

Obuda University John von Neumann Faculty of Informatics		Institute of Biomaterials and Applied Artificial Intelligence		
Name and code: <i>Introduction to Health Economic Computer Science Engineer BSc/MSc</i>		Credits: 4 2021/22 year I. semester		
Subject lecturers: Miklós Kozlovszky Ph.D., Prof.				
Prerequisites (with code):		BSc I/II.		
Weekly hours:	Lecture: 1	Seminar:	Lab. hours: 2	Consultation:
Way of assessment:	midterm mark			
Course description:				
<p><i>Goal:</i> 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. 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. 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> <p><i>Course description:</i> 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>				

Lecture schedule	
<i>Education week</i>	<i>Topic</i>
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 I., supplementary presentations												
11.	Summary and case study: health economic evaluation of a chronic disease												
12.	Decision-making in healthcare financing												
13.	Midterm test												
14.	Replacement of midterm test												
Midterm requirements													
Final online exam													
	<table border="1"> <thead> <tr> <th>%</th> <th>The grade</th> </tr> </thead> <tbody> <tr> <td>86-100</td> <td>excellent (5)</td> </tr> <tr> <td>74-85</td> <td>good (4)</td> </tr> <tr> <td>62-73</td> <td>average (3)</td> </tr> <tr> <td>50-61</td> <td>satisfactory (2)</td> </tr> <tr> <td>0-49</td> <td>failed (1)</td> </tr> </tbody> </table>	%	The grade	86-100	excellent (5)	74-85	good (4)	62-73	average (3)	50-61	satisfactory (2)	0-49	failed (1)
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Type of exam													
Midterm test													
Type of replacement													
<ul style="list-style-type: none"> • In case a group cannot participate at the group-presentation of an article or the project presentation, then there will be opportunity to re-organize for the supplementary presentation dates. • 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. • Only those students are admitted to the exam, who successfully completed the group presentation and project presentation tasks 													
References													
<p>Mandatory: Presentation slides, weblinks and auxiliary materials distributed during the lectures. From the textbooks, compulsory pages linked to each exam item will be indicated for each exam item. The following academic journal articles, which will be covered during the group presentations: Mushkin 1958, Dolan 1997, Brouwer 2008, Brodzky 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</p>													
<p>Recommended: Gulácsi L (szerk.) Egészség-Gazdaságtan és Technológiaelemzés (Medicina) 2012 Dewar: Essentials of Health Economics (Jones and Bartlett Publishers) 2010 Morris, Devlin: Economic Analysis in Healthcare (Wiley) 2009</p>													