

Subject card

Subject name and code	Marxism and Mathematics: Contradiction, Dialectics, and Formal Thought, PG_00208752						
Field of study	Philosophy						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
Education level	Master's studies		Subject group		Obligatory subject group in the field of study Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish English		
Semester of study	1		ECTS credits		2.0		
Learning profile	academic		Assessment form		exam		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Daniel Jockwich				
	Teachers		dr Daniel Jockwich				
Lesson types	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: 0.0						
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		0.0		20.0	50
Subject objectives	• Explain Aristotle's law of non-contradiction and its significance for classical philosophy and logic. • Distinguish between logical contradiction, dialectical contradiction, and paradox, using appropriate examples. • Compare Hegel's understanding of contradiction with its transformation in the materialist dialectics of Marx and Engels. • Analyse the role of contradiction in Marx's critique of capitalism, including tensions between labour and capital and between use-value and exchange-value. • Describe how paradoxes in naïve set theory contributed to debates about consistency and the foundations of mathematics. • Explain, in non-technical terms, the motivations behind paraconsistent logic and how it permits reasoning with inconsistencies without making every statement derivable. • Critically evaluate the possibilities and limitations of connecting Marxist dialectics with formal approaches to contradiction. • Present a coherent philosophical argument about contradiction in an oral presentation, supported by relevant course readings.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[FILOZMU2_K07] The graduate has deepened awareness of the importance of humanistic reflection for the formation of social bonds.	The graduate recognises how critical reflection on Marxist accounts of class conflict and social contradiction can deepen understanding of social bonds and solidarity, and appreciates the role of respectful philosophical dialogue in building mutual understanding.	[SK1] oral statement/conversation/discussion
	[FILOZMU2_W01] The graduate knows and understands in depth the role of philosophical reflection in shaping culture. .	The graduate knows and understands in depth the role of philosophical reflection on contradiction in shaping modern intellectual culture, particularly through Hegelian and Marxist interpretations of social change and debates about rationality and mathematical knowledge.	[SW1] oral statement/conversation/discussion
	[FILOZMU2_U03] Independently interprets philosophical texts, comments on and confronts theses from various texts.	The graduate independently interprets selected philosophical texts by Aristotle, Hegel, Marx, and Engels, comments on their arguments concerning contradiction, and critically compares their theses, identifying points of agreement, disagreement, and differences in underlying assumptions.	[SU1] oral statement/conversation/discussion
	[FILOZMU2_W10] The graduate knows and understands in depth the views of a selected leading philosophical author or the current state of research on a selected philosophical issue.	The graduate knows and understands in depth the philosophical problem of contradiction, particularly its role in Hegelian and Marxist dialectics, and the main contemporary debates concerning paradox, consistency, and paraconsistent logic in the philosophy of mathematics.	[SW1] oral statement/conversation/discussion
	[FILOZMU2_U01] The graduate searches for, analyses, evaluates, selects, and integrates information from written and electronic sources.	The graduate searches for, critically analyses, evaluates, selects, and integrates information from primary philosophical texts and scholarly print and electronic sources concerning contradiction, Hegelian and Marxist dialectics, and the philosophy of mathematics.	[SU1] oral statement/conversation/discussion
Subject contents	• Aristotle and classical logic: the law of non-contradiction and its significance for philosophical reasoning and metaphysics. • Hegelian dialectics: contradiction as a dynamic feature of thought and reality and its role in dialectical development. • Marx and Engels: the materialist transformation of Hegelian dialectics and the interpretation of contradiction in social structures and historical change. • Marx's critique of capitalism: contradictions between labour and capital, use-value and exchange-value, and economic stability and crisis. • Paradox and the foundations of mathematics: paradoxes in naïve set theory and their significance for debates about consistency and formal rigour. • Non-classical and paraconsistent logic: philosophical approaches to reasoning with inconsistency without allowing every statement to follow. • Contemporary philosophical debates: the possibilities and limitations of connecting Marxist dialectics with formal logic and the philosophy of mathematics.		
Prerequisites and co-requisites	No formal prerequisites or co-requisites are required. Basic familiarity with philosophical terminology and argumentation is recommended. No advanced mathematical background is necessary; relevant concepts from logic and mathematics will be introduced at a conceptual and historical level.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Oral Presentation	60.0%	100.0%

Recommended reading	Basic literature	1. Aristotle. <i>The Metaphysics</i>. Translated by Hugh Lawson-Tancred. Penguin Classics, 1999. Book IV (Gamma), focusing on the law of non-contradiction. 2. Hegel, G. W. F. <i>The Science of Logic</i>. Translated and edited by George di Giovanni. Cambridge University Press, 2010. Selected passages from the Doctrine of Essence concerning identity, difference, and contradiction. 3. Marx, Karl. <i>Capital: A Critique of Political Economy</i>, Volume I. Translated by Ben Fowkes. Penguin Classics, 2004. Selected chapters concerning commodities, value, labour, and capital. 4. Engels, Friedrich. <i>Anti-Dühring: Herr Eugen Dühring's Revolution in Science</i>. Translated by Emile Burns. English text available through the Marxists Internet Archive. Part I, Chapters XII–XIII, on dialectics. 5. Priest, Graham. <i>Logic: A Very Short Introduction</i>. Second edition. Oxford University Press, 2017. Selected chapters introducing logical reasoning, self-reference, and paradox. 6. Shapiro, Stewart. <i>Thinking about Mathematics: The Philosophy of Mathematics</i>. Oxford University Press, 2000. Selected chapters on the foundations of mathematics. 7. Priest, Graham, Koji Tanaka, and Zach Weber. "Paraconsistent Logic." <i>The Stanford Encyclopedia of Philosophy</i>, revised 2026. Introduction and selected passages from Sections 1–2 on paraconsistency and its philosophical motivations.
	Supplementary literature	1. Houlgate, Stephen. "Hegel's Logic." In <i>The Cambridge Companion to Hegel and Nineteenth-Century Philosophy</i>, edited by Frederick C. Beiser, 111–134. Cambridge University Press, 2008. Further discussion of the purpose and method of Hegelian logic. 2. Ollman, Bertell. <i>Dance of the Dialectic: Steps in Marx's Method</i>. University of Illinois Press, 2003. Selected chapters on dialectical method and Marx's analysis of capitalism. 3. Sainsbury, R. M. <i>Paradoxes</i>. Third edition. Cambridge University Press, 2009. Particularly Chapters 6–7, concerning classes, truth, and the acceptability of contradictions. 4. Priest, Graham. "Dialectic and Dialetheic." <i>Science & Society</i> 53, no. 4 (1989–1990): 388–415. Further reading on the relationship between dialectics and dialetheism. 5. Priest, Graham. <i>In Contradiction: A Study of the Transconsistent</i>. Second edition. Oxford University Press, 2006. Selected philosophical chapters on the defence of true contradictions, recommended for students seeking more advanced discussion.
	eResources addresses	

Example issues/ example questions/ tasks being completed	1. Explain Aristotle's law of non-contradiction and discuss its significance for philosophical reasoning. 2. What distinguishes logical contradiction from dialectical contradiction? Illustrate the distinction with examples. 3. Compare selected passages from Hegel and Marx. How does Marx transform Hegel's understanding of contradiction within a materialist account of historical change? 4. Analyse a selected contradiction in Marx's critique of capitalism, such as the relationship between labour and capital or between use-value and exchange-value. 5. Explain Russell's paradox in non-technical language. What questions does it raise about consistency and the foundations of mathematics? 6. Explain how paraconsistent logic permits reasoning with inconsistent information. Does this necessarily involve accepting that some contradictions are true? 7. Locate and critically evaluate two scholarly sources on the relationship between dialectics and formal logic. Use them to develop a short essay or presentation assessing whether these approaches can illuminate one another. 8. How can philosophical reflection on social contradictions contribute to understanding conflict, solidarity, and the formation of social bonds? Support your response with examples from the course readings.
Work placement	Not applicable

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