

Biomatics and Applied Artificial Intelligence Institute			Elective course 2025-26-2			
Name of the subject:	Code of the subject:	Credits:	Weekly hours:			
				lec	sem	lab
Introduction to the use of artificial intelligence	NBVBMEHBNF	2	full-time	1	0	0
Responsible person for the subject: György Eigner, PhD, Professor			Classification: Professor			
Subject lecturer(s): Gábor Kertész, PhD, Dr. habil.						
Prerequisites:	-	-				
Way of the assessment:	mid-term grade					
Course description						
Goal:	The aim of the course is to provide students with fundamental and up-to-date knowledge of artificial intelligence, enabling them to understand its operation, recognize its opportunities and risks, and use AI tools responsibly in their studies, research, and later in their professional work.					
Course description:	The course provides an introduction to the world of artificial intelligence, from its historical foundations to modern applications, as well as ethical and practical considerations. Students explore the key concepts of AI - such as machine learning, deep learning, large language models, and generative AI - through e-learning materials, lectures, case studies, and practical examples, while also gaining insight into the social and educational implications of the technology.					

Lecture schedule	
Education week	Topic
1.	Introduction: What is Artificial Intelligence? Terminology and Key Concepts
2.	A Brief History of Artificial Intelligence
3.	Machine Learning, Related Concepts, Foundations
4.	Deep Learning – History, Foundations, and Limitations
5.	AI Applications Today – Solutions and Opportunities
6.	The Future – Artificial General Intelligence, Automation, and Anticipated Impacts
7.	Limitations and Constraints – Bias, Transparency, Explainability
8.	Data – Collection, Cleaning, Data Protection
9.	Generative Artificial Intelligence – Structure, Operation, Limitations
10.	Large Language Models
11.	Prompting and Prompt Engineering
12.	Ethical Use of AI in Learning and Research
13.	Effective Text Creation and Analysis with Copilot and Colab
14.	AI in Practice – Case Studies and Examples
Mid-term requirements	
Conditions for obtaining a mid-term grade/signature	At the end of the semester, students are required to complete an online comprehensive final test. Achieving at least 50% on the e-learning test is a requirement for fulfilling the course requirements. Students have two opportunities to complete the test during the study period.
Assessment schedule	
Education week	Topic
14.	Completion of the online tests.
Method used to calculate the <i>mid-term grade</i> (to be filled out only for subjects with mid-term grades)	

Based on the result of the online test.													
Type of the replacement													
Type of the replacement of written test/mid-term grade/signature	If a student does not achieve at least 50% on the online test, they may attempt to retake it once within the first ten working days of the examination period, at a pre-announced time, in the form of a Moodle test. Registration for the retake is possible through the Neptun system upon payment of a special administrative fee.												
Type of the exam (to be filled out only for subjects with exams)													
-													
Calculation of the exam mark (to be filled only for subjects with exams)													
-													
Final grade calculation methods:													
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Achieved result</th> <th style="text-align: center;">Grade</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0-50%</td> <td style="text-align: center;">Fail (1)</td> </tr> <tr> <td style="text-align: center;">51-62%</td> <td style="text-align: center;">Satisfactory (2)</td> </tr> <tr> <td style="text-align: center;">63-74%</td> <td style="text-align: center;">Average (3)</td> </tr> <tr> <td style="text-align: center;">75-85%</td> <td style="text-align: center;">Good (4)</td> </tr> <tr> <td style="text-align: center;">86-100%</td> <td style="text-align: center;">Excellent (5)</td> </tr> </tbody> </table>	Achieved result	Grade	0-50%	Fail (1)	51-62%	Satisfactory (2)	63-74%	Average (3)	75-85%	Good (4)	86-100%	Excellent (5)
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References													
Obligatory:	Course materials available on Moodle course.												
Recommended:	<ul style="list-style-type: none"> • Russell, Stuart – Norvig, Peter: Artificial Intelligence: A Modern Approach. Pearson, 2020. • Pat Nakamoto. Neural Networks and Deep Learning: Deep Learning explained to your granny. CreateSpace Independent Publishing Platform, 2017. • Max Tegmark. Life 3.0: Being human in the age of artificial intelligence. Knopf, 2017 												
Other references:	https://main.elearning.uni-obuda.hu/												