

Subject card

Subject name and code	Business applications of artificial intelligence, PG_00198280						
Field of study	International Business, Logistics and Mobility						
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 Subject group related to scientific research in the field of study	
Mode of study	full-time studies		Mode of delivery			at the university	
Year of study	1		Language of instruction			English	
Semester of study	2		ECTS credits			2.0	
Learning profile	academic		Assessment form			credit	
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Jacek Winiarski, prof. UG				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	15.0	0.0	45
	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	45		0.0		5.0	50
Subject objectives	The aim of the course is to develop knowledge and skills related to the use of artificial intelligence in business activities. Particular emphasis is placed on analysing AI applications in different functional areas of organisations, evaluating the benefits and risks of AI implementation, and using AI tools to support decision-making processes and digital transformation.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[LMMU2_W01] has an in-depth knowledge of the nature of social sciences and their place in the system of sciences; understands the differences between contemporary trends in theory of logistics and mobility	The student knows and understands the applications of artificial intelligence in economic and social sciences, as well as contemporary approaches to the use of AI in business and the economy.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report
	[LMMU2_W10] knows the terms and principles of protection of industrial property and copyright, and understands the necessity of management of intellectual property resources	The student knows and understands the fundamental principles of data protection, intellectual property, and copyright in the context of artificial intelligence systems, as well as the need to manage digital resources in compliance with applicable legal regulations, including the EU AI Act.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report
	[LMMU2_U02] can use acquired knowledge to describe and analyse the causes and course of logistics and mobility processes and systems, and can formulate his/her own opinions and critically select data and analysis methods based on the achievements of economic and social sciences	The student is able to interpret data and outputs generated by artificial intelligence systems and select and apply AI tools to analyse business processes and business problems.	[SU2] presentation/project/paper/report [SU4] test/exam - oral or written
	[IBMU2_W09] knows and understands strategies and management models of enterprises operating in the international environment.	The student understands and applies management strategies and models used in enterprises that utilize artificial intelligence tools, including their role in digital transformation, decision-making processes, and building a competitive advantage in an international environment.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report
	[IBMU2_U02] can interpret statistical data and economic indicators and select and use information technologies when working with data related to international business.	The student is able to analyse the opportunities, benefits, and limitations of artificial intelligence applications in business and formulate and justify recommendations regarding the implementation of AI solutions in selected business areas.	[SU2] presentation/project/paper/report [SU4] test/exam - oral or written

Subject contents	Lectures 30h		
	1. Introduction to AI in Business - Types of AI, language models, and the current tool ecosystem		
	2. AI in Data Analysis and Forecasting - Predictive analytics, machine learning, and Business Intelligence		
	3. AI in Marketing and Customer Service - Personalization, chatbots, CRM, and recommendation systems		
	4. AI in Operations and Supply Chain Management - Automation, logistics, and inventory optimization		
	5. AI in Finance and Risk Management - Credit scoring, fraud detection, and robo-advisors		
	6. AI Ethics, Regulation, and Implementation Strategy - EU AI Act, algorithmic accountability, and digital transformation		
	Project 15h Artificial Intelligence Application Project		
	The project is carried out individually or in teams and focuses on analysing the potential use of artificial intelligence tools in a selected company, industry, or functional area of an organisation.		
	Project topics are presented by the instructor at the beginning of the semester.		
Prerequisites and co-requisites	Project stages		
	1. Selection of a company, industry, or business problem and definition of project objectives (2 hours)		
	2. Identification of business processes and activities that could benefit from AI implementation (3 hours)		
	3. Analysis of available AI tools and solutions supporting selected business processes (3 hours)		
	4. Assessment of potential benefits, costs, limitations, and risks associated with AI implementation (3 hours)		
	5. Development of recommendations regarding the use of AI in the analysed organisation or business area (2 hours)		
	6. Preparation of the project report and presentation of results (2 hours)		
	No prerequisites required.		
	Course Completion Requirements - A final course grade may be awarded only after all required components have been successfully completed (lectures, project).		
	Assessment methods and criteria	Subject passing criteria	
Passing threshold			
Percentage of the final grade			
Project			
Recommended reading	Exam		
	Basic literature		
	Przegalińska, A., & Jemielniak, D. (2023). <i>AI w strategii: Rewolucja sztucznej inteligencji w zarządzaniu</i> . MT Biznes.		
	Agrawal, A., Gans, J., & Goldfarb, A. (2022). <i>Prediction machines, updated and expanded: The simple economics of artificial intelligence</i> . Harvard Business Review Press.		

	Supplementary literature	Bonin, A. L., Smolinski, P. R., & Winiarski, J. (2025). <i>Exploring the impact of generative artificial intelligence on software development in the IT sector: Preliminary findings on productivity, efficiency and job security</i> (arXiv:2508.16811). arXiv. https://doi.org/10.48550/arXiv.2508.16811 Acemoglu, D., & Restrepo, P. (2019). Automation and new tasks: How technology displaces and reinstates labor. <i>Journal of Economic Perspectives</i>, 33(2), 330. https://doi.org/10.1257/jep.33.2.3 Brynjolfsson, E., Rock, D., & Syverson, C. (2021). The productivity J-curve: How intangibles complement general purpose technologies. <i>American Economic Journal: Macroeconomics</i>, 13(1), 333-372. https://doi.org/10.1257/mac.20180386 Athey, S., & Imbens, G. W. (2019). Machine learning methods that economists should know about. <i>Annual Review of Economics</i>, 11, 685-725. https://doi.org/10.1146/annurev-economics-080217-053433
	eResources addresses	
Example issues/ example questions/ tasks being completed	In what ways does artificial intelligence transform the sources of competitive advantage for firms, and what are the implications for traditional business models? Discuss the benefits and risks of applying AI in a chosen functional area of a firm (marketing, finance, operations, or customer service), illustrating your answer with examples from business practice. What ethical and regulatory challenges are associated with implementing AI systems in business, and how should organisations respond to them?	
Work placement	Not applicable	

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