



Course title: Innovative Organizational Development and Leadership	Credit value:
Course responsible and lecturer (name, academic title): Dr. habil. Berke Szilárd	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 50% - 50% theory - practice	
<p><b>Type of class:</b> <u>lecture</u> / seminar / <u>practice</u> / consultation and total number of classes in the given semester: 30 classes</p> <p><b>Methods and (specific) approaches, characteristics used to deliver the course content:</b> case study analyses, group work, training-type teamwork</p>	
Form of assessment (exam / practical grade / other): practical grade Additional (specific) methods of knowledge assessment: solving case studies	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): none	
<p><b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired</p> <p>- From time to time, organizations may need to implement targeted interventions in specific areas of their operational processes. If we plan these interventions using strategic, value-creation, and managerial perspectives, we can more effectively identify the factors driving organizational development and make effective and innovative leadership decisions. The aim of the course is to understand the essence, importance, and key areas of organizational development. It covers fundamental decision-making processes, specific planning methods, strategy formulation, vision formulation, and, more generally, organizational development issues related to the management and operation of a business. The course deals extensively with the fundamentals of organizational development and aims to provide students with a strategic and leadership-oriented OD perspective. The course also draws responsibly on relevant academic literature.</p>	
2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):	
<ul style="list-style-type: none"> <li>- Kimberly D. Elsbach, Anna Kayes, D. Christopher Kayes (2026): Contemporary Organizational Behavior: From Ideas to Action. 2nd Edition, Palgrave Macmillan, ISBN-13: 978-3032110541</li> <li>- Ricky Griffin, Jean Phillips (2026): Organizational Behavior:</li> </ul>	



Managing People and Organizations. 15th Edition, Cengage Learning, ISBN-10:8214054184

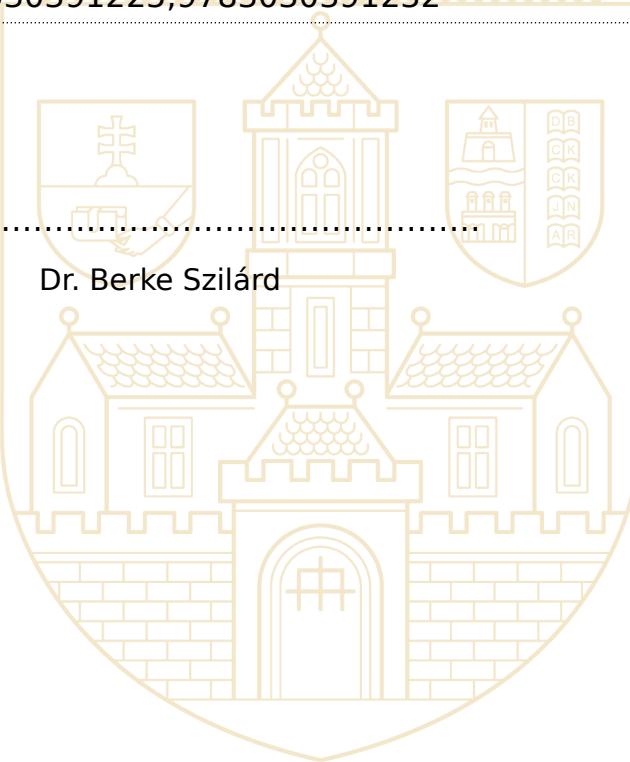
2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

- R. Todnem, B. Burnes, M. Hughes: Organizational Change, Leadership and Ethics: Leading Organizations Towards Sustainability, 2023, Routledge, ISBN: 0367477491,9780367477493
- C. Vernooij, J. Stuijt, M. Hendriks, W. ten Have: Organizational Behaviour and Change Management, 2022, Routledge, ISBN: 1032264233,9781032264233
- R. Singh, S. Ramdeo: Leading Organizational Development and Change: Principles and Contextual Perspectives, 2020, Springer, ISBN: 9783030391225,9783030391232

Date: 2026. 03. 14.

Prepared by: .....

Dr. Berke Szilárd





Course title: Financial Innovations	Credit value: 8
Course responsible and lecturer (name, academic title): Prof. Dr. Ágnes Csiszárík-Kocsir	
Course classification: Basic course (subjects) in the field of / <u>Research topic related basic course</u> / Optional subject	
Proportion of theoretical and practical content, "Training character": 50% - 50% theory_ - practice	
<b>Type of class:</b> <u>lecture</u> / <u>seminar</u> / <u>practice</u> / consultation and total number of classes in the given semester: 30 classes	
<b>Methods and (specific) approaches, characteristics used to deliver the course content:</b>	
Form of assessment ( <u>exam</u> / practical grade / other): Coursework grade Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): ( <i>typically there are none!</i> )	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
<p>Within the framework of the course, in addition to traditional financial instruments, students will become familiar with the solutions offered by Fintech, Paytech, and Regtech companies. The course examines in detail how these solutions operate, regulatory anomalies, and future trends and directions in relation to digitalization.</p> <p>Through both theoretical and practical examples, the course reviews the various forms of financial innovations and their impact on financial culture. It also examines new financial funding sources, their gap-filling role, and the risks associated with them.</p>	
2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):	
<p>Jason Zweig: Agyam és a pénz - Hogyan váljunk tudatosabb befektetővé a neuroökonómia következtetései révén? A4C Books, 2016</p> <p>Walter György: Kereskedelmi banki ismeretek, Saldo, 2016</p> <p>Vedat Agkiray: Helyes Pénzügy - Avagy miért szükséges a pénzügyi rendszer újragondolása, Pallas Athéné Kiadó, 2020</p>	



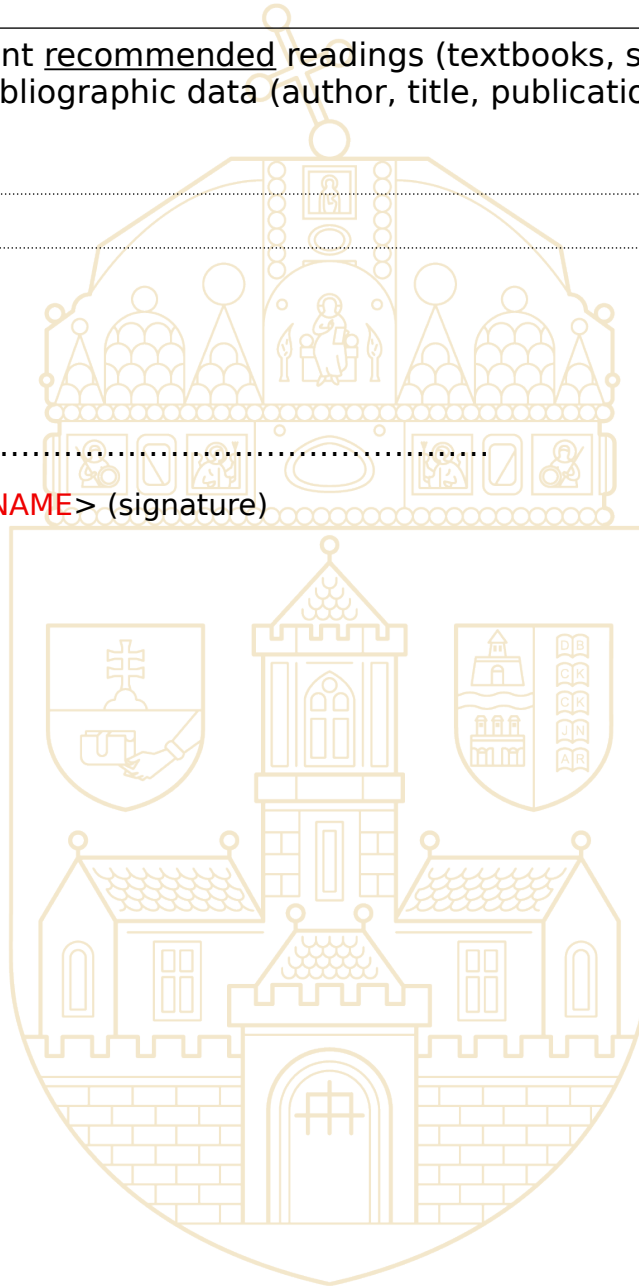
Mohan Devie: Financial Services Guide to Fintech, Kogan Page Ltd, 2020

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

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Course title: Project Management in an Agile Environment	Credit value: 8
Course responsible and lecturer (name, academic title): Prof. Dr. Ágnes Csiszárík-Kocsir	
Course classification: Basic course (subjects) in the field of / <u>Research topic related basic course</u> / Optional subject	
Proportion of theoretical and practical content, "Training character": 50% - 50% theory - practice	
<b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes <b>Methods and (specific) approaches, characteristics used to deliver the course content:</b>	
Form of assessment ( <u>exam</u> / practical grade / other): Coursework grade Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): <i>(typically there are none!)</i>	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
<p>In today's rapidly changing world, flexibility and the ability to respond quickly to events and developments are becoming increasingly important. Crises and the transformations that follow them require flexible management and acceptance. As a result, agile approaches and agile problem-solving are becoming increasingly popular.</p> <p>From the perspective of agility, it is essential not only to adopt the appropriate mindset but also for the entire organization to transition to agile operations; the agile functioning of a single division alone is not sufficient for success. The same applies to projects. In many cases, project failures are almost inevitable if risks are not properly assessed. In a rapidly changing world and environment, risks are constantly evolving, being replaced, and new ones continuously emerge. At any moment, risks can turn into threats, and one of the most effective ways to manage them is through an agile approach. However, agility is not the same as flexibility; the two concepts are not synonyms.</p> <p>The aim of the course is to introduce students to the essence of agility and its methodology (doing agile vs. being agile). Through the analysis and study of concrete cases, students gradually gain insight into the methodology of agility and how it operates in practice.</p>	



2-5 most important required readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

1. Andrew Stellman and Jennifer Greene (2015): Learning Agile, O'Reilly Media.
2. J. Ashley Hunt (2018): PMI-ACP - Project Management Institute Agile Certified Practitioner Exam, John Wiley & Sons, Inc.
3. Project Management Institute (2017): Agile Practice Guide
4. Robert K. Wysocki (2019): Effective Project Management - Traditional, Agile, Extreme, Hybrid, John Wiley & Sons, Inc.
5. Terra Vanzant Stern (2017). Lean and Agile Project Management - How to Make Any Project Better, Faster, and More Cost Effective, CRC Press - Taylor & Francis Group

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

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Course title: Financial The human side of innovation	Credit value: 5
Course responsible and lecturer (name, academic title): Péter Karácsony Prof. Dr.	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 100% - .....% <u>theory</u> - practice	
<b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes <b>Methods and (specific) approaches, characteristics used to deliver the course content:</b>	
Form of assessment ( <u>exam</u> / practical grade / other): Coursework grade Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): ( <i>typically there are none!</i> )	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
The aim of the course is to familiarize students with activities related to human resources necessary for organizational innovation. During the semester, we will cover topics related to the human resource management process, such as job design, selection of suitable candidates, human resource development, and management of existing organizational knowledge, all of which contribute to the efficient and innovative functioning of the organization. 1. Course objectives, requirements 2. The role of the human factor in innovation 3. Human resource development 4. New innovative methods of human resource selection 5. The relationship between knowledge management and innovation 6. Investing in individuals 7. The relationship between the organization and the individual 8. Challenges of the future Within the course The Human Side of Innovation, students will learn about the specific fundamentals of research methodology.	
2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):	
1. Hoffer, I., Iványi, A. (2004): Management of Innovation Processes. Aula Publishing House, ISBN: 9789639585461	



2. Tidd, J., Bessant, J. (2020): Managing Innovation: Integrating Technological, Market and Organizational Change : Integrating Technological, Market and Organizational Change. John Wiley & Sons Inc., ISBN: 9781119713302
3. Ghasemi, M. (2019): Necessity of Human Resource Management in Innovation. Lambert Academic Publishing, ISBN: 6139827345

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

1. Sparrow, P., Shipton, H., Budhwar, P., Brown, A. (2016): Human Resource Management, Innovation and Performance. Palgrave Macmillan, ISBN: 978- 1137465184
2. Szabó, Zs. R. (2012): Innovation from a Manager's Perspective. Aula Publishing House, ISBN 978-963-339- 040-5
3. Buzás, N. (2007): Innovation Management in Practice. Akadémiai Publishing House, ISBN: 9789630584678
4. Sistare, H. S. (2009): Innovations in Human Resource Management. Taylor and Francis Inc., ISBN: 9780765623157

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Course title: Econometrics for Advanced Learners II.	Credit value: 5
Course responsible and lecturer (name, academic title): Zoltán Bakucs	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 100% - .....% <u>theory</u> - practice	
<b>Type of class: lecture</b> / seminar / practice / consultation and total number of classes in the given semester: 30 classes <b>Methods and (specific) approaches, characteristics used to deliver the course content:</b>	
Form of assessment ( <u>exam</u> / practical grade / other): The end of term two hours written exam focuses of problem solving and interpreting results. Five to six exercises should be solved using econometric software and presented as a Word document (previous examination sheets are available for you as guidance). Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Spring Can be taken in semesters 1-4	
Prerequisites (if any): ( <i>typically there are none!</i> )	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
This course deals with the statistical tools necessary for understanding empirical economic research, as well as the planning and implementation of independent research projects. Although the course is very challenging, it provides you with an effective tool that can be applied in economics, criminology, education, political science, public policy, and sociology.	
1. Regression with Time Series Data - Serial Correlation <ul style="list-style-type: none"> <li>• OLS conditions with time series data, static and dynamic (finite distributed lag) models, trends and seasonality</li> <li>• Autocorrelation: consequences for OLS, graphic inspection of autocorrelation, first order autocorrelation - AR(1), testing (Durbin-Watson, Durbin-Watson alternative, asymptotic Lagrange Multiplier test), higher order autocorrelation, Breusch - Godfrey test.</li> <li>• Correcting for serial correlation (dynamic structure, transformation strategy, FGLS strategy: Cochrane - Orcutt method).</li> </ul>	
Ref.: Wooldridge chapter 10, 12.1-12.5., Becketti (2013, from now on Becketti) chapter 5.	



2. Univariate Time-Series and Models of Non-stationary Processes
  - The ARMA model, the Box-Jenkins approach (identification, estimation, diagnostic checking), specifying an ARMA model, forecasting
  - Non-stationary time series, trends and unit-roots

Ref.: Becketti chapter 6, 7, 10.1 – 10.2., Wooldridge chapter 11.1 - 11.3., 18.2
3. Models of Multiple Time Series
  - Vector autoregressions, estimation and forecasting
  - Cointegration and testing for cointegration
  - Vector Error Correction Models (VECM), testing, deterministic components, estimating and diagnostics.

Ref.: Becketti chapter 9, 10., Wooldridge 18.2 -18.4.
4. Time Varying Volatility and Autoregressive Conditional Heteroskedasticity (ARCH) Models
  - Examples of time varying volatility, ARCH model
  - GARCH models
  - Extensions of GARCH models: EGARCH, Threshold GARCH, GARCH in mean

Ref.: Becketti chapter 8., Adkins and Hill (2011) chapter 14., Wooldridge chapter 12.6
- 5 - 6. Panel Data Models
  - Panel data organization, overview of panel data methods
  - Pooled regression, individual effects, fixed effects (FE), random effects (RE), two-way FE, one-way RE models
  - Hausman test for the appropriateness of RE
  - Dynamic panel models.

Ref.: Baum Chapter 9., Cameron-Trivendi (2010) chapter 8., Wooldridge chapter 13, 14.1-14.2.
7. Instrumental Variables Estimation and Two Stage Least Squares
  - Solution for omitted variables bias
  - IV regression, 2SLS in cross section, time series and panel data
  - Testing for endogeneity and overidentification restrictions

Ref.: Baum Chapter 8., Adkins and Hill Chapter 10., Wooldridge chapter 15.
8. Simultaneous Equation Models
  - Simultaneity bias, nature of SEM
  - Estimation of structural equations
  - 3SLS in cross section, time series and panel data

Ref. Adkins and Hill Chapter 11., Wooldridge chapter 16.
9. Models of discrete and limited dependent variables
  - Binomial Logit and Probit models, marginal effects and predictions, interpreting estimates
  - Ordered Logit and Probit models
  - Truncated regression and Tobit models
  - Specification issues, sample selection corrections.

Ref.: Baum chapter 10., Wooldridge chapter 17., Adkins and Hill



<p>Chapter. 16. 10. Carrying Out an Empirical Project</p>
<p>2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):</p>
<ul style="list-style-type: none"> <li>- Jeffrey M. Wooldridge - Introductory Econometrics: A Modern Approach, 5th or 6th edition, USA: South-Western, Cengage Learning</li> </ul>
<p>2-5 most important <u>recommended</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):</p>
<ol style="list-style-type: none"> <li>1. Lee C. Adkins, R. Carter Hill - Using Stata for Principles of Econometrics, 4th Edition <a href="http://www.stata.com/bookstore/using-stata-for-principles-of-econometrics/index.html">http://www.stata.com/bookstore/using-stata-for-principles-of-econometrics/index.html</a></li> <li>2. Christopher F. Baum - An Introduction to Stata Programming <a href="http://www.stata-press.com/books/introduction-stata-programming/">http://www.stata-press.com/books/introduction-stata-programming/</a></li> <li>3. Sean Beckett - Introduction to Time Series Using Stata <a href="http://www.stata-press.com/books/introduction-to-time-series-using-stata/">http://www.stata-press.com/books/introduction-to-time-series-using-stata/</a></li> <li>4. A. Colin Cameron and Pravin K. Trivedi - Microeconometrics Using Stata, Revised Edition <a href="http://www.stata-press.com/books/microeconometrics-stata/">http://www.stata-press.com/books/microeconometrics-stata/</a></li> </ol>

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Course title: Econometrics for Advanced Learners I.	Credit value: 5
Course responsible and lecturer (name, academic title): Zoltán Bakucs Dr.	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 100% - .....% <u>theory</u> - practice	
<p><b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes</p> <p><b>Methods and (specific) approaches, characteristics used to deliver the course content:</b> e.g. case presentations and case study analyses, project work, others...</p>	
<p>Form of assessment (exam / practical grade / other): The end of term two hours written exam focuses of problem solving and interpreting results. Five to six exercises should be solved using econometric software and presented as a Word document (previous examination sheets are available for you as guidance).</p> <p>Additional (specific) methods of knowledge assessment:</p>	
Curricular placement of the course (which semester): Autumn Can be taken in semesters 1-4	
Prerequisites (if any): <i>(typically there are none!)</i>	
<p><b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired</p> <p>The course covers the statistical tools necessary for understanding empirical economic research, as well as how to plan and carry out independent research projects . While this is a challenging course, it provides you with an effective tool that can be applied in the fields of economics, criminology, education, political science, public policy, and sociology, giving you a significant advantage in both the job market and academic life.</p> <ul style="list-style-type: none"> <li>1. Introduction - The Nature of Econometrics and Economic Data <ul style="list-style-type: none"> <li>- Probability variables, probability density functions, expected value, mean, variance, covariance, correlation, normal, <math>\chi^2</math>, t, F distributions, cross-sectional, time series, panel data. Ref.: Wooldridge (2000 or 2012, from now on referred as Wooldridge)</li> </ul> </li> </ul>	



chapter 1.

- Introduction to STATA: import/view/edit data, commands: generate, sort, replace, rename, drop, keep, if, range, etc. Ref.: Baum (2006, from now on referred as Baum) chapter 1.
- 2. The Simple Regression Model
  - OLS, OLS conditions, estimators, fitted values and residuals, estimated standard errors, (one and two sided) t-test, p-values, confidence intervals, type I and II errors, mean squared error
  - Regression fit, units of measurement BLUE property of OLS estimator. Ref.: Wooldridge chapter 2., Baum chapter 4.
- 3 -4 - 5. Multiple Regression Analysis: Estimation and Inference
  - OLS, OLS conditions, estimated standard errors, regression fit (adjusted R<sup>2</sup>), model selection criteria, hypothesis tests of a single parameter (one and two sided t-tests)
  - Omitted variable bias, including irrelevant variable in regression, testing single linear restrictions, testing multiple linear restrictions (F-test)
  - Modelling approaches: general to simple (Hendry - London School of Economics) and simple to general (auxiliary regression Lagrange Multiplier  $\chi^2$  - test). Ref.: Wooldridge chapter 3, 4 and 5.2., Baum chapter 4.
- 6 - 7. Multiple Regression Analysis: Further Issues
  - Multicollinearity (detection and treatment)
  - Functional form and model specification: decreasing marginal returns (Lin-Log), return of additional year of study/experience/etc. (Log-Lin), production and demand functions (Log-Log), reciprocal transformation, quadratic and interaction terms, Ramsey's RESET test for specification error Ref.: Wooldridge chapter 6, 3.4., 9.1., Baum chapter 5.
- 8 - 9. Multiple Regression Analysis with Qualitative Information: Binary (or Dummy) explanatory variables
  - Describing qualitative information, control group, single and multiple dummy variables, shift in the intercept, shift in the slope, shift in both the intercept and slope, interpreting results with dummies as explanatory variables.
  - Chow test. Ref.: Wooldridge chapter 7 (except 7.5). Baum chapter 7.
- 10. Heteroskedasticity
  - Consequences for OLS, graphic inspection of heteroscedasticity, testing for heteroscedasticity (Goldfeld-Quandt, Breusch-Pagan, Glesjer, Harvey-Godfrey and White tests).
  - Inference in the presence of heteroscedasticity: robust standard errors (jackknife), computing heteroscedasticity robust LM tests.
  - Weighted least squares estimation: with known determinant (function) of heteroscedasticity (WLS), with estimated



heteroscedasticity function (Feasible Generalized least Squares, FGLS). Ref.: Wooldridge chapter 8., Baum chapter 6.
2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):
<ul style="list-style-type: none"><li>- Jeffrey M. Wooldridge - Introductory Econometrics: A Modern Approach, 5th or 6th edition, USA: South-Western, Cengage Learning</li></ul>
2-5 most important <u>recommended</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):
<ul style="list-style-type: none"><li>- Lee C. Adkins, R. Carter Hill - Using Stata for Principles of Econometrics, 4th Edition <a href="http://www.stata.com/bookstore/using-stata-for-principles-of-econometrics/index.html">http://www.stata.com/bookstore/using-stata-for-principles-of-econometrics/index.html</a></li><li>- Christopher F. Baum - An Introduction to Stata Programming <a href="http://www.stata-press.com/books/introduction-stata-programming/">http://www.stata-press.com/books/introduction-stata-programming/</a></li><li>- Sean Beckett - Introduction to Time Series Using Stata <a href="http://www.stata-press.com/books/introduction-to-time-series-using-stata/">http://www.stata-press.com/books/introduction-to-time-series-using-stata/</a></li><li>- A. Colin Cameron and Pravin K. Trivedi - Microeconometrics Using Stata, Revised Edition <a href="http://www.stata-press.com/books/microeconometrics-stata/">http://www.stata-press.com/books/microeconometrics-stata/</a></li></ul>

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Course title: Modern methods for estimating and managing efficiency and productivity	Credit value: 5
Course responsible and lecturer (name, academic title): Prof. Dr. József Fogarasi	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 100% -% <u>theory</u> - practice	
<p><b>Type of class:</b> lecture / seminar / practice / consultation and total number of classes in the given semester: 30 classes</p> <p><b>Methods and (specific) approaches, characteristics used to deliver the course content:</b></p>	
Form of assessment (exam / practical grade / other): Exam Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Autumn Can be taken in semesters 1-4	
Prerequisites (if any): <i>(typically there are none!)</i>	
<p><b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired</p> <p>Acquiring theoretical and methodological knowledge of deterministic and stochastic estimation of efficiency and productivity. Acquiring knowledge of linear programming-based Data Envelopment Analysis (DEA) and Free Disposable Hull (FDH) methods in a non-parametric approach, and Stochastic Envelopment Analysis (SEA) in a parametric approach. (DEA) and Free Disposable Hull (FDH) methods in a non-parametric approach, and Stochastic Frontier Analysis (SFA) in a dynamic approach using a parametric method, we examine the best production process based on the efficient frontier by modeling observed data. In addition to learning the theoretical concept and methodological solutions, we pay special attention to the study and application of software that can be used to estimate efficiency and productivity for the purpose of conducting empirical studies.</p>	
2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):	
<ul style="list-style-type: none"> <li>- Coelli, T., Rao, P., Battese, G. (1998): An introduction to efficiency and productivity analysis, Kluwer Academic Publishers, Boston/Dordrecht/London.</li> <li>- Cooper, W., Seiford, L., Tone, K. (1999): Data envelopment analysis: A comprehensive text with models, applications,</li> </ul>	



references and DEA-solver software, Kluwer Academic Publishers, Boston/Dordrecht/London.

- Kumbhaar, S., Lovell, C.A.K. (2000), Stochastic Frontier Analysis, Cambridge Univ. Press.
- Latruffe, L., Fogarasi, J., Desjeux, Y. (2012): Efficiency, productivity and technology comparison for farms in Central and Western Europe: The case of field crop and dairy farming in Hungary and France. Economic Systems 36(2): 264-278. DOI: <http://dx.doi.org/10.1016/j.ecosys.2011.07.002>
- Víggh, E., Fertő, I., Fogarasi, J. (2018): Impacts of climate on technical efficiency in the Hungarian arable sector. Studies in Agricultural Economics 120 (2018) 41-46. DOI: <https://doi.org/10.7896/j.1729>

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

- Bakucs, L. Z., Latruffe, L., Fertő, I. Fogarasi, J. (2010): The impact of EU accession on farms' technical efficiency in Hungary. Post-Communist Economies, 22(2): 165 -175. DOI: <https://doi.org/10.1080/14631371003740639>
- Bakucs, Z., Fertő, I., Víggh, E. (2010): Crop Productivity and Climatic Conditions: Evidence from Hungary. Agriculture 10(9): 421. DOI: <https://doi.org/10.3390/agriculture10090421>
- Charnes, A., Cooper, W., Lewin, A., Seiford, L. (1994): Data envelopment analysis. Theory, methodology and applications, Kluwer Academic Publishers, Boston/Dordrecht/London.
- Latruffe, L.; Desjeux, Y.; Bakucs, Z.; Fertő, I.; Fogarasi, J. [2013]: Environmental pressures and technical efficiency of pig farms in Hungary. Managerial and Decision Economics 34(6): 409-416. DOI: <https://doi.org/10.1002/mde.2600>
- Zubor-Nemes, A.; Fogarasi, J.; Molnár, A.; Kemény, G. [2018]: Farmers' responses to the changes in Hungarian agricultural insurance system. Agricultural Finance Review 78(2): 275-288. DOI: <https://doi.org/10.1108/AFR-06-2017-0048>

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Course title: Numerical modeling and optimization of industrial processes in an innovation environment	Credit value: 5
Course responsible and lecturer (name, academic title): Felde Imre Prof. Dr.	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 50% - 50% theory - practice	
<b>Type of class:</b> <u>lecture</u> / seminar / <u>practice</u> / consultation and total number of classes in the given semester: 30 classes <b>Methods and (specific) approaches, characteristics used to deliver the course content:</b>	
Form of assessment ( <u>exam</u> / practical grade / other): Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any):	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
<p>The monitoring of industrial and economic processes and their results can be planned effectively in advance if a mathematical model representing the given process is available. If the mathematical model is available, we can use it to simulate the process and examine the effects of the parameters influencing the results of the process. Following this line of thought, if the model is available, we can optimize the process using various optimization methods. The course focuses primarily on modeling methodology, introducing students to different types of mathematical modeling and the use of software that supports model development. The course also covers optimization methods suitable for the given model and software packages that support optimization techniques.</p> <p>Main topics of modeling methodology:</p> <ul style="list-style-type: none"> <li>- Numerical and analytical models</li> <li>- Transient and steady-state modeling</li> <li>- Numerical solutions of differential equations</li> <li>- FDM and FEM</li> <li>- Modeling software</li> <li>- Basic infographics</li> </ul> <p>Main topics of optimization techniques:</p> <ul style="list-style-type: none"> <li>- Formulation of optimization problems</li> <li>- Optimization methods and their programming</li> <li>- Bio-inspired optimization methods</li> <li>- Optimization methods</li> </ul>	
2-5 most important <u>required</u> readings (textbooks, study materials)	



with bibliographic data (author, title, publication details, pages, ISBN):

1. Raja Das, Mohan Pradhan: Handbook of Research on Manufacturing Process Modeling and Optimization Strategies, 2017, IGI Global, ISBN: 9781522524410
2. Singh: A Journey Towards Bio-inspired Techniques in Software Engineering, 2020, Springer, ISBN: 3030409279
3. Shishir K. Shandilya, Smita Shandilya, Kusum Deep, Atulya K. Nagar: Handbook of Research on Soft Computing and Nature-Inspired Algorithms, 2017, IGI Global, ISBN: 1522521283
4. John Michael Dowden: The Mathematics of Thermal Modeling, An Introduction to the Theory of Laser Material Processing, 2019, Taylor and Francis Group ISBN: 9780367397319

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):  
**(should be recent, from the last 3-5 years, can include academic publications)**

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Course title: Economic Theories and Models	Credit value: 5
Course responsible and lecturer (name, academic title): Prof. Dr. József Fogarasi	
Course classification: <u>Basic course</u> (subjects) in the field of / Research topic related basic course / Optional subject	
Proportion of <u>theoretical</u> and practical content, "Training character": 100% - .....% <u>theory</u> - practice	
<p><b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes</p> <p><b>Methods and (specific) approaches, characteristics used to deliver the course content:</b></p>	
Form of assessment ( <u>exam</u> / practical grade / other): Exam Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Spring Can be taken in semesters 1-4	
Prerequisites (if any): ( <i>typically there are none!</i> )	
<p><b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired</p> <p>The aims of the course are giving PhD students a solid intermediate and upper intermediate treatment of the foundations of microeconomic theories and models, and to present selected extensions, as a basis for enabling the comprehension of the contemporary developments of the theoretical and applied economic literature. While the main emphasis is put on theoretical aspects, some topics also feature empirical applications.</p> <ul style="list-style-type: none"> <li>- Production theory: technology, production functions, cost minimization, conditional factor demand, unconditional factor demand, profit maximization, supply function, functional forms</li> <li>- Introduction to market power: monopoly, imperfect competition, mark-up.</li> <li>- Theory of choice under certainty and uncertainty</li> <li>- Demand and consumer's surplus</li> <li>- Game theory: types of equilibria, simultaneous and sequential games of perfect and imperfect information, simultaneous and sequential games of complete and incomplete information</li> <li>- Industrial Organization: Cournot, Bertrand, Hotelling and other models of product differentiation</li> <li>- Fundamentals of Antitrust and market Regulation</li> <li>- General equilibrium and properties of optimality, Walras's equilibrium, Walras's law, Pareto optimality, first and second</li> </ul>	



- theorem of welfare economics, welfare evaluation, income test
- Core topics in public economics: taxation and optimal taxation, public goods and externalities
- Principal-agent model, moral hazard models, adverse selection models, theory of incentives and political economy

2-5 most important required readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

- Barreto, U. (2014): Intermediate Microeconomics with Microsoft Excel. Cambridge Uni. Press
- Varian, H. R (2014): Intermediate Microeconomics with Calculus. London: Norton
- Varian, H.R. (2003). Microeconomics Analysis (3rd ed.), New York: W.W. Norton C., Inc.

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

- Adams, A.; Clarke, D., Quinn, S. [2015]: Microeconometrics and MATLAB: An Introduction. Oxford Univeristy Press
- Demont, M.; Cerovska, M.; Deams, W.; Dillen, K.; Fogarasi, J.; Mathijs, E.; Muska, F.; Soukup, J.; Tollens, E. [2008]: Ex Ante Impact Assessment under Imperfect Information: Biotechnology in New Member States of the EU. Journal of Agricultural Economics 59(3): 463-486. DOI: <http://dx.doi.org/10.1111/j.1477-9552.2008.00157.x>
- Fertő, I.; Bojnec, Š.; Fogarasi, J.; & Viira, A. [2020]: Agricultural soft budget constraints in new European Union member states. Journal of Institutional Economics, 16(1), 49-64. DOI: <http://dx.doi.org/10.1017/S1744137418000395>
- Fogarasi, J.; Kemény, G.; Molnár, A.; Keményné Horváth, Z.; Zubor-Nemes, A.; Kiss, A. [2016]: Modelling climate effects on Hungarian winter wheat and maize yields. Studies in agricultural economics 118(2): 85-90. p. DOI: <http://dx.doi.org/10.7896/j.1614>

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Course title: The impact of risk management on economic productivity	Credit value: 5
Course responsible and lecturer (name, academic title): Fogarasi József, Prof. Dr.	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 100% - .....% <u>theory</u> - practice	
<b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes <b>Methods and (specific) approaches, characteristics used to deliver the course content:</b>	
Form of assessment ( <u>exam</u> / practical grade / other): Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): ( <i>typically there are none!</i> )	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
<p>The impact of risk management on the productivity of agricultural companies is a research topic with practical relevance that has been examined using new methodological solutions in international literature. In the context of production risks, increasing attention must be paid to global and regional (climate change adaptation and mitigation, financial and economic crises, health/pandemic crises) in corporate management. The selection of effective risk management tools is of crucial importance for successful and competitive operation. The aim of the research is to examine how different risk management tools influence the development of total factor productivity in the management of agricultural enterprises. In the selection and application of risk management strategies , it is particularly important to break down total factor productivity into the effects of technological change and changes in technical efficiency, and to examine how these are influenced by different risk management solutions. The choice of risk management strategies influences the development of production costs and</p>	



the allocation of the enterprise's resources. In the systematic literature review section of the research, in addition to reviewing the results of relevant research published on the topic, we present the risk management solutions available to farmers and the risk management portfolios that can be created from them. During our investigations, we test the direction and extent of the impact of various risk management procedures and portfolios on total factor productivity and, in the case of its breakdown, on its components, using efficient frontier regression methods. If data becomes available, we will extend our analysis of the Hungarian experience to include a Western European country and another Central and Eastern European country.

2-5 most important required readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

1. Zubor-Nemes, A.; Fogarasi, J.; Molnár, A.; Kemény, G. [2018]: Farmers' responses to the changes in Hungarian agricultural insurance system. *Agricultural Finance Review* 78(2): 275-288. DOI: <https://doi.org/10.1108/AFR-06-2017-0048>
2. Vígh, E., Fertő, I., Fogarasi, J. (2018): Az éghajlat hatása a technikai hatékonyságra a magyar szántóföldi szektorban. *Studies in Agricultural Economics* 120 (2018) 41-46. DOI: <https://doi.org/10.7896/j.1729>
3. Zubor-Nemes, A.; Fogarasi, J. [2017]: A tőkeszerkezet hatása az agrárgazdasági teljesítményre. *Statisztikai Szemle* 95(4): 406-422. DOI: [https://www.ksh.hu/statszemle\\_archive/2017/2017\\_04/2017\\_04\\_406.pdf](https://www.ksh.hu/statszemle_archive/2017/2017_04/2017_04_406.pdf)
4. Fogarasi, J.; Kemény, G.; Molnár, A.; Keményné Horváth, Z.; Zubor-Nemes, A.; Kiss, A. [2016]: Az éghajlat hatásának modellezése a magyar téli búza és kukorica termés hozamára. *Studies in Agricultural Economics* 118(2): 85-90. p. DOI: <http://dx.doi.org/10.7896/j.1614>

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

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Course title: Research publication knowledge	Credit value: 5
Course responsible and lecturer (name, academic title): Gulácsi László Prof. Dr.	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 50% - 50%_theory - practice	
<p><b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes</p> <p><b>Methods and (specific) approaches, characteristics used to deliver the course content:</b></p>	
Form of assessment ( <u>exam</u> / practical grade / other): Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): ( <i>typically there are none!</i> )	
<p><b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired</p> <p>The aim of the course is to familiarize students with the methods and practices of communicating research results, to acquire basic knowledge of publication, to explore the online scientific communication system and tools, and to lay the foundations for the successful application of this knowledge in practice . During the course, students will learn about the basics of research methodology, the different forms of publication and their value, the most important tools of online communication, the use of digitally accessible literature databases, open access publishing, and the use of the Hungarian Scientific Works Repository database During the course, students will find answers to the following questions:</p> <ol style="list-style-type: none"> <li>1) What reliable scientific sources are available to researchers?</li> <li>2) How can publications and references be recorded in MTMT?</li> <li>3) How can reference manager software help with research work?</li> <li>4) What scientific metrics apply to authors and journals?</li> <li>5) What is Open Access and how does it affect the number of citations?</li> <li>6) How can the APC fee be waived upon publication?</li> <li>7) How can scientific results be promoted effectively?</li> <li>8) How can the right journals be found for publishing a manuscript?</li> </ol>	



Upon completion of the course, students will have acquired the research methodology, reference management, and scientometric knowledge necessary to confidently publish their research results in the appropriate journals and conference proceedings.

2-5 most important required readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

1. Berek L., Berek L., Rajnai Z.: The Process and Methods of Scientific Research. Budapest, Hungary: Óbuda University. (2018) 147 p. ISBN 9789634490715
2. Berek L. Predatory Publishers and Journals in the World of Online Scientific Publishing. In: Muhi, B. Béla (ed.) Vajdasági Magyar Tudóstalálkozó 2020 – Conference Proceedings. (2021) pp. 74-80.
3. Berek L. How to Identify Predatory Journals? An Idea of an Expert System. TRANSACTIONS ON ADVANCED RESEARCH 16. 2020 pp. 3-6.

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

1. János Gyurgyák: The Basics of Academic Writing. A guide for writers of seminar papers, academic student papers, theses, and dissertations. Budapest, Osiris. (2019) ISBN 9789632763491
2. Kármén Kovács: Research and Publication Handbook Not Only for Economists. Budapest, Akadémiai Kiadó. (2017) ISBN 978 963 454 037 3 DOI: 10.1556/9789634540373
3. Pervez Ghauri, Kjell Gronhaug: Research Methodology in Business Studies. Budapest, Akadémiai Kiadó. (2016) ISBN 978 963 05 9859 0 DOI: 10.1556/9789630598590
4. Feketéné Gyarmati Andrea: Reliable Sources for Online Information Searching. Budapest, Óbuda University Library 2018. 49 p.
5. Széll Gábor: Scientific Cognition, Theory and Practice of Scientific Research. Budapest, Óbuda University Library 2018. 46 p.

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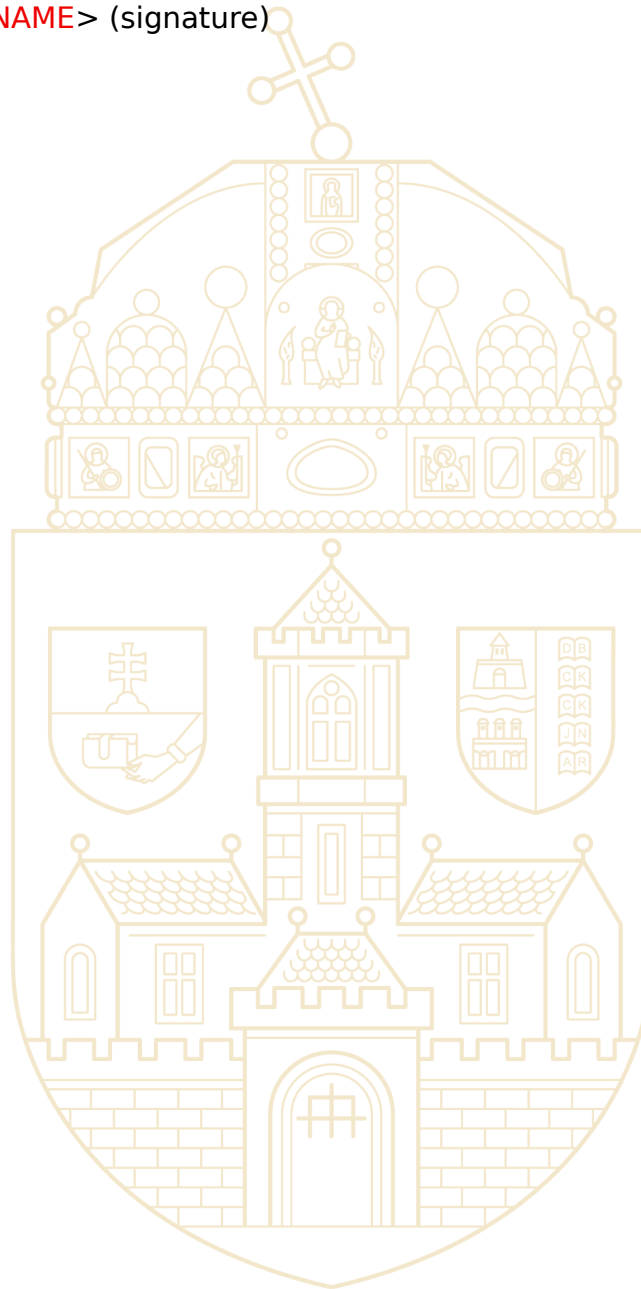


ÓBUDAI EGYETEM  
OBUDA UNIVERSITY

# < COURSE TITLE > COURSE SYLLABUS

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Course title: Innovation management in agriculture	Credit value: 8
Course responsible and lecturer (name, academic title): Mónika Garai-Fodor Prof. Dr.	
Course classification: Basic course (subjects) in the field of / <u>Research topic related basic course</u> / Optional subject	
Proportion of theoretical and practical content, "Training character": 100% - .....% <u>theory</u> - practice	
<p><b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes</p> <p><b>Methods and (specific) approaches, characteristics used to deliver the course content:</b></p>	
Form of assessment ( <u>exam</u> / practical grade / other): Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester):	Can be taken in semesters 1-4
Prerequisites (if any): ( <i>typically there are none!</i> )	
<p><b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired</p> <p>The results of significant research activities in recent decades can be seen in domestic and international literature related to agricultural and environmental economic issues. The most important of these are: 1) Environmental economic issues in food marketing, 2) The importance, benefits, and cost-effectiveness of innovative solutions in these areas, 3) The role of innovation in the development of functional foods and portfolio expansion 4) Innovative solutions in the agricultural sector, with particular regard to sustainable environmental economics and climate protection 5) The role of artificial intelligence in the field of agricultural and environmental economics.</p>	
2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):	
<ol style="list-style-type: none"> <li>1. Philip Kotler, Kevin Lane Keller: Marketing Management, Akadémia Publishing House, 2012</li> <li>2. Solomon, Bamossy, Askegaard &amp; Hogg: Consumer Behavior: A European Perspective, 2016</li> <li>3. Törőcsik-Szűcs: Consumer Behavior - Patterns, Trends, Adaptation; Akadémiai Publishing House 2021.</li> <li>4. Malhotra Naresh, K. - Simon J.: Marketing Research, Akadémiai Publishing House, Budapest, 2017, pp. 289-296. p. 831</li> <li>5. Sajtos L., &amp; Mitev A.: SPSS Research and Data Analysis Manual, SPSS Research</li> </ol>	



and Data Analysis Manual Budapest: Alinea Kiadó, 2007

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

1. Harvey, H.; Orvis, R.; Rissman, J. (2018). Designing Climate Solutions: A Policy Guide for Low-Carbon Energy. London: Island Press, 374 p.

2. Kemény, G. (ed.); Molnár, A. (ed.); Fogarasi, J.; Bene, E.; Domán, C.; Keményné, Z.; Lőrincz, K.; Vári, E.; Vígh, E.Z.; Zubor-Nemes, A. (2019): Modeling the impact of climate change on major domestic cereals. Budapest: Agricultural Economics Research Institute, 112 p.  
<http://repo.aki.gov.hu/3388/>

3. European Commission (2021): Forging a climate-resilient Europe - the new EU Strategy on Adaptation to Climate.  
<https://eur-lex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:52021DC0082&from=EN>

4. Climate Action Plan 2050 Principles and goals of the German government's climate policy.

[https://www.bmu.de/fileadmin/Daten\\_BMU/Pool/Broschueren/klimaschutzplan\\_2050\\_en\\_bf.pdf](https://www.bmu.de/fileadmin/Daten_BMU/Pool/Broschueren/klimaschutzplan_2050_en_bf.pdf)

5. EU ETS Handbook.

[https://ec.europa.eu/clima/sites/clima/files/docs/ets\\_handbook\\_en.pdf](https://ec.europa.eu/clima/sites/clima/files/docs/ets_handbook_en.pdf)

Date:

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Course title: Marketing research methods and practice	Credit value: 8
Course responsible and lecturer (name, academic title): Mónika Garai-Fodor Prof. Dr.	
Course classification: Basic course (subjects) in the field of / <u>Research topic related basic course</u> / Optional subject	
Proportion of theoretical and practical content, "Training character": 50% - 50%_theory - practice	
<b>Type of class:</b> <u>lecture</u> / seminar / <u>practice</u> / consultation and total number of classes in the given semester: 30 classes <b>Methods and (specific) approaches, characteristics used to deliver the course content:</b>	
Form of assessment ( <u>exam</u> / practical grade / other): Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): <i>(typically there are none!)</i>	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
<p>Market research is based on the systematic collection, analysis, and interpretation of data, and is an essential part of successful marketing. After all, if we don't know what market we are entering, who our consumers will be, what they expect from us, what our competitors are offering, and what opportunities we have against them, then marketing planning would be a gamble. Market research can help by providing guidance on what methodology and tools are worth using and can be used when a particular question or marketing problem arises. Market research plays a decision-preparatory and decision-supporting role, from the zero phase of marketing planning to implementation. In this course, you will learn about expectations regarding information. The characteristics of secondary and primary data collection methods. The possibilities and specific methods of applying qualitative and quantitative techniques. You will also gain a comprehensive insight into the practical requirements of sampling, the specifics of research plan and research report preparation, and how to evaluate the results from a professional and marketing perspective. The course also covers the trends and new methods that have emerged in marketing research in recent years.</p>	



2-5 most important required readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

1. Malhotra Naresh, K. - Simon J.: Marketing Research, Marketing Research, Akadémiai Kiadó, Budapest, 2017, pp. 289-296. 831

2. Sajtos L., & Mitev A.: SPSS Research and Data Analysis Manual, SPSS Research and Data Analysis Manual Budapest: Alinea Publishing House, 2007

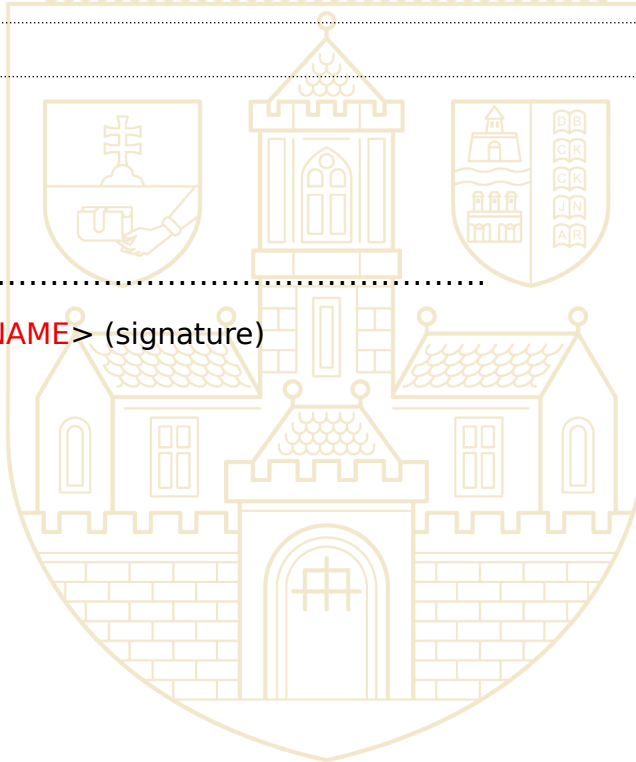
3. Veres-Hoffmann-Kozák (2006): Introduction to Market Research, Akadémiai Publishing House, Budapest, pp. 1-213.

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

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Course title: Healthcare Innovation Management	Credit value: 8
Course responsible and lecturer (name, academic title): László Gulácsi Prof. Dr.	
Course classification: Basic course (subjects) in the field of / <u>Research topic related basic course</u> / Optional subject	
Proportion of theoretical and practical content, "Training character": 100% - .....% <u>theory</u> - practice	
<p><b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes</p> <p><b>Methods and (specific) approaches, characteristics used to deliver the course content:</b></p>	
Form of assessment ( <u>exam</u> / practical grade / other): Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): ( <i>typically there are none!</i> )	
<p><b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired</p> <p>The aim of the course is to familiarize students with the specific research methodology theories and methods of the health industry.</p> <p>The health industry encompasses a wide range of areas, including disease prevention, diagnosis, and treatment (medicines, medical devices), but also the beauty industry, healthy lifestyles, and much more. One important area that has received special attention since 2021 is medical devices.</p> <p>Medicine has specific requirements for the safety and effectiveness of devices. In recent decades, the regulatory environment for medical devices, which has become uniform throughout Europe, has prescribed an industry-oriented "conformity assessment" practice and the use of the "CE" mark. Today, with the introduction of the MDR (Medical Device Regulation), we are witnessing a shift towards medical and health considerations.</p> <p>The introduction of the MDR presents unprecedented challenges for medical device manufacturers. The clinical effectiveness, efficacy, and safety of the product must be supported by</p>	



<p>scientific evidence. Students will learn the specific scientific methodology used in the healthcare industry, the methodology of producing and evaluating scientific evidence. It is important that students be able to assess which areas of the healthcare industry have an 'innovation gap', i.e., potentially unexplored stakeholder needs that, if met, could potentially yield significant socio-economic benefits.</p>
<p>2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):</p>
<p>- János Pakucs, Gábor Papanek, INNOVATION MANAGEMENT HANDBOOK, <a href="https://www.innovacio.hu/tanulmanyok_pdf/innovacio_menedzsment_keziko_nyv.pdf">https://www.innovacio.hu/tanulmanyok_pdf/innovacio_menedzsment_keziko_nyv.pdf</a>  - Jan van de Ende: Innovation Management (Amazon, 2021, pp. 280)  - Cochrane Handbook for Systematic Reviews of Interventions. <a href="https://training.cochrane.org/handbook">https://training.cochrane.org/handbook</a>  - Guillaume L. Systematic literature reviews: an Introduction. International Conf. on. Engineering Design 2019, 1(1): 1633-1642.  Zrubka, Zsombor and Kincses, Áron and Gilyán, Csaba and Huber, Anikó and Horváth, Zsófia and Huszák, Loretta and Tóth, Barbara and Pogány, Petra and Gulácsi, László (2021) Biotechnology in Hungary. STATISTICAL REVIEW, 99 (6). pp. 512-540. ISSN 0039-0690</p>
<p>2-5 most important <u>recommended</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):</p>
<p>- Suchek N et al. Innovation and the circular economy: A systematic literature review. Business Strategy and the Environment. First published: 21 May 2021. doi 10.1002/bse.2834  - Neves R et al. Using a Systematic Literature Review to Build a Framework for University-Industry Linkages using Open Innovation. Procedia Computer Science. 2021, 181: 23-33. doi: 10.1016/j.procs.2021.01.095</p>

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Course title: Economics and management theories	Credit value: 8
Course responsible and lecturer (name, academic title): Péter Karácsony Prof. Dr.	
Course classification: <u>Basic course</u> (subjects) in the field of / Research topic related basic course / Optional subject	
Proportion of theoretical and practical content, "Training character": 100% - .....% <u>theory</u> - practice	
<b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes <b>Methods and (specific) approaches, characteristics used to deliver the course content:</b>	
Form of assessment ( <u>exam</u> / practical grade / other): Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): ( <i>typically there are none!</i> )	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
<p>The aim of the course is to provide students with general management knowledge necessary for the management and leadership of organizations, as well as to familiarize them with the specific features of the operation and management of innovative organizations. During the semester, students will learn about the following topics in detail, covering both areas. In relation to management topics, the role of innovation in value creation processes will be presented. The issue of the relationship between corporate efficiency and competitiveness. The general theoretical criteria of business process management and methods for evaluating them. In addition, it will focus on the methodological knowledge necessary for preparing management decisions and controlling processes. The market and marketing characteristics of innovative organizations will be presented in the context of innovation marketing, with the appropriate integration of the marketing planning process.</p> <p>In relation to management areas, it focuses on basic management theories and current issues in leadership and organization. The role of technology and innovation in the life of business organizations is discussed in a separate section. Among other management topics, special attention is given to Industry 4.0, Agriculture 4.0, Society 4.0, and management</p>	



<p>issues related to artificial intelligence. It also discusses theories and case studies related to competency-based HR management, as well as diversity management and employer branding, which are becoming increasingly popular today. Sustainability, social responsibility, ethical issues, and leadership trust are also discussed in detail during the semester. The semester concludes with knowledge management and the role of knowledge-based companies in innovation.</p>
<p>2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):</p>
<ol style="list-style-type: none"> <li>1. Knights, D., Willmott, H. (2017): Introducing Organizational Behaviour and Management, Cengage Learning. Boston. ISBN: 9781473726642</li> <li>2. Tidd, J., Bessant, R.J. (2014): Strategic Innovation Management. John Wiley &amp; Sons Inc, ISBN: 9781118457238</li> <li>3. Clayton, Ch. M. (2013): Innovator's Dilemma. Harvard Business School Publisher, ISBN 9781422196021</li> <li>4. Brem, A., Tidd, J., Daim, T. (2019): Managing Innovation: Understanding and Motivating Crowds. World Scientific Europe Ltd., ISBN 9781786346483</li> <li>5. Griffin, R.W. (2016): Management. Cengage Learning. Boston. ISBN: 9781305501294</li> </ol>
<p>2-5 most important <u>recommended</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):</p>
<p> </p>

Date:

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Course title: Applied Artificial Intelligence	Credit value: 5
Course responsible and lecturer (name, academic title): Kertész Gábor Dr. habil	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 100% - % <u>theory</u> - practice	
<b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes <b>Methods and (specific) approaches, characteristics used to deliver the course content:</b>	
Form of assessment ( <u>exam</u> / practical grade / other): exam Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Can be taken in semesters 1-4 (	
Prerequisites (if any): ( <i>typically there are none!</i> )	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
Artificial intelligence research has come into the spotlight in recent decades: with the arrival of deep machine learning, efficient, high-performance solutions have been created for problems that can be described as supervised learning. The aim of the course is to clarify the basic concepts of artificial intelligence and machine learning, as well as to introduce modern approaches, tools, problem types, applications and limitations.	
2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):	
1. LeCun, Y., Bengio, Y., & Hinton, G. (2015). Deep learning. Nature, 521(7553), 436-444.	
2. Chollet, F. (2017). Deep learning with Python. Manning.	
3. Géron, A. (2019). Hands-on machine learning with Scikit-Learn, Keras, and TensorFlow: Concepts, tools, and techniques to build intelligent systems. O'Reilly Media.	
2-5 most important <u>recommended</u> readings (textbooks, study	

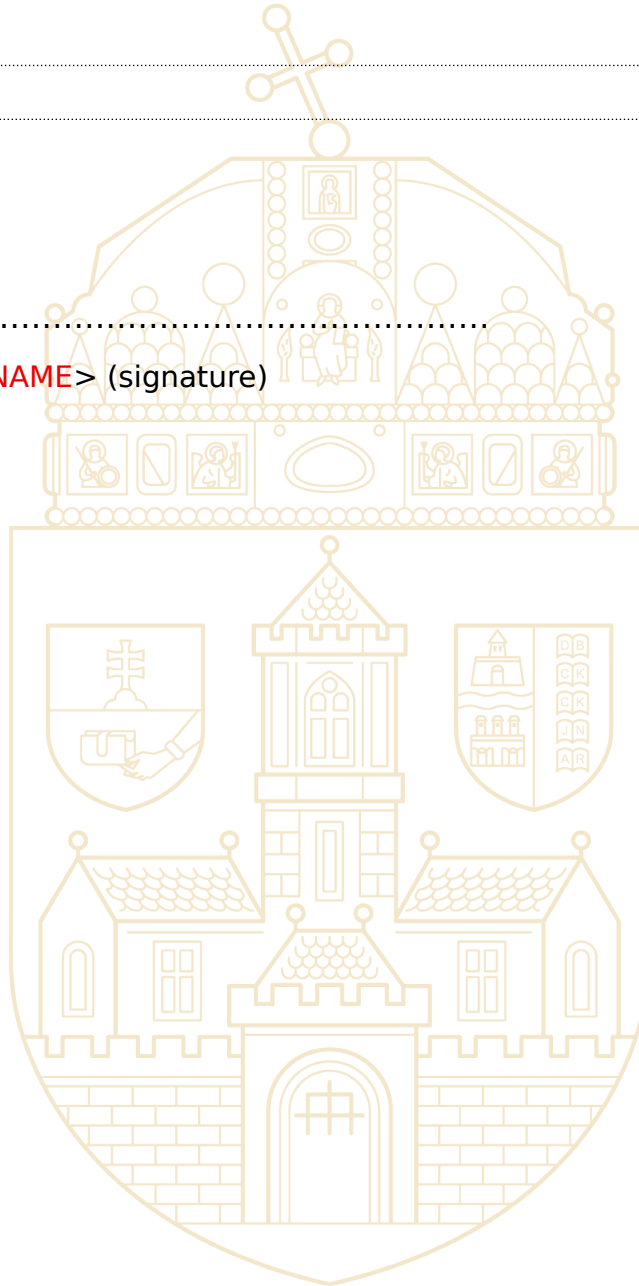


materials) with bibliographic data (author, title, publication details, pages, ISBN):

Date:

Prepared by: .....

< NAME > (signature)





Course title: Applied Python Programming	Credit value: 5
Course responsible and lecturer (name, academic title): Kertész Gábor Dr. habil	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 100% - % theory - <u>practice</u>	
<b>Type of class:</b> lecture / seminar / <u>practice</u> / consultation and total number of classes in the given semester: 30 classes <b>Methods and (specific) approaches, characteristics used to deliver the course content:</b>	
Form of assessment (exam / <u>practical grade</u> / other): exam Additional (specific) methods of knowledge assessment:	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): <i>(typically there are none!)</i>	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
<p>The Python programming language is the most popular introductory programming language due to its simple syntax and structure, it is also a frequently used prototyping tool by researchers. The aim of the course is to provide practical knowledge that will the students to apply Python technology to support their research. After mastering the basic data structures and algorithms, the construction of control structures and language syntax can be effectively learned. In order to apply the technology in scientific work, it is necessary to become familiar with the modules and libraries that can be used to perform robust mathematical calculations, data manipulation and visualization, and statistical, image processing, and machine learning tasks effectively.</p>	
2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):	
<p>1. Slatkin, Brett. Effective python: 90 specific ways to write better python. Addison-Wesley Professional, 2019. 2. Danjou, Julien. Serious Python. No Starch Press, 2018</p>	
2-5 most important <u>recommended</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):	



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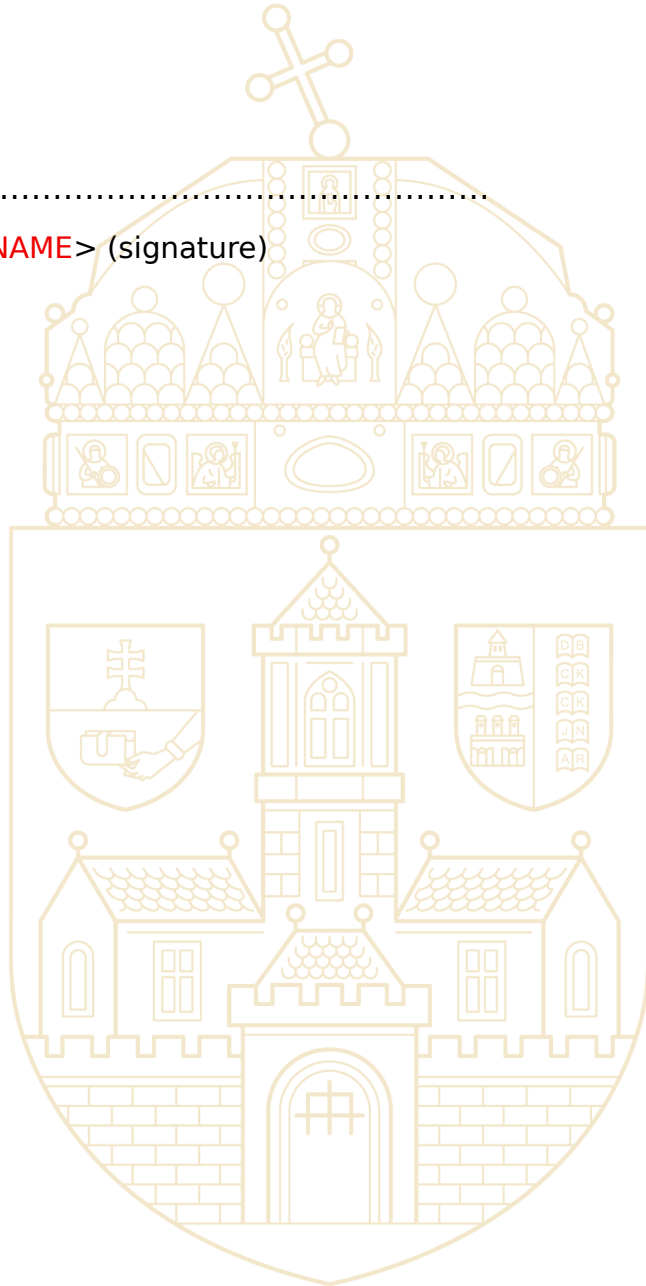
# <COURSE TITLE> COURSE SYLLABUS

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Date:

Prepared by: .....

< NAME > (signature)





Course title: Development of innovative medical device prototypes in practice	Credit value: 5
Course responsible and lecturer (name, academic title): Kozlovszky Miklós Prof. Dr.	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 100% - % <u>theory</u> - practice	
<p><b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes</p> <p><b>Methods and (specific) approaches, characteristics used to deliver the course content:</b> interpretation of publications, analytical exercises</p>	
Form of assessment ( <u>exam</u> / practical grade / other): Additional (specific) methods of knowledge assessment: solving analytical problems in the form of written reports	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): ( <i>typically there are none!</i> )	
<p><b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired</p> <p>The development of prototypes for medical devices is a complex process, and the aim of this course is to familiarize students with the main steps of engineering design and development, as well as the main methodologies used during development. The design and development of medical devices, the steps of engineering design and development, and the methodologies used during development and the methodologies used during development must comply with numerous regulations and standards from the perspective of bringing the device to market. Development raises engineering, medical, ethical, legal, and even economic issues, all of which must be taken into account and satisfied simultaneously during development satisfied through well-controlled processes. The subject consists of several major parts. In the first half of the semester, the aspects and steps of innovative medical device design are discussed. The second major unit discusses the control and monitoring processes of medical device development . The last major unit deals with the basic documentation and testing of medical devices.</p>	



<p>The main steps in the development of a medical device prototype, the individual steps of engineering design and development, and the methodologies used during development. Legal requirements (MDR and IVDR) Relevant standards (EN ISO 13485, EN 62366, EN 82304, EN 62304, etc.) General engineering, medical, ethical, legal, and economic issues arising in connection with innovative medical device development Processes during development (risk, quality, etc.)</p>
<p>2-5 most important <u>required</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):</p>
<p>1. Relevant legislation and standards: (MDR and IVDR), EN ISO 13485, EN 62366, EN 82304, EN 62304) 2. Lecture materials, notes</p>
<p>2-5 most important <u>recommended</u> readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):</p>

Date:

Prepared by: .....

< NAME > (signature)



Course title: Risk assessment and testing of medical devices	Credit value: 5
Course responsible and lecturer (name, academic title): Kozlovsky Miklós Prof. Dr.	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 100% - % <u>theory</u> - practice	
<b>Type of class:</b> <u>lecture</u> / seminar / practice / consultation and total number of classes in the given semester: 30 classes <b>Methods and (specific) approaches, characteristics used to deliver the course content:</b> interpretation of publications, analytical exercises	
Form of assessment ( <u>exam</u> / practical grade / other): Additional (specific) methods of knowledge assessment: solving analytical problems in the form of written reports	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): ( <i>typically there are none!</i> )	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
<p>The aim of the course is to familiarize students with the most important legal requirements and recommendations for the risk assessment and testing of medical devices . A further aim of the course is to introduce and teach the guidelines, key methodologies, technologies, and best practices related to the risk assessment and testing of medical devices through theoretical and practical examples. The concept of medical devices, life cycle model(s) of medical devices,</p> <ol style="list-style-type: none"><li>1) risk management in design and manufacturing processes,</li><li>2) structure of a medical device risk management file,</li><li>3) risk assessment process, risk identification process,</li><li>4) medical device risk evaluation process;</li><li>5) concept and characteristics of medical software;</li><li>6) development methodologies and methods, medical device testing;</li><li>7) software validation, software verification;</li><li>8) design and development of embedded software, software development for critical infrastructures, software integration.</li></ol>	



2-5 most important required readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

1. Relevant legislation
2. Medical Device Regulation (MDR, Regulation (EU) 2017/745) and IVDR
3. Relevant standards:
4. EN ISO 13485, EN 62366, EN 82304, EN 62304
5. Lecture materials, notes

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

Date:

Prepared by: .....  
< NAME > (signature)



MEASUREMENT AND EVALUATION OF HEALTH GAINS  
**COURSE SYLLABUS**  
**Doctoral School of Innovation Management**

Course title: Measurement and evaluation of health gains	Credit value: 5
Course responsible and lecturer (name, academic title): Prof. Márta Péntek DSc	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 50% - 50% theory - practice	
<p><b>Type of class:</b> lecture / <u>seminar</u> / practice / <u>consultation</u> and total number of classes in the given semester: 30 classes</p> <p><b>Methods and (specific) approaches, characteristics used to deliver the course content:</b>          Doctoral students will learn about the theoretical foundations in a seminar.          Consultations:          a.) Literature review: Students conduct a literature review on health gain measurement methods in their own research topics and analyze the use of identified methods used in clinical trials and/or health economic evaluations (validity, reliability, application, and evaluation of questionnaires).          b.) Project work: Students plan how these health gain measurement methods can be specifically incorporated into their own research plans</p>	
<p>Form of assessment (exam / practical grade / <u>other</u>):          Additional (specific) methods of knowledge assessment:          a.) Literature review: Students prepare a written report on the literature review conducted in their own research topic in such a way that it can be incorporated/used in their doctoral dissertation the best possible.          b.) Project work: Students summarize in a written report the method of measuring health gains related to their own research plan, including data collection, data management, data analysis, and publication plan.</p>	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): None.	
<p><b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired</p> <p>The main aims of the course are</p> <ul style="list-style-type: none"> <li>- to introduce the methods of health outcome measurement,</li> <li>- to review their application to support clinical and financial decision making, with especial regard to their use in the development process of new innovative technologies.</li> </ul> <p>During the course, students will learn how to assess the impact of diseases and health interventions from different perspectives (patient, patient's family, doctor, healthcare system, society). Particular emphasis will be placed on patient-reported outcomes, methods for measuring individual and societal preferences, and we will discuss options for the joint evaluation of length of life and health-related quality of life. Through the example of specific</p>	



diseases, we analyse the methodological and practical issues of the application of health outcome measurements in the development of new innovative technologies.

2-5 most important required readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

- Devlin N, Roudijk B, Ludwig K. Value sets for EQ-5D-5L. A compendium, comparative review & user guide. 2022 Springer ISBN 978-3-030-89288-3 ISBN 978-3-030-89289-0 (eBook) <https://doi.org/10.1007/978-3-030-89289-0>
- Sheraya De Silva, Alisa M Higgins. Clinimetrics: The quality adjusted life year, Journal of Physiotherapy, Volume 69, Issue 1, 2023, Pages 58-59, ISSN 1836-9553, <https://doi.org/10.1016/j.jphys.2022.06.008>.

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

- Péntek M, Jáger V, Kincses Á, Hölgyesi Á, Zrubka Z, Baji P, Kovács L, Gulácsi L. Population norms for the EQ-5D-5L for Hungary: comparison of online surveys and computer assisted personal interviews. Eur J Health Econ. 2025 Aug;26(6):1111-1126. doi: 10.1007/s10198-024-01755-2. Epub 2025 Feb 21.
- Hölgyesi Á, Poór G, Baji P, Zrubka Z, Farkas M, Dobos Á, Gulácsi L, Kovács L, Péntek M. Validation of the Musculoskeletal Health Questionnaire in a general population sample: a cross-sectional online survey in Hungary. BMC Musculoskelet Disord. 2022 Aug 13;23(1):771. doi: 10.1186/s12891-022-05716-9.
- Hölgyesi Á, Luczay A, Tóth-Heyn P, Muzslay E, Világos E, Szabó AJ, Baji P, Kovács L, Gulácsi L, Zrubka Z, Péntek M. The Validation of the Parental Self-Efficacy Scale for Diabetes Management Among Parents of Children Wearing a Continuous Glucose Monitoring Sensor. Biomedicines. 2025 May 27;13(6):1309. doi: 10.3390/biomedicines13061309.
- Attema AE, Brouwer WBF, Pinto-Prades JL. Reference-dependent age weighting of quality-adjusted life years. Health Econ. 2022 Dec;31(12):2515-2536. doi: 10.1002/hec.4593. Epub 2022 Sep 4.
- Teaching Materials Repository – Health Economics – quality of life: [https://healtheconomics.org/repository/?\\_gl=1\\*\\_1etsw8a\\*\\_ga\\*MTg2MjgwNzlwNC4xNzcyMDQxMzU1\\*\\_ga\\_2G2R70P4PJ\\*\\_czE3NzlwNDEzNTQkbzEkZzAkDE3NzlwNDEzNTQkajYwJGwwJGgw](https://healtheconomics.org/repository/?_gl=1*_1etsw8a*_ga*MTg2MjgwNzlwNC4xNzcyMDQxMzU1*_ga_2G2R70P4PJ*_czE3NzlwNDEzNTQkbzEkZzAkDE3NzlwNDEzNTQkajYwJGwwJGgw) (Letöltve: 2026.02.25).

Date: 25th February, 202

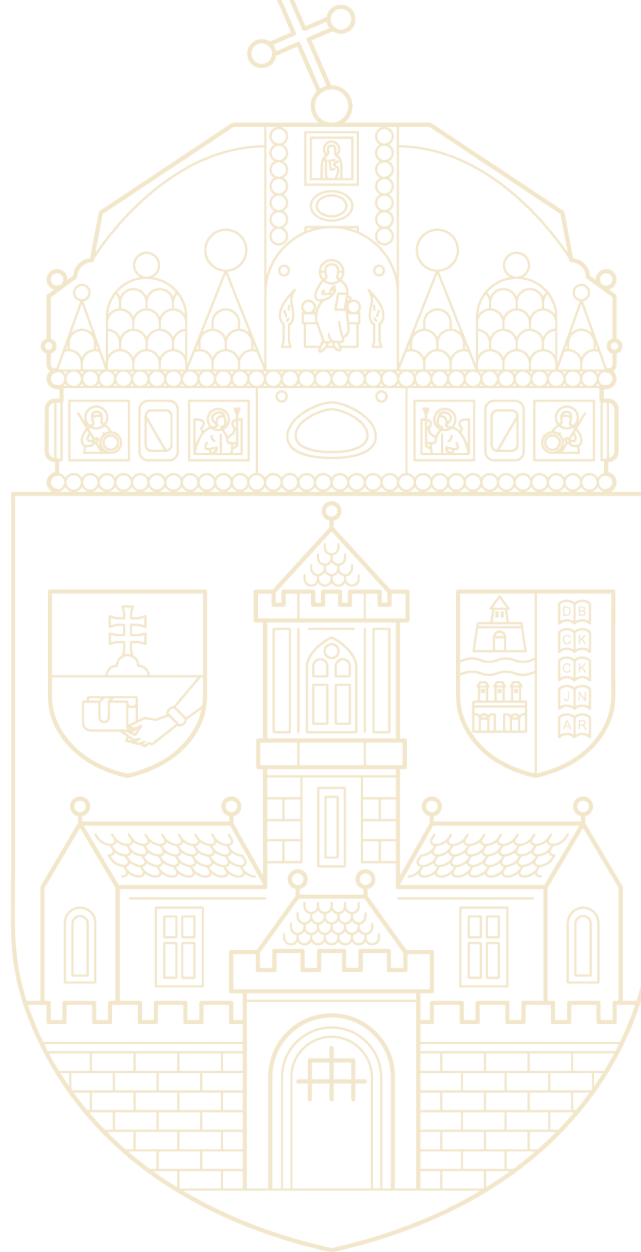


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MEASUREMENT AND EVALUATION OF HEALTH GAINS  
**COURSE SYLLABUS**  
**Doctoral School of Innovation Management**

Prepared by: .....

PROF. MÁRTA PÉNTEK DSc





Course title: Research methods and academic writing	Credit value: 8
Course responsible and lecturer (name, academic title): Prof. Márta Péntek DSc	
Course classification: <u>Basic course</u> (subjects) in the field of / Research topic related basic course / Optional subject	
Proportion of theoretical and practical content, "Training character": 50% - 50% theory - practice	
<p><b>Type of class:</b> <u>lecture</u> / seminar / practice / <u>consultation</u> and total number of classes in the given semester: 30 classes</p> <p><b>Methods and (specific) approaches, characteristics used to deliver the course content:</b> During the lectures, doctoral students will learn the theoretical foundations of the subject.</p> <p>Consultations:</p> <p>a.) Research methods: Students will develop a specific research plan (protocol) for their doctoral research topic in accordance with scientific standards.</p> <p>b.) Academic writing: Students develop a scientific publication (conference abstract or conference paper or journal article, review article) on their own doctoral research topic, specifying a specific journal or conference and complying with its requirements.</p>	
Form of assessment (exam / practical grade / <u>other</u> ): Additional (specific) methods of knowledge assessment:	
<p>a.) Research methods: Prepare a written report on the research plan (protocol)</p> <p>b.) Academic writing: Written scientific publication (submission to a journal or conference is not mandatory, but it must meet the requirements of the chosen journal/conference in terms of both content and form).</p>	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): None.	
<p><b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired</p> <hr/> <p>The objectives of the course are two-fold. One is to familiarize students with the theories and methodology of research methodology.</p> <p>Students</p> <ul style="list-style-type: none"> <li>- will learn the methodology of familiarizing themselves with, scientifically analyzing, and evaluating research results published in international and domestic literature, thus</li> <li>- enabling them to formulate appropriate research questions and</li> <li>- identify publication opportunities.</li> </ul>	



Based on this, they should be able to determine what scientific results they can contribute to international science using the available knowledge, resources, and time, in which fields and prestigious, highly cited journals they will be able to publish their results as authors or co-authors. It is equally important that students be able to assess the expected socio-economic impact of their results and which stakeholders are likely to be interested in them. In the case of innovation-related research, in an era of rapidly changing and expanding scientific results, this knowledge is essential for all students and professionals in order to conduct effective research.

The other objective of the course is to introduce students to the written and unwritten rules and methods of academic writing. Academic writing involves not only assessing the situation, setting goals, methodology, results, and discussion coherence, but also precisely defining the target audience and optimizing the impact of the publication (citations). During the course, students will acquire basic knowledge related to these topics..

2-5 most important required readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

- <https://sheffield.ac.uk/study-skills/research/methods/identify>
- Spencer NH et al. Assessing bias in online surveys using alternative survey modes. Work organisation, labour & globalisation Volume 16, Number 1, 2022, doi: 0.13169/workorgalaboglob.16.1.0034.

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

- Zsombor Zrubka, Levente Kovács, Hossein Motahari Nezhad, János Czere, László Gulácsi, Márta Péntek. Artificial Intelligence in Medicine: A Systematic Review of Guidelines for the Reporting and Interpretation of Studies. ACTA POLYTECHNICA HUNGARICA 22 : 10 pp. 125-143. , 19 p. (2025)
- Zrubka Z, Kertész G, Gulácsi L, Czere J, Hölgyesi Á, Mötahari Nezhad H, Mosavi A, Kovács L, Butte AJ, Péntek M. The Reporting Quality of Machine Learning Studies on Pediatric Diabetes Mellitus: Systematic Review. J Med Internet Res. 2024 19:26:e47430. doi: 10.2196/47430.
- Devlin N, Parkin D, Janssen B. Methods for Analysing and Reporting EQ-5D Data. Springer 2020. ISBN 978-3-030-47621-2 <https://link.springer.com/book/10.1007/978-3-030-47622-9>.

Date: 25th February, 2026

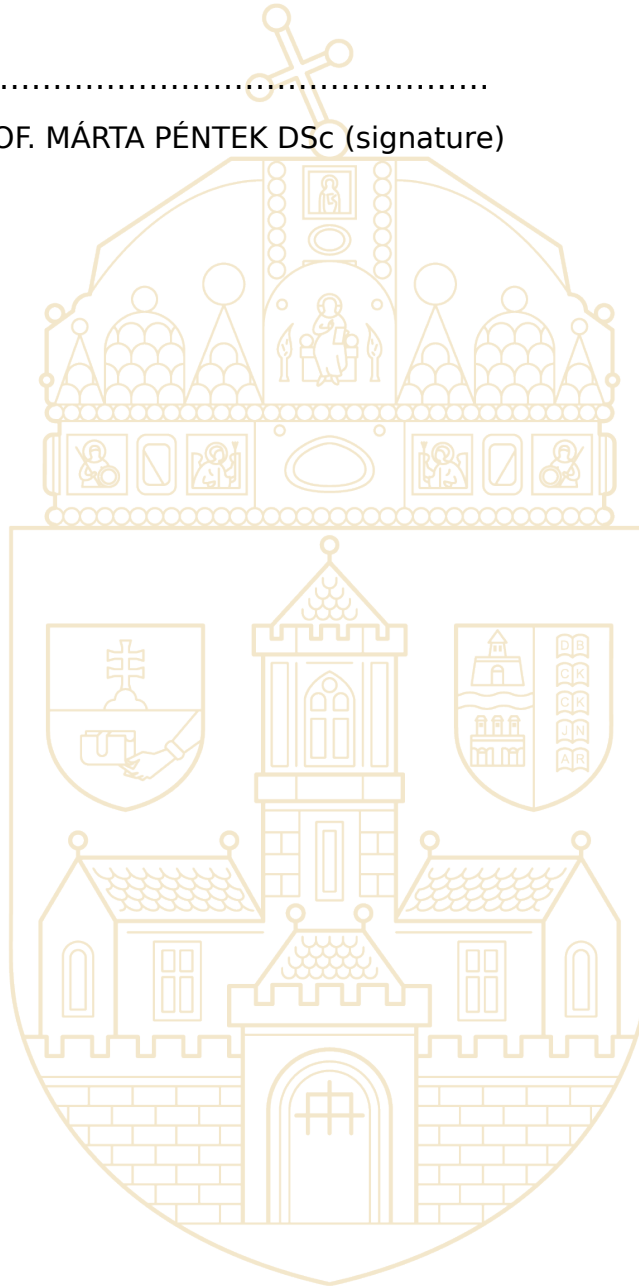


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RESEARCH METHODS AND ACADEMIC WRITING  
**COURSE SYLLABUS**  
**Doctoral School OF Innovation Management**

Prepared by: .....

PROF. MÁRTA PÉNTEK DSc (signature)





**COURSE SYLLABUS**  
**Doctoral School Of Innovation Management**

Course title: Synthesis of scientific evidence in healthcare: a systematic review and evaluation of the literature	Credit value: 5
Course responsible and lecturer (name, academic title): Prof. Márta Péntek DSc	
Course classification: Basic course (subjects) in the field of / Research topic related basic course / <u>Optional subject</u>	
Proportion of theoretical and practical content, "Training character": 50% - 50% theory - practice	
<p><b>Type of class:</b> lecture / <u>seminar</u> / practice / <u>consultation</u> and total number of classes in the given semester: 30 classes</p> <p><b>Methods and (specific) approaches, characteristics used to deliver the course content:</b> e.g. case presentations and case study analyses, project work, others...</p> <p>Doctoral students will learn about the theoretical foundations in a seminar.</p> <p>Consultations:</p> <p>a.) Systematic literature review: Students will conduct a systematic literature review and evaluation in the field of their own doctoral research topic, applying high-level scientific methods and standards. The review is prepared in such a way that it can be used/incorporated into their doctoral dissertation.</p> <p>b.) Project work: Students develop a precise research plan for a systematic literature review in the field of their own doctoral research topic, in accordance with international standards.</p>	
<p>Form of assessment (exam / practical grade / <u>other</u>): Additional (specific) methods of knowledge assessment:</p> <p>a.) Systematic literature review: Students prepare a written report on the review in such a way that it can be used/incorporated into their doctoral dissertation.</p> <p>b.) Project work: Students summarize their research plan for their own research topic in a written report.</p>	
Curricular placement of the course (which semester): Can be taken in semesters 1-4	
Prerequisites (if any): None.	
<b>Course description:</b> Objective of the course, a concise yet informative description of the knowledge to be acquired	
<p>The aims of the course are</p> <ul style="list-style-type: none"> <li>- to introduce the methods of systematic literature search and analysis of clinical and health economic scientific evidences</li> <li>- students should be able to search for and synthesize studies available in the health literature and evaluate the quality of</li> </ul>	



**COURSE SYLLABUS**  
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studies published in the literature and its results on a scientific basis

- to communicate their own research results in accordance with international standards.

Students will learn the main types of clinical trials and economic evaluations, the methods of systematic literature search to identify scientific evidence in healthcare. They master the techniques needed to build a literature search tailored to the research goal and to apply the systematic search in various electronic health literature databases. They learn to evaluate the results of the identified studies and to establish evidence levels. Methods and guidelines will be introduced to enable them to design clinical and health economics studies. Particular emphasis will be placed on quality standards for the reporting of medical and health economic research, which will increase the acceptance and comparability of the study results, as well as will improve the chances of publishing the research in high prestige scientific journals.

2-5 most important required readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

- Cochrane Handbook for Systematic Reviews of Interventions. Version 6.5, 2024.  
<https://www.cochrane.org/authors/handbooks-and-manuals/handbook>.
- Tóth B, Berek L, Gulácsi L, Péntek M, Zrubka Z. Automation of systematic reviews of biomedical literature: a scoping review of studies indexed in PubMed. Syst Rev. 2024 Jul 8;13(1):174. doi: 10.1186/s13643-024-02592-3..

2-5 most important recommended readings (textbooks, study materials) with bibliographic data (author, title, publication details, pages, ISBN):

- Zrubka Z, Kertész G, Gulácsi L, Czere J, Hölgyesi Á, Nezhad HM, Mosavi A, Kovács L, Butte AJ, Péntek M. The Reporting Quality of Machine Learning Studies on Pediatric Diabetes Mellitus: Systematic Review. J Med Internet Res. 2024 Jan 19;26:e47430. doi: 10.2196/47430.
- Equator network. Enhancing the QUALity and Transparency Of health Research. <https://www.equator-network.org/reporting-guidelines/>
- <http://www.prisma-statement.org>
- Motahari-Nezhad H, Al-Abdulkarim H, Fgaier M, Abid MM, Péntek M, Gulácsi L, Zrubka Z. Digital Biomarker-Based Interventions: Systematic Review of Systematic Reviews. J Med Internet Res. 2022 Dec 21;24(12):e41042. doi: 10.2196/41042.



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SYNTHESIS OF SCIENTIFIC EVIDENCE IN HEALTHCARE:  
A SYSTEMATIC REVIEW AND EVALUATION OF THE  
LITERATURE

**COURSE SYLLABUS**  
**Doctoral School Of Innovation Management**

Date: 25th February, 2026

Prepared by: .....

PROF. MÁRTA PÉNTEK DSc (signature)

