

<b>Biomatics and Applied Artificial Intelligence Institute</b>			Elective subject 2025-26-2			
Name of the subject:	Code of the subject:	Credits:	Weekly hours:			
				lec	sem	lab
<b>Introduction to Health Economics</b>	NBWBE1EBNF	4	full-time	2	2	0
Responsible person for the subject: Zsombor ZRUBKA PhD			habilitated associate professor			
Subject lecturer(s): Zsombor ZRUBKA PhD						
Prerequisites:		-				
Way of the assessment:		mid-term mark				
<b>Course description</b>						
Goal:	<p>Technological innovation offers more and more advanced new therapeutic options, while the pressure on health financing decision-makers is increasing, and sustainable financing of healthcare became one of the major challenges of the OECD member states.</p> <p>The course will provide basic insights about how health economic analysis contributes to the long-term sustainability of healthcare expenditure, via the interdisciplinary evaluation of the economic impact of new technological innovations in healthcare. Students will learn the basic definitions and concepts of health economics, discuss and analyse problems related to health policy, health care financing from the perspective of health economics.</p> <p>The course promotes critical thinking and teaches students how to solve emerging problems on the market of health care from an economic point of view, and how to evaluate health policies, public health programs as well as regulations using the economic toolkit.</p>					
Course description:	<p>The course covers the following topics: characteristics of the health care market; demand for health care; market failures on the health care market; health insurance; market failures on the health insurance market; equity in health care financing; methods to analyze and make cross-country comparisons of health care expenditure. Students will also understand the key economic challenges of global healthcare systems and health markets.</p>					

<b>Lecture schedule</b>	
Education week	Topic
1.	The definition and brief history of health economics
2.	Theories of health economics I (main economic concepts, Grossman model, market equilibrium and failures, derived demand, information asymmetries, government interventions)
3.	Theories of health economics II (uncertainty, risk attitudes, welfarism, extra-welfarism, public decision-making, equity, inequality, second-best theory, principal-agent theory)
4.	Healthcare markets (main characteristics and differences from classical markets, types of competition, examples of pharmaceuticals, medical devices, healthcare services, health insurance, health consumer products)
5.	Global trends in healthcare (fiscal sustainability, universal coverage, innovation and new technologies)
6.	Introduction to health economic modelling: Markov chains and decision trees
7.	The value of health (QALY, DALY, patient-reported outcomes)
8.	The social and economic impact of diseases
9.	Main methods of health economic evaluation (cost-effectiveness analysis, cost-utility analysis, cost-benefit analysis, cost-consequence analysis, budget impact analysis)
10.	Project Presentations 1., supplementary presentations

11.	Summary and case study: health economic evaluation of a chronic disease
12.	Decision-making in healthcare financing
13.	Project presentations 2.
14.	Written exam
<b>Mid-term requirements</b>	
Conditions for obtaining a mid-term grade/signature	<b>Participation at the lessons and labours is mandatory. Project presentation on week 13, supplementary presentation on selected articles.</b>
<b>Assessment schedule</b>	
<b>Education week</b>	<b>Topic</b>
<b>10.</b>	Project presentation 1, supplementary presentation
<b>13.</b>	Project presentation 2
<b>14.</b>	Written exam
<b>Method used to calculate the <i>mid-term grade</i> (to be filled out only for subjects with mid-term grades)</b>	
<b>Out of the 5 written exam mini essay questions, 3 will be worth of 10 points, and 2 will be worth of 5 points each. Altogether, 40 points can be obtained.</b>	
<b>Type of the replacement</b>	
Type of the replacement of written test/mid-term grade/signature	<ul style="list-style-type: none"> <li>• <b>In case a group cannot participate at the group-presentation of an article or the project presentation, then there will be opportunity to re-organise for the supplementary presentation dates.</b></li> <li>• <b>In case of individually missed presentations (the student does not turn up on the pre-scheduled article presentation / project presentation) – then he/she will be required to submit an 1200-word-long essay covering the article presentation / project presentation topic.</b></li> <li>• <b>Only those students are admitted to the exam, who successfully completed the group presentation and project presentation tasks</b></li> </ul>
<b>Type of the exam (to be filled out only for subjects with exams)</b>	
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<b>Calculation of the exam mark (to be filled only for subjects with exams)</b>	
-	
<b>Final grade calculation methods:</b>	
The grading is according to the following scores. 40-32: 5 (excellent) 28-31: 4 (good) 24-27: 3 (fair) 21-24: 2 (pass) 0-20: 1 (fail)	
<b>References</b>	
Obligatory:	<ul style="list-style-type: none"> <li>• Presentation slides, weblinks and auxiliary materials distributed during the lectures.</li> <li>• From the textbooks, compulsory pages linked to each exam item will be indicated for each exam item.</li> <li>• The following academic journal articles, which will be covered during the group presentations: Mushkin 1958, Dolan 1997, Brouwer 2008, Brodszky 2014, Baji 2018, Simoens 2011, Sanaei 2017, Munoz 2014, Wagstaff 1986, Inotai 2017, Solomon 2015, Menyhárt 2018, Balogh 2014, Németh 2019, Zrubka 2019, Zrubka 2018, Kolasa 2016</li> </ul>

Recommended:	<ul style="list-style-type: none"><li>• Gulácsi L (szerk.) Egészség-Gazdaságtan és Technológiaelemzés (Medicina) 2012</li><li>• Dewar: Essentials of Health Economics (Jones and Bartlett Publishers) 2010</li><li>• Morris, Devlin: Economic Analysis in Healthcare (Wiley) 2009</li></ul>
Other references:	-