.			
PREREQUISITE (KNOWLEDGE, SKILLS, COMPETENCE, OTHERS)				
1.	secondary school mathematical knowledge			

LEARNING OUTCOMES		**Correlation with programme learning outcomes**
Knowledge		
1.	Student knows main types of (linguistic) expressions, basic patterns of justifications, and main types of knowledge and understand their specificity.	K_W02, K_W03
2.	Student knows and understands main principles of development of theories and properties of theories and significance and proofs of main limitation theorems.	K_W02, K_W03
Skills		
1.	Student is able to analyse simple arguments, in particular are able to define their logical structure and to assess their validity.	K_U05

2.	Student is able to solve problems in classical propositional logic.	K_U04, K_U05
3.	Students are able to solve simple problems in some non-classical propositional logics.	K_U04, K_U05
4.	Student is able to evaluate the validity of formal proofs.	K_U04
5.	Student is able to identify and describe main logical fallacies.	K_U04, K_U05

Social Competence		
1.	Student exhibits willingness of collaborative problem solving and sound discussion.	K_K04

TEACHING CONTENT (SUBJECT DESCRIPTION)

Structure, types, and properties of arguments; validity of inference and fallacies in argumentation. Entailment and similar properties. Logical calculus, interpretation and model. Selected concepts from set theory, algebra, and arithmetic. Classical propositional logic. First-order logic, theory of identity, higher-order logics. Logic vs arithmetic; adequacy and decidability. Origin of non-classical logics; logic in philosophical debates; selected non-classcial logics. Structure and properties of theories; first-order theories; axiomatisation, proofs, definitions. Rich theories, diagonalisation, limitiation theorems; first and second Godel theorems; Tarski's theorem; Church thesis. Pluralism of types of knowledge; types of science.

TEACHING METHODS*

Lecture: traditional lecture with problem solving and discussion. Classes: analysis of texts, collaborative problem solving, and discussion.

*If a subject consists of lecture and classes, the proper teaching methods to any classes should be given.

METHODS OF LEARNING ACHIEVEMENTS ASSESSMENT*

Lecture	
1.	Exam which covers all knowledge and abilities developed during lecture and classes - with no extra lectures (90 % of assessment)
2.	Student's activity during discussion (10 % of assessment)

Classes	
1.	6 tests on previously discussed topics, which will be anounced at least one week in advance (50 % of assessment)
2.	knowledge of current topics (30 % of assessment)
3.	presence and activity during classes (20 % assessment)

GRADING SCALE*

LEARNING OUTCOMES	2 unsatisfactory (fail)	3 satisfactory	4 good	5 very good
Knowledge	**Student does not have the required knowledge of inference or definitions. Student does not have elementary knowledge on structure of theories, types of knowledge or limitation theorems.**	**Student has the required knowledge on structure, properties, types, and validity of inference. Student has the general knowledge on structure of theories, types of knowledge and the content of limitation theorems.**	**Student' knowledge covers the whole content of the lecture but may be deficient with respect to insignificant details.**	**Student's knowledge is sound and organised, and covers the whole content of the lecture. He or she is able to use this knowledge in problem solving.**
Competence	**Student is not able to analyse arguments, identify logical fallacies, and solve logical problems.**	**Student is able to identify the structure of simple arguments, discuss their validity, identify and describe logical fallacies. With the tutor's help he or she is able to solve simple problems from formal logic.**	**Student is able to solve by him- or herself typical problems in the range of all required competencies.**	**Student is able to solve by him- or herself typical and more complex problems in the range of all required competencies. He or she is able to formulate problems, to indicate possible solutions, and find examples.**
Social Competence	**Student does not engage him- or herself in the educational process.**	**Student engags him- or herself in the educational process.**	**Student engages him- or herself in the educational process.**	**Student' engagement in the educational process is exemplary.**

Sometimes the plus symbol or decimal is used to modify the numerical grades.

STUDENT WORKLOAD

Activity	Average time students typically need to complete proper learning activity*
office hours	90
homework including individual problem solving	150
self-study before exam	30
TOTAL HOURS:	270

* Workload indicates the time students typically need to complete all learning activities required to achieve the expected learning outcomes. In most cases, student workload ranges from 1,500 to 1,800 hours for an academic year, whereby **one credit corresponds to 25 to 30 hours of work**.	
TOTAL ECTS:	9

REQUIRED READING LIST	
1.	lecture notes available on tutor's homepage

RECOMENDED READING LIST	
1.	D. Bonevac, *Deduction. Introductory Symbolic Logic*, Blackwell Publishers Ltd., 2003.
2.	J. C. Beall, B. C. van Fraassen, *Possibilities and Paradox. An Introduction to Modal and Many-Valued Logic*, Oxford 2003.
3.	R. M. Smullyan, *Goedel's Incompleteness Theorems*, Oxford 2001.

Lublin 1.10.2012

place, date

dr hab. Paweł Garbacz

signature