Rural Development Engineering

BSc

2025/2026

full-time training

subject descriptions

Debrecen

Contents

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Gazdasági matematika</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE001-17</td></tr>
<tr><td>English:</td><td colspan="3">Business Maths</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="4">Institute of Methodology and Business Digitalization</td><td></td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3">-</td><td>Code:</td><td></td></tr>
<tr><td colspan="2" rowspan="2">Division</td><td colspan="3">Classes per week</td><td rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
<tr><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td></tr>
<tr><td>Daytime</td><td>x</td><td>per week</td><td>2</td><td>per week</td><td>2</td><td rowspan="2">Practical grade</td><td rowspan="2">4</td><td rowspan="2">English</td></tr>
<tr><td>Correspondent</td><td></td><td>Semiannually</td><td></td><td>Semiannually</td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>Name:</td><td colspan="2">Dr. Sándor Kovács</td><td>post</td><td>associate professor</td></tr>
</table>

Course goals:

Math is an integral part of our daily life an has a great practical value. This subject attempts to illustrate this viewpoint with an applied approach. My objective is to motivate students using their knowledge in their every day life. Problem solving approach is stressed throughout the whole course. In order to reach that goal every new concept and definition will be illustrated by numerous real-life examples and concrete appropriate applications. Special emphasis is placed on helping students to solve and interpret their own problems. Mathematical concepts covered by my course is well connected with each other for example the limit calculation and the derivatives, matrices and extreme value calculation of multivariable function. One of the major issues of mathematics is the modelling approach. I must strive to develope skills to translate and convert real-life problems into mathematical models. The other goal of the subject is that the students could be introduced to the basic methods and terminology or definitions in mathematics which can be used in economics. The differential calculus of one and two-variable functions and its practical application is in the center of interest as well as the extreme value and elasticity calculation of one and two-variable functions. During the course of practical lessons students should gain experience in problem solving from the various topics of the subject.

Competences:

Knowledge:

Students should get acquire the mathematical, statistical methods which are needed to analyse and cope with problems in Rural Development and Agriculture.

Skills:

Student will be qualified for plannig and oragnizing Rural Development programmes and for allocating resources, making professional proposals, drawing conclusions.

Attitude:

Student should be more cooperative in solving problems from the field of Rural Development and Quality Assurance. Students become opened to the innovative and scientific approaches and sensitive to the new features.

Autonomy and responsibility:

Students will be able to plan economic processes and to control purchasing and marketing processes

Course content , topics:

The semester starts with the theory of sets and algebraic preliminaries like rules of fractions, exponents, Cartesian coordinate system, straight lines. Next we discuss classifications and characteristics of one-variable functions regarding plotting and basic function types including exponential and logarithm functions and algebra of functions. We deal also with some financial mathematics like amount of investment, rate of interest, present value, compound interest, mathematical models. We also study calculus (limits and continuity) and differencial calculus which are of the key focus of the subject. We learn how to derivate functions and how to apply it in economics like elasticity of demand and other areas of life.

In the second part of the semester we discuss matrices including operations, inverse matrices and Leontieff Input-output problems and other applications. We also apply matrices to solve linear equation systems with Gauss-Jordan row reduction method. Next we study functions of several variables and partial derivatives in connection with matrices. We learn the Lagrange Multiplier method and the extreme value calculation of functions with several variables. The course ends with combinatorics and probability counting which are also of key importance. We learn about conditional probability, odds, probability trees and Bayes theorem.

Learning methods:

Lectures were made by using Prezi and further explanations will be made on the whiteboard. During the seminars the following softwares will be used: Winplot and PAST (Paloontological Statistical Software) for representing

functions in 2D,3D and for nonlinear and polynomial fit. Microsoft excel will be used for matrix operations and solving multiple linear equation systems. Regarding calculus and analysis Wolfram Alpha will be presented. Online multiple choice questionaries are available through the elearning system which could help practicing for the exams.

Assessment

The attendace on every lecture and practice is compulsory for the students as the different topics are built upon one another. A catalogue is being made during the lectures and seminars. Each student MUST SIGN the form and should not miss more than 4 occasions. Each student should get a practical grade which will be based on the midterm and endterm tests (work problems and multiple choice questions). The practical grade will be written in the Neptun System till the end of the learning period. In order to fulfill the subject every student should receive a signature which has two conditions. There should not be more than 4 uncertified absence from the courses and from the lectures and 20 percent should be obtained from the total score of the two tests. Evaluation in the learning period will be made mainly according to the results of the midterm (in the 8th week) and endterm (in the last week) tests written on the seminars but the students could gather extra points by solving tests for plus points. The lecturer will provide at least 10 tests for plus points and if a student solves them 100% correctly or only one question per test was wrong, he\she will obtain one point after the tests. This means that if a student solves all 10 tests 100% correctly (or made only 1 mistake per test), he/she will obtain 10 plus points. Each student should get a practical grade. In case the final score from both tests reaches at least the half of the obtainable total the student gets a passing practical grade between 2 and 5. In case the final score from both tests is between 20 and 50% of the obtainable total the student gets a fail grade. Those students who were not able to obtain a passing grade during the learning period or would like to improve the result, will be given 2 extra chances during the examining period (but only within the first 3 weeks!!!). In case the student has already obtained a grade but would like to better the results, the better result will be valid. This means that there is no place for spoiling the accomplished result even if the second grade is worse than that. In case a student should take an exam, the evaluation will be based ONLY on the performance on the exams.

Compulsory readings:

E. Haeussler – R. Paul – P. Wood (2014): Introductory Mathematical Analysis for Business, Economics, and the Life and Social Sciences, 13th edition, Pearson, UK, ISBN: 978-1-29202-114-0

Recommended readings:

R.J. Harschbarger – J.J. Reynolds (2015): Mathematical application for Management, Life and Social Sciences, Brooks/Cole, USA, Belmont, CA, ISBN: 978-1305108042

S.T. Tan (2016): Applied Mathematics for Managerial, Life and Social Sciences, Cengage Learning, USA, Stamford, ISBN: 978-1-285-46464-0

K. Sydaster – P. Hammond (2016): Essential Mathematics for Economics Analysis, Pearson Education, UK, ISBN: 978-1-292-07465-8

M. Spiegel – J. Schiller – A. Srinivasan (2001): Probability and Statistics, McGraw Hill, USA, ISBN: 0-07-139838-4 159 pages

S. Warner – S. R. Costenoble (2007): Finite Mathematics and applied calculus, Thomson Higher Education, USA, Belmont, CA, ISBN: 0-495-01631-4 1252 pages

Syllabus

Week	Topics
1.	LO: Algebric preliminaries: Real number line, operations, rules for exponents and radicals, operations with algebraic expressions, factoring, Cartesian coordinate systems, straight lines, distance in the plane
2.	LO: Graph and algebra of functions, application is business economics, break-even analysis, supply-demand, market equlibrium, Exponential, logarithmic and logistic curves and its applications
3.	LO: amount of investment, rate of interest, present value, compound interest, mathematical models, Future Value of annuities, annuities due, loans and amortization of debts
4.	LO: limits and continuity and derivatives
5.	LO: Differential Calculus I: rules, higher order derivatives, marginal functions in economics, curve sketching
6.	LO: Differential Calculus III: optimization, elasticity and other applications in business economics
7.	Mid-term exam week
8.	LO: Matrix operations and its practical applications
9.	LO: Gauss-Jordan elimination for solving systems of linear equations and its applications
10.	LO: Combinatorics, Permutation and combinations, Poker hands and other problems
11.	LO: Probability, estimated probability, odds, odds ratio
12.	LO: Application of the classic and geometric definition to real-life problems, sampling
13.	LO: Application of conditional probability to real-life problems, Probability trees and Bayes rule
14.	End-term exam week

*LO learning outcomes

Course title:	Hungarian:		**Mikroökonómia**			Code:	**GT_AGVNE002-17**
	English:		**Microeconomics**				
Institute:			Institute of Economics				
Prerequisites:			Introduction to economics Mathematics I.			Code:	
		Classes per week				Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)				
		per week	**2**	per week	**2**		**4**	**English**
Responsible instructor			name:	**Piroska Harazin**		academic position	**asistant professor**

Course goals:

The course is aimed at making students familiar with the basic concepts of microeconomic analysis. Particularly, the course will be focused on the analysis of how economic actors, consumers and firms, choose between different alternatives. By the end of the course, student should be able to use the basic tools and models of microeconomics, and apply them in solving problems.

Competenses:

Knowledge:

a comprehensive and fundamental knowledge of the concepts, theories, facts, national and international relations of economics with regard to relevant economic players, functions and processes.

Capabilities:

plan and organize economic activities and projects, manage and control small enterprises or economic operators. By applying principles and methods studied, they will explore, systematize and analyze facts and essential links; draw conclusions independently and make critical comments, prepare proposals for decision-making, bring decisions in a routine and also partly unknown - national or international - environment.

Attitudes:

They will be receptive to include new information, new professional know-how and methodology; open to undertaking new and independent tasks and responsibilities requiring cooperation.

Autonomy, responsibility:

They will take responsibility for their analyses, conclusions and decisions.
They will take responsibility for the development and justification of professional viewpoints.
They will take responsibility for compliance with professional, legal and ethical norms and rules related to their work and behaviour.

Course content , topics:

Principles of microeconomics, Demand-Supply and equilibrium, Price elasticity, Consumer preferences, budget constraint and consumer choice, individual demand, Consumer surplus, Production theory, Cost functions, Perfect competition, Monopoly

Learning methods:

Lectures, seminars, calculations, graphical illustrations

Assessment

The exam is a written test which will be evaluated according to the following grading schedule:
0 - 50% – fail (1)
51% - 63% – pass (2)
64% - 75% – satisfactory (3)
76% - 86% – good (4)
87% - 100% – excellent (5)

Compulsory readings:

Perloff, Jeffrey M. (2015): Microeconomics. Seventh Edition, Pearson Education Limited.

Recommended readings:

Besanko, David – Breautigam, Ronald R.: Microeconomics. Third Edition (International Student version). John Wiley and Sons, Inc., New York, 2008.

Besanko, David – Breautigam, Ronald R.: Microeconomics. Study Guide. Third Edition. John Wiley and Sons, Inc., New York, 2008.
Varian, H. R. (2009). Intermediate Microeconomcs: A Modern Approach. Eighth Edition. W. W. Norton & Company, Inc.
Bergstrom, TH. C., Varian, H. R. (2010). Workouts in Intermediate Microeconomics: for Intermediate Microeconomics: A Modern Approach, Eighth Edition. W. W. Norton & Company, Inc.

Syllabus

Week	Topics
1.	Principles of microeconomics, equilibrium analysis LO: Opportunity cost, optimisation, models
2.	Demand, supply, and equilibrium, Price elasticity and other elasticities LO: Demand, Supply, Price elasticity
3.	The budget constraint LO: Income, marginal rate of transformation, opportunity set
4.	Consumer preferences and utility LO: Indifference curves, marginal rate of substitution, marginal utility
5.	Consumer choice LO: constrained optimisation, interior solution, corner solution
6.	Individual demand curve and Engel curve LO: price-consumption curve, individual demand, income-consumption curve, Engel curve
7.	Management and owner of firms, Economic cost, Production LO: profit maximisation, explicit and implicit costs, production function, short-run, long-run
8.	Short-run production, Returns to scale LO: average product of labour, marginal product of labour
9.	Cost functions LO: marginal cost, long-run cost, economies of scale
10.	Perfect competition I. LO: Criteria of the model, price-takers, break-even point, shut-down decision
11.	Perfect competition II. LO: supply curve, industry in the long run
12.	Consumer and producer welfare LO: consumer surplus, producer surplus
13.	Monopoly LO: marginal revenue, market power, entry barriers, natural monopoly, deadweight loss
	Summary LO: synthesis

*LO learning outcomes

Course title:	Hungarian:	**Makroökonómia**	Code:	**GT_AGVNE003-17**
	English:	**Macroeconomics**		

Institute:	**Faculty of Economics and Business, Institute of Economics**			
Prerequisites:	**Microeconomics**		Code:	**GT_AGVNE002-17**

Classes per week				Requirement	Credit	Language of instruction:
Lecture(s)		Seminar(s)				
per week	2	per week	2	**Exam**	**5**	**English**

Responsible instructor	name:	**Andrea Szabó**	post	**assistant professor**

Course goals:

The course is aimed at making students familiar with the basic issues of macroeconomics and make them able to use those fundamental analytical tools which are needed to answer macroeconomic questions.

A list of the required professional competences and competence elements (knowledge, skills, etc., KKK point 7) to which the subject typically and substantially contributes)

Knowledge:

He or she has learnt the basic theories and characteristics of the macro-level organisation of the economy.

Ability:

By applying the theories and methods learnt, he or she identifies facts and basic relationships, organises and analyses, draws independent conclusions, makes critical comments, prepares proposals for decisions, and makes decisions in routine and partly unfamiliar contexts, both national and international.

Attitude:

He or she is receptive to new information, professional knowledge and methodologies.

Autonomy and responsibility:

He or she takes responsibility for his/her analyses, conclusions and decisions.

Course content , topics:

Measuring a nation’s income, Measuring the cost of living, Unemployment, GDP growth, Solow model, The exchange rate, The foreign exchange market, Equilibrium in the foreign exchange market, Equilibrium in the money market, Purchasing power parity

Learning methods:

Lectures and seminars, calculations and graphical illustrations.

Assessment

Students are required to attend the seminars, which means they are allowed to miss three seminars at most during the semester for whatever reason. Missing four or more seminars implies a rejection of the signature. The exam is a written test, which will be evaluated according to the following grading schedule:
0 - 50% – fail (1)
50%+1 point - 63% – pass (2)
64% - 75% – satisfactory (3)
76% - 86% – good (4)
87% - 100% – excellent (5)

Compulsory readings:

Mankiw, Gregory [2009]: Principles of Economics. Ninth Edition. South-Western, Mason, USA
Williamson, Stephen D. (2014). Macroeconomics. Fifth (International) Edition, Pearson. ISBN: 9781292000459
Pilbeam, K. [2023]: International Finance, London, 5th Edition Bloomsbury Publishing

Recommended readings:

Heyne, Paul – Boettke, Peter – Prychitko, David [2010]: The Economic Way of Thinking. Twelfth Edition. Pearson Education International, New Jersey
Mankiw, G. N. (2016). Macroeconomics. Ninth edition, Worth Publishers. (Earlier editions are equally good to

preparing for the exam). ISBN: 978 0 7167 6213 3 0 7167 6213 7

Krugman, P. R. – Obstfeld, M. – Melitz, M. J. [2022]: International Finance: Theory and Policy, 12th Edition, Pearson

Week	Topics
1.	Introduction. Measuring a nation's income
	LO*: Understanding what the GDP is, and how to measure it
3.	Measuring a nation's income
	LO: Understanding the notions of nominal and real GDP
5.	Measuring the cost of living
	LO: The meaning of the price level and inflation, GDP deflator and the consumer price index
7.	Unemployment
	LO: The fundamentals of the labour market
9.	GDP growth I
	LO: Reviewing some data and examples in connection with economic growth around the word, understanding the role of productivity in economic growth
11.	GDP growth II.
	LO: Understanding how the economic policy can promote economic growth
13.	Economic growth: the Solow model I.
	LO: Main assumptions and derivation of the steady state
15.	Economic growth: the Solow model II.
	LO: The implications of the model: conditional convergence, the golden rule of capital accumulation, and growth accounting
17.	The exchange rate
	LO: The students will be familiar with the basic concepts of exchange rates: quotation of exchange rates; cross rates; bid-offer exchange rate; nominal, real and effective exchange rate; spot rates and forward rates; depreciation and appreciation; exchange rates and relative prices; equilibrium exchange rate; equilibrium exchange rate in floating and fixed exchange rate regimes.
19.	The foreign exchange market
	LO: The students will know the basic features and concepts related to the foreign exchange market: know the participants of foreign exchange market; interpreting of arbitrage, types of arbitrage; actors based on trading motivations (arbitrageurs, hedgers, speculators), some foreign exchange instruments.
21.	Equilibrium in the foreign exchange market
	LO: The students will be able to interpret the foreign exchange market equilibrium in a model approach. The acquired models are: uncovered, covered and real interest parity.
23.	Equilibrium in the money market
	LO: The students will be able to interpret the evolvement of the money market equilibrium in a model approach.
25.	Purchasing power parity
	LO: The students will be able to understand the assertions and limitations of PPP.
27.	Purchasing power parity
	LO: They will be aware of one of the most popular explanations of the empirical failure of purchasing power parity: the (Harrod) - Balassa - Samuelson model.

*LO learning outcomes

<table>
<tr><td colspan="3" rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Üzleti Statisztika</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE004-17</td></tr>
<tr><td>English:</td><td colspan="3">Business Statistics</td></tr>
<tr><td colspan="9"></td></tr>
<tr><td colspan="4">Institute:</td><td colspan="5">Institute of Methodology and Business Digitalization</td></tr>
<tr><td colspan="4">Prerequisites:</td><td colspan="3">Business Math</td><td>Code:</td><td>GT_AGVNE001-17</td></tr>
<tr><td colspan="2" rowspan="2"></td><td colspan="4">Classes per week</td><td rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
<tr><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td></tr>
<tr><td>Daytime</td><td>x</td><td>per week</td><td>2</td><td>per week</td><td>2</td><td rowspan="2">Practical</td><td rowspan="2">4</td><td rowspan="2">English</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">Responsible instructor</td><td>name:</td><td colspan="2">Prof. Dr. Péter Balogh</td><td>post</td><td>assistant professor</td></tr>
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Course goals:

The course introduces the basic statistical concepts and covers the procedures most frequently used in the descriptive analysis of cross-sectional and time-series data. The focus will be mainly put on the computation and interpretation of the most widely used statistical measures and some basic economic indicators that have importance in the socio-economic decision making process.

Competences:

Knowledge:

Students should get acquire the mathematical, statistical methods which are needed to analyse and cope with problems in Business and Economics.

Capabilities:

Student will be qualified for plannig and organizing business programmes and for allocating resources, making professional proposals, drawing conclusions.

Attitudes:

Student should be more cooperative in solving problems from the field of Business and Economics. Students become opened to the innovative and scientific approaches and sensitive to the new features.

Autonomy, responsibility:

Students will be able to plan economic processes and to control purchasing and marketing processes

Course content , topics:

The basic concepts of statistics; descriptive statistics: analysis of quantitative variables; stochastic relationships, graphical methods; sampling; estimation theory, point and interval estimation, basics of hypothesis tests

Learning methods:

During the seminars we solve exercises of the book using SPSS for getting the solutions. Attending the lectures and the seminars are compulsory.

Assessment

The overall course grade will be based on the working on practices and the final computer exams.

Compulsory readings:

Anderson, Sweeney, Williams, Freeman and Shoesmith: Statistics for Business and Economics, Second edition, Cengage Learning EMEA, 2010. UK, 928. p. ISBN: 1408018101

Howitt, D. – Cramer D.: Introduction to Statistics in Psychology, 6/E Pearson, Harlow. 2014. 744. p. ISBN-13: 9781292000749

Recommended readings:

Field A.: Discovering Statistics Using SPSS (Introducing Statistical Methods), 5th Edition, SAGE Publications Ltd., London, 2017. 1104. p. ISBN-13: 9781526445780

Syllabus	
1.	The statistical concepts and sub-areas. Statistical basic concepts of the population, criteria, parameters, sample. The statistical work phases.
	LO: The basic concepts of statistics. Data collection and utilization methods, data sources. Statistical opportunities in the Excel spreadsheet program. Functions and procedures, basic statistical operations.
3.	Levels of measurement data. Definition of the data for the different scales of measurement. Data Representations.
	LO: Definition of the data for the different scales of measurement. Creating and interpreting charts.
5.	Central indicators: median, mode, mean.
	LO: Calculation of central indicators at different levels of measurement variables.
7.	The measures of variability: standard deviation, variance, range, absolute, relative differences in coefficient of variation, the relative coefficient of variation.
	LO: Calculation of dispersion from the population and sample.
9.	Measure of concentration, Lorenz curve. Herfindahl-Hirschman-index. Correlation between the concentration and dispersion.
	LO: The practice of concentration analysis.
11.	The normal distribution as a model. Distribution and density function. Skewness and kurtosis characterization.
	LO: Preparation of Normal Distribution. Analysis of density and distribution functions. Standardization. Calculation of skewness and kurtosis, practical interpretation.
13.	Student's t-distribution. The standard error of the mean. Confidence interval. Statistical hypothesis tests, non-parametric tests. Chi-square test.
	LO: Determination of standard error. Confidence intervals were calculated for different probabilities. Practical application of the confidence intervals. Independence testing, fit testing, homogeneity test. Chi-square tests.
15.	Comparing the Means of Two Independent Groups. Comparing Two Dependent Groups.
	LO: Example for Comparing the Means of Two Independent Groups and Comparing Two Dependent Groups.
17.	Comparing More Than Two Groups. The ANOVA F Test for Independent Groups.
	LO: Practice for ANOVA analysis
19.	Product-moment correlation coefficient: Pearson, Rank correlation: Kendall, Spearman.
	LO: Examples of the different correlation coefficiens. The interpretation of the results.
21.	Regression analysis. Terms of the use of regression analysis.
	LO: Regression analysis. Terms of the use of regression analysis.
23.	Multi correlation and regression. A good model and measurement criteria. Elasticity concept, measuring. Partial elasticities. Cobb-Douglas function.
	LO: Example for the Elasticity. Partial elasticities. Using Cobb-Douglas function in practice.
25.	Time series analysis. Trend, cycle, seasonality and error. The decomposition of the time series. An analysis of the time series means (mean size of the phenomenon, the mean of the absolute and relative changes).
	LO: Example for stock and flow types of time series.

Course title:	Hungarian:	**Gazdasági jog**	Code:	**GT_AGVNE005-17**
	English:	**Business Law**		

Institute:				**Institute of World Economy and International Relations**				
Prerequisites:				-			Code:	-
		Classes per week				Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)				
Full time	**X**	per week	**2**	per week	**0**	**collocvium**	**3**	**English**
Part time								
Responsible instructor				name:	**András Helmeczi, PhD**		post	**senior lecturer**

Course goals:

The course is designed to introduce students to the particularities of legal ascpects of economy, both theoretically and in practice. A broad overview over the most relevant topics in the area of legal life in economy is given.

Competences:

Knowledge:

- Knows the structure and functioning of economic organisations.
- Familiar with the tasks related to commercial activities and the basic legal regulations applicable to commercial activities.

Capabilities:

- Using his/her theoretical, conceptual and methodological knowledge, he/she collects and organises the facts and data needed to perform his/her tasks; he/she identifies simple causal relationships and draws conclusions and recommendations in the routine processes of the organisation.
- Able to plan and run an individual or small business independently.
- Collaborates effectively with colleagues and managers on project tasks and work assignments.

Attitudes:

- Committed to quality work, complying with relevant professional, legal and ethical rules and standards.
- Intented to develop and adapt its commercial and marketing activities to the changing economic and legal environment.

Autonomy, responsibility:

- Takes responsibility for the own work and decisions.
- Carries out the duties independently, prepares professional reports, reports and small presentations independently. Where necessary, and seeks assistance from colleagues and managers.
- Under general professional supervision, direction and control, consciously plans, organises and regularly supervises the tasks in the job description.

Course content , topics:

Basic legal terms, personal law, rights in rem, contractual law, company law.

Learning methods:

In the lessons the students get detailed explanations with life-like examples to the most important legal aspects of economy.

Assessment

Presentation in the agreed legal topic (10-12 slides ppt, appr. 10 minutes).
In case if the presentation is missing or not accepted, final *written test* at the end of the semester, with the following grades:

points	*grade*
0-7	1 (fail)
8-9	2 (satisfactory)
10-11	3 (fair)
12-13	4 (good)
14-15	5 (excellent)

Compulsory readings:
handout (electronically sent to the students)
Recommended readings:

Syllabus

Week	Topics
1.	**Legal system, basic legal terms 1: law as social rule, content and function of law, categories of legal rules** LO: the knowledge of the most important legal rules and solutions according to the topic
2.	**Legal system, basic legal terms 2: sources of law, legislation and jurisdiction, legal relation** LO: the knowledge of the most important legal rules and solutions according to the topic
3.	**The person as subject at law 1: natural person, legal capacity and competency** LO: the knowledge of the most important legal rules and solutions according to the topic
4.	**The person as subject at law 2: legal person, protection of personality** LO: the knowledge of the most important legal rules and solutions according to the topic
5.	**Rights in rem 1: the thing, possession** LO: the knowledge of the most important legal rules and solutions according to the topic
6.	**Rights in rem 2: ownership rights, rights of use** LO: the knowledge of the most important legal rules and solutions according to the topic
7.	**Contractual law 1: obligations and legal statements, representation, performance** LO: the knowledge of the most important legal rules and solutions according to the topic
8.	**Contractual law 2: basic rules of contracts, express contracts** LO: the knowledge of the most important legal rules and solutions according to the topic
9.	**Contractual law 3: liability for damages** LO: the knowledge of the most important legal rules and solutions according to the topic
10.	**Company law 1: common rules, organization, representation, termination** LO: the knowledge of the most important legal rules and solutions according to the topic
11.	**Company law 2: sole company types** LO: the knowledge of the most important legal rules and solutions according to the topic
12.	**Presentations 1** LO: the knowledge of the most important legal rules and solutions according to the topic
13.	**Presentations 2** LO: the knowledge of the most important legal rules and solutions according to the topic
14.	**Presentations 3** LO: the knowledge of the most important legal rules and solutions according to the topic

*LO learning outcomes

Course title:	Hungarian:	**Mezőgazdasági alapismeretek**	Code:	**GT_AGVNE006-17**
	English:	**Basic of agrculture**		

Institute:				University of Debrecen, Faculty of Economics and Business, Institute of Rural Development and Functional Economic				
Prerequisites:							Code:	
		Classes per week				Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)				
full-time training	**X**	per week	**1**	per week	**2**			**English**
Responsible instructor				name:	**Dr. Terjék László**		post	**adjunct**

Course goals:

The aim of the course is for students to learn about the characteristics of the value creation processes in agriculture, their structure, and their relationship with other industrial and service sectors. The students should get to know the main work processes of plant growing and animal husbandry, their structure, the conditions of production and the main influencing factors.

Competences:

Knowledge: They learn the basic professional concepts of animal husbandry and crop cultivation and their cor-rect use. They gain insight into basic work processes, their structure and organizational attributes. It has the basic principles and methods of agricultural work organization and management.

Capabilities: Students will be able to provide a descriptive and analytical overview of the main agricultural work processes and the characteristics of their operations. - Able to analyze a specific technological problem in a complex manner and able to give advice on possible solution directions. Able to consider the effects of the given agricultural technology on the economic, social and natural environment of the countryside.

Attitudes: Their attitude towards quality work is getting stronger, their approach to the process is getting strong-er, and their need for proactive behavior and foresight is increasing. You become susceptible to receiving and searching for knowledge and information. Openn to solve complex problems at the community level. Receptive to the opinions of others, problems affecting the sector and a system-level view of tasks. It strives for constant (life long) learning and development.

Autonomy, responsibility: He assumes responsibility for his professional analyzes and his positions. Leads, or-ganizes and directs work processes independently. Takes part in work independently and responsibly.

Course content , topics:

Introduction. Characteristics of agricultural work processes. Basic concepts, sectoral characteristics, crop production. Soil preparation, nutrient supply. Sowing, Care, plant protection, harvesting: Maize, winter wheat. Crop storage. Animal husbandry, basic concepts, basic knowledge of beef cattle breeding/keeping. Basic knowledge of pig breeding and husbandry. Basic knowledge of poultry breeding and husbandry, horse husbandry

Learning methods:

Lecture frontal teaching method, PowerPoint, video materials, consultation, students' independent work, analysis of articles, study trip

Assessment

The colloquium grade is given by the result of the written exam during the exam period.

Compulsory readings:

Allen V. Barker, David J. Pilbeam: 2016. Handbook of Plant Nutrition. CRC Press. (ISBN: 9781420014877) 632 p.
Thomas Field – Robert Taylor (2019): Scientific Farm Animal Production. 12th edition. Pearson. 1-608.
A. Aland, T. Banhazi eds. (2013): Livestock housing. Modern management to ensure optimal health and welfare of farm animals. Wageningen academic Publishers. 1-491.

Recommended readings:

Kyriazakis I.- Colin T. Whittemore C.T. (2006): Whittemore's Science and Practice of Pig Production. Blackwell Publishing. ISBN-10: 1-4051-2448-2
Stephen R. Gliessman (2015). Agroecology - The Ecology of Sustainable Food Systems, Third Edition, ISBN 9781439895610, p. 406
Noureddine Benkeblia (2019). Agroecology, Ecosystems, and Sustainability. ISBN 9780367435981, p. 393

Syllabus

Week	Topics
1.	TH: Introduction, basic concepts of agriculture, cultivation branches, plant and animal breeding sectors, agro-business, crop production SM: yield, performance calculations LO: Knowledge of the agricultural environment and its network
2.	TH: Basic concepts of plant cultivation, SM: soil preparation systems, tools LO: soil preparation knowledge, conceptual knowledge
3.	TH: Sowing: Sowing operations, basic concepts, SM: maize, spring wheat LO: Work process and tool knowledge
4.	TH: Sowing planning, SM: seed requirement planning, capacity planning LO: capability level seed requirement planning and capacity planning
5.	TH: Nutrient supply methods and machines, precision technologies SM: Nutrient supply calculation LO: Knowledge of the basic principles and concepts of nutrient supply
6.	TH: Plant protection, plant care, SM: application of plant protection agents, mechanical plant protection, precision plant protection LO: Knowledge of the basic principles, concepts and tools of plant protection and care
7.	TH: Harvesting, crop storage, work operations, machines, tools, SM: spring wheat, maize LO: process and tool knowledge
8.	TH: Basic concepts of animal husbandry, sectoral characteristics, beef cattle, pigs, poultry, horses, sheep SM: structure of livestock farms LO: conceptual knowledge, discernment
9.	TH: Basic knowledge of milk production workflow, SM: structure and operation of dairy farms LO: TE ability to navigate milk production technology
10.	TH: Milking and milk quality tests, milk quality assurance HACCP SM: milking parlor visitation LO: basic knowledge of milk quality and food safety
11.	TH: Basic knowledge of the work process of pork production, SM: structure and operation of pig farms LO: TE Ability to navigate pork production technology
12.	TH: Basic knowledge of the work process of poultry meat production, SM: Structure and operation of poultry farms LO: TE Ability to navigate poultry meat production technology
13.	TH: Technological knowledge of egg production, basic concepts SM: capacity calculations LO: Orientations knowledge in egg production technologies
14.	TH: Keeping and using the horse, basic knowledge, concepts SM: building a riding stable, viewing internal work processes LO: horse husbandry basic knowledge

*LO learning outcomes

<table>
<tr><td rowspan="2">Course title:</td><td>Hungarian:</td><td>Agrártermelés természettudományi alapjai I.</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE007-17</td></tr>
<tr><td>English:</td><td>Scientific Foundations of Agricultural Production I. (Plant physiology, Botany)</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td colspan="2">Institute:</td><td colspan="3">UD Faculty of Science and Technology, Department of Plant Sciences</td></tr>
<tr><td colspan="2">Prerequisites:</td><td colspan="2">-</td><td>Code:</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week
Lecture(s) Seminar(s)</td><td>Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td colspan="2">per week 2 per week 1</td><td></td><td>E</td><td>4</td><td>English</td></tr>
<tr><td colspan="2">Responsible instructor</td><td>name:</td><td>Gábor Vasas, PhD</td><td>post</td><td>Full professor</td></tr>
<tr><td colspan="2">Instructor</td><td>name:</td><td>Zsuzsa Lisztes-Szabó, PhD</td><td>post</td><td>Senior research fellow</td></tr>
<tr><td colspan="6">Course goals:
The course aims to give essential information on plant anatomy, physiology, morphology, and taxonomy of crop and weed species. It trains the student’s plant recognition knowledge in the most important plant families.</td></tr>
<tr><td colspan="6">Competences:
Knowledge:
wide basic of plant sciences: knowledge of terminologoies, contexts, understanding processes.
Capabilities:
synthesize the plant sience knowledge with other professional fields and utilize them
Attitudes:
receptive to the application of effective rural development methods and tools, and is also committed to environmental protection, nature conservation, human health, and a sustainable rural economy.
Autonomy, responsibility:
develops rural development issues independently and responsibly</td></tr>
<tr><td colspan="6">Course content , topics:
Plant cytology, anatomy, physiology, morphology, and taxonomy of crop and weed species. Taxonomy: Papaveraceae, Chenopodiaceae, Rosaceae, Fabaceae, Linaceae, Apiaceae, Brassicaceae, Cucurbitaceae, Solanaceae, Asteraceae, Alliaceae, Poaceae.</td></tr>
<tr><td colspan="6">Learning methods:
Lectures, recommended book chapters, practice on living plants.</td></tr>
<tr><td colspan="6">Assessment
The exam is a written test which will be evaluated according to the following grading schedule:
60-70 % (2)
70-80 % (3)
80-90 % (4)
90-100 % (5)</td></tr>
<tr><td colspan="6">Compulsory readings:
J. D. Mauseth (ed.) 2021. Botany. An Introduction of Plant Biology. Jones and Bartlett Publishers International, 7th ed. Relevant subchapters of Preface, Plant Structure, and Plant Physiology and Development chapters. (Fifth edition is available as eBook on Google.)
Recommended readings:
Subhash C. Datta (1988): Systematic Botany. New Age International, ISBN; 8122400132, 9788122400137.
Dirk R. Walters, David J. Keil (1988): Vascular plant taxonomy. Kendall/Hunt Pub. Co., Cornell University.
O P Sharma (1993): Plant Taxonomy. Tata McGraw-Hill Education, ISBN; 0074603736, 9780074603734.</td></tr>
</table>

Syllabus

Week	Topics
1.	Elementary plant cytology 1. Cell wall, phospholipid membranes, cytosol, nucleus, nucleolus. endoplasmic reticulum, ribosomes, Golgi apparatus and vesicles.
2.	Elementary plant cytology 2. Chloroplast and mirochondria, vacuole. Photosynthesis and cellular respiration, fundamental metabolism.
3.	Plant anatomy 1. Meristematic tissues, permanent tissues. Epidermis, parencyma, sclerenchyma, kollenchyma, aerenchyma, xylem, phloem.
4.	Plant anatomy 2. Anatomy of root, stem, leaf. Secondary growth, wood anatomy.
5.	Plant morphology 1. Root structure, stem structure, leaf structure.
6.	Plant morphology 2. Flower structure, inflorescence structure.
7.	Plant morphology 3. Fruit and seed development and structure.
8.	Plant identification 1. Bryophyta, Pteridophyta. Spermatophyta: Gymnospermatophyta and Angyospermatophyta.
9.	Plant identification 2. Dicotyledoneae: Ranunculaceae, Papaveraceae, Caryophyllaceae, Chenopodiaceae, Amaranthaceae, Polygonaceae.
10.	Plant identification 3. Fagaceae, Betulaceae, Juglandaceae, Cannabceae, Urticaceae.
11.	Plant identification 4. Grossulariaceae, Rosaceae, Fabaceae.
12.	Plant identification 5. Linaceae, Vitaceae, Apiaceae, Brassicaceae, Cucurbitaceae, Malvaceae, Solanaceae.
13.	Plant identification 6. Cuscutaceae, Convolvulaceae, Scropulariaceae, Lamiaceae, Orobanchaceae, Asteraceae.
14.	Plant identification: Monocotyledoneae: Asparagaceae, Alliaceae, Poaceae, Cyperaceae.

*LO learning outcomes

Course title:	Hungarian:		**Agrártermelés természettudományi alapjai II. (állattan, állatélettan)**			Code:	**GT_AGVNE008-17**
	English:		**Scientific Foundations of Agricultural Production II. (Zoology, Animal physiology)**				
Institute:							
Prerequisites:			-			Code:	
		Classes per week			Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)			
full time		per week	**2**	per week	**1**	**Exam**	**English**
Responsible instructor			name:	**Dr. Peter Gyüre Dr. Renáta Knopp**		post	**assistant professor assistant professor**

Course goals:

The target of the course is to ensure the general knowledge of students in zoology, to introduce the structure and functioning of the animal cell, the types of animal tissues, their basic structure, significance, the general definitions of reproduction and ontogenesis. To introduce the main taxonomic units, and to teach to recognize invertebrate and vertebrate species in practice, to evaluate these species considering their nature conservation and possible economic values and to evaluate the human effects on the world of animals are also educational objectives.

Competences:

Knowledge:

biology, zoology, ecology and conservation biology

Capabilities:

knowledge in zoology, own learning, workshop lectures

Attitudes:

new scientific knowledge, own opinion in zoology and agriculture

Autonomy, responsibility:

own freedom in opinion and responsibility in zoological questions

Course content , topics:

The structure and functioning of the animal cell, the types of animal tissues, their basic structure, significance, the general definitions of reproduction and ontogenesis. To introduce the main taxonomic units, and to teach to recognize invertebrate and vertebrate species in practice, to evaluate these species considering their nature conservation and possible economic values and to evaluate the human effects on the world of animals are also educational objectives.

Learning methods:

Lectures, e-elearning

Assessment

Exam, e-learning, or written exam

Compulsory readings:

Recommended readings:

Hickman, C. Pendleton, Keen, S. L., Eisenhour, D. J., Larson, A., & I'Anson, H. (2024). Integrated principles of zoology. 19th ed. New York: McGraw-Hill

R.D. Frandson, W.L. Wilke, A.D. Fails, Anatomy and Physiology of Farm Animals, 7th ed., Wiley-Blackwell, Iowa, 2009, ISBN9780813813943, 512 pp.

P.B.Reddy: Text Book of Animal Physiology. Ratna Prasad Multidisciplinary Research & Educational Society 2015 DOI: 10.13140/RG.2.1.4807.9441

Syllabus

Week	Topics
1	The anatomy of animal cells and tissues, Animal taxonomy LO:
2	Anatomy and taxonomy of Molluscs and Worms, Anatomy and taxonomy of Arthropods LO:
3	Anatomy and taxonomy of Insects, Important insect lasses in aspect of agriculture, Mayflies, Dragonflies, Crickets, Katydids, Grashoppers LO:
4	Important insect lasses in aspect of agriculture, Bugs, Cicadas, Beetles, Important insect lasses in aspect of agriculture, butterflies LO:
5	Important insect lasses in aspect of agriculture, Hymenopteras, Dipteras, Anatomy and taxonomy of Fishes LO:
6	Anatomy and taxonomy of Amphibians and Reptiles, Anatomy and taxonomy of Birds LO:
7	Anatomy and taxonomy of Mammals, Ecology, and conservation biology LO:
8	Cell constituents, basic tissues, organ systems, and devices. Homeostasis. Planes and directions on the animal's body. Bones, body parts, large body cavities LO:
9	Bone structure, ossification process, Ca- and P- metabolism. The structure of the respiratory apparatus, and the physiology of breathing LO:
10	Blood and lymphatic circulation. Immunological basics. Immunity. Structure and operation of the digestive system LO:
11	Digestion, absorption, and metabolism of carbohydrates, fats, and proteins. The role of vitamins and minerals in the functioning of the animal body LO:
12	Functioning of the endocrine system. Stress. The structure of muscle tissue, the physiological basis of muscle function LO:
13	The division, structure, and operation of the nervous system Structure and functioning of the senses. Parts and functions of the public blanket LO:
14	The excretory organs. The selection process. Anatomy of the female and male genitals and the hormonal control of their functioning LO:

*LO learning outcomes

<table>
<tr><td rowspan="2">Course title:</td><td>Hungarian:</td><td>Agrártermelés természettudományi alapjai III (agrokémia)</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE009-17</td></tr>
<tr><td>English:</td><td>Scientific Foundations of Agricultural Production III. (Agrochemistry)</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td colspan="2">Institute:</td><td colspan="3">University of Debrecen
Faculty of Agricultural and Food Sciences and Environmental Management,
Institute of Agricultural Chemistry and Soil Science</td></tr>
<tr><td colspan="2">Prerequisites:</td><td>-</td><td>Code:</td><td>-</td></tr>
<tr><td colspan="2" rowspan="2"></td><td colspan="2">Classes per week</td><td rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
<tr><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td></tr>
<tr><td></td><td></td><td>per week</td><td>x</td><td>per week</td><td>x</td><td>Practical grade</td><td></td><td>English</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Responsible instructor</td><td>name:</td><td colspan="2">Evelin Kármen Juhász PhD</td><td>post</td><td>Assistant lecturer</td></tr>
</table>

Course goals:

The aim of the course is to provide the students with a basic knowledge of the chemistry of fertilization and nutrient management.

Competences:

Knowledge:

Knowledge of the basic technologies required to operate and organize the main arable, horticultural and livestock sectors, landscape management, precision, and integrated production strategies.

Capabilities:

After gaining practical knowledge and experience, you will be able to manage the various departments of small, medium, and large agri-food businesses. You will have a broad commercial role in agricultural organizations, planning and managing complex agricultural processes and managing resources.

Attitudes:

The student is open to representing the role of economics, rural and regional development, and related disciplines in society, as well as family farm management.

Autonomy, responsibility:

At the middle level of the production-organizational units, he/she exercises management functions autonomously, takes responsibility for his/her decisions and is accountable for his/her own work and that of the staff under his/her control.

Course content, topics:

The course covers the following topics:

Principles of sustainable agriculture. Principles of fertilizer management. Chemical composition of plants. Soil ion adsorption, soil acidity, soil amendment, plant water uptake and release. Relationship between nutrient availability and yield. Effect of nutrient supply on crop quality. Forms of nutrients in soil. Soil nitrogen cycling. Fertilizers, organic fertilizers. Chemistry of pesticides.

Learning methods:

Transfer of knowledge through lectures and laboratory exercises.

Assessment

The exam is written and must be passed with a minimum of 50% or more.

Compulsory readings:

Natural sciences of agricultural production (Agrochemistry), Edited by Dr. Rita Kremper Erdeiné (e-learning)

Recommended readings:

Mengel-Kirkby: Plant nutrition, IPI, Bern, 1998

Syllabus

Week	Topics
1.	Lecture: Principles of sustainable agriculture (intensive, integrated, organic) Environmental impact of manure Lab practice: learning about chemicals used in agriculture through test tube experiments LO: The student will understand and process the information presented in the lecture and acquire basic laboratory skills.
2.	Lecture: Plant nutrients, Animal nutrient characterization. Chemical composition of plants (water, dry matter content, ash content, ash exudates, organic matter) Lab: writing the formula of ions, calculating dry matter and ash content LO: The student understands and processes the information presented in the lecture and can apply it in practice.
3.	Lecture: Ion adsorption in the soil, soil acidity, soil improvement, plant water uptake and release Lab: Determination of nitrate content by tissue fluid analysis LO: The student understands and processes the information presented in the lecture and can interpret it.
4.	Lecture: The relationship between nutrient supply and yield. The impact of nutrient supply on crop quality Lab: learning about deficiency symptoms using word cards (group work) LO: The student understands and processes the information presented in the lecture and transfers his/her knowledge to his/her classmates in group work.
5.	Presentation: Nitrogen cycling in the soil, Working of nitrogen, phosphorus, potassium fertilizers in the soil Lab: Fertilization advice. LO: The student understands and processes the information presented in the lecture and can apply it in practice.
6.	Lecture: Fertilizers, organic fertilizers, pesticide chemistry Lab: Fertilizer knowledge through physical and chemical tests LO: The student understands and processes the information presented in the lecture and can apply it in practice.
7.	Exams LO:

*LO learning outcomes

<table>
<tr><td rowspan="2">Course title:</td><td>Hungarian:</td><td>Agrártermelés természettudományi alapjai III (talajtan)</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE009-17</td></tr>
<tr><td>English:</td><td>Scientific Foundations of Agricultural Production III. (Soil Science)</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td colspan="2">Institute:</td><td colspan="3">UD, Faculty of Agriculture and Food Sciences and Environment Management, Institute of Agricultural Chemistry and Soil Science</td></tr>
<tr><td colspan="2">Prerequisites:</td><td colspan="2">-</td><td>Code:</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week
Lecture(s) Seminar(s)</td><td>Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td colspan="2">per week 1
</td><td colspan="2">per week 1
</td><td>Practical mark</td><td></td><td>English</td></tr>
<tr><td colspan="2">Responsible instructor</td><td>name:</td><td>Magdolna Tállai Dr.</td><td>post</td><td>associate professor</td></tr>
</table>

Course goals:

To get to know and understand the environmental role of the soil, the processes taking place in the soil. To get to know the impact of agricultural activity on the soil-water-environment system. Can apply the principles of sustainable agricultural activity. Activity of producer able to acquit the requirements of soil protection, environmental protection and food quality.

Competences:

Knowledge:

To know and understand the role of the soil environment, the processes that take place in the soil.
Understand the impact of agricultural activity on the soil-water-environment system.
Can apply the principles of sustainable agricultural activity.

Capabilities:

The ability to keep an eye on the producer's activities:
- soil protection,
- protection of the environment and
- food quality.

Attitudes:

Open to representing the role of rural development and related disciplines in society.

Autonomy, responsibility:

Sense of responsibility also manifests itself in relation to professional, legal, ethical, health-related standards and rules relating to his conduct.

Course content, topics:

The definition of soil, its components. Soil functions. Soil-forming minerals and rocks. Soil forming factors, and processes. Soil organic matter. The humus. The role of humus in the soil. Soil chemical properties. Soluble salts in the soil. Colloid-sized components of soil. Soil pH. Physical properties of soil. Soil grain composition, classification of soils based on their texture. Soil structure. The pore system of the soil. Soil water management. Moisture forms in the soil. Principles and methods of soil classification.

Learning methods:

lecture, reading, doing lab experiments relation to physical and chemical properties of the soil , discussion, making some calculations in field of water management of soils, solving calculation problems, developing a practical approach

Assessment

The exam will be evaluated according to the following grading schedule:
0-49% not accepted (1)
50-62% (2)
63-75% (3)
76-87% (4)
87-100% (5)

Compulsory readings:

Amber Anderson (2023): Introduction to Soil Science, Iowa State University
file:///C:/Users/user/Downloads/Introduction-to-Soil-Science-1703101304%20(1).pdf. 182.
Introduction in Soil Science (2016): Development of E-Courses for B.Sc. (Agriculture) Degree Program

https://agrimoon.com/wp-content/uploads/Introduction-to-Soil-Science.pdf. 193.

Recommended readings:

David L. Lindbo, Deb A. Kozlowski, C. Robinson (2012): *Know Soil, Know Life.* ISBN-13: 978-0891189541; ISBN-10: 0891189548

Syllabus

Week	Lecture Topics	Practise Topics
1.	The definition of soil, soil functions.	Soil profile description, field tests in the soil. Study of soil genetic levels, colour and structure analysis, compaction, pH, $CaCO_3$ and Na_2Ca_3 and phenolphthalein alkalinity test.
LO	Description of the main definition and theories in the field of soil science, discussion, knowledge of the principles of environmental protection and soil protection.	The student learns about the soil profile and is able to characterize, describe, isolate it, master basic laboratories examinations. Recognition of soil functions.
2.	Soil components, soil-forming minerals and rocks.	Examination the soil texture according to laboratories methods: examination of silt and clay fraction, measuring of K_A plasticity index, calculation of y_1 (hygroscopic value of soil), and examination of water lifting capacity of soil.
LO	Description of concepts, theories and processes in the system of sustainable agriculture.	Knowledge of laboratory tools, application, practice of knowledge, separation of texture groups in soil practice.
3.	Soil physical properties: soil colours, texture forms, bulk density, pore conditions in soil, soil porosity, and heat management of soil.	Soil physical properties. Study of soil density, bulk density, and pore conditions in soils with laboratories methods.
LO	Description of the main definition and theories in the field of soil science.	Calculating, practicing, applying formulas in soil science.
4.	Soil water management. Moisture forms in the soil.	Soil water management. Calculation of soil moisture content, water capacity of soils. Irrigation water calculation.
LO	Description of the main definition and theories in the field of soil science.	New knowledge of laboratory equipment, application, putting knowledge into practice, measuring tasks in the laboratory.
5.	Soil chemical properties: soluble salts in the soil, salts quantity and quality, colloids and surface reactions, soil pH, soil acidity, soil acidity forms.	Soil chemical properties. Measure of the pH of soils. Study of soil acidity forms.
LO	Description of the main definition and theories in the field of soil science.	New knowledge of laboratory equipment, application, putting knowledge into practice, measuring works in the laboratory.
6.	Soil organic matter. The humus. Formation of humus substances. Subdivision of humus substances. The role of humus in the soil.	Soil organic matter. The humus. Study of measuring methods of soil humus content. Making a standard curve in the laboratory.
LO	Organic matter-soil-plant and healthy food relationship.	New knowledge of laboratory equipment, application, practice of knowledge, acquisition of laboratory practice.
7.	Principles and methods of soil classification. Presentation of some major soil types.	Study of quantitative measuring methods of $CaCO_3$ and Na_2CO_3 content in soils.
LO	Soil types to know for sustainable crop production.	Calculating in laboratories, acquiring environmental awareness in the soil -plant system.

*LO learning outcomes

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Élelmiszerfeldolgozás alapismereti</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE010-17</td></tr>
<tr><td>English:</td><td colspan="3">Basics of Food Processing</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="5">Faculty of Food Technology,</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3"></td><td>Code:</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week</td><td colspan="2">Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td colspan="2"></td><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td><td></td><td></td></tr>
<tr><td>full-times</td><td>x</td><td>per week</td><td>2</td><td>per week</td><td>2</td><td>E</td><td></td><td>English</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">Responsible instructor</td><td>name:</td><td colspan="2">Gerda Dr. Diósi</td><td>post</td><td>assistant professor</td></tr>
</table>

Course goals:

to familiarise students with the quality and grading of plant (arable and horticultural crops) and animal products, their possible storage methods and the processes that influence their quality and value during processing. Presentation of the processing methods and food safety requirements associated with each agricultural raw material. Describe the operations and processes of basic processing technologies, assess their impact on product quality and describe the characteristics of product groups.

Competences:

Knowledge:

Knowledge of the essence, tools and achievements of the technological revolution in agro-industrial production (Industry 4.0)

Capabilities:

It is suitable for improving the living conditions of people living in rural areas affected by certain areas of agribusiness, integrating available resources, developing the local economy and creating sustainable development.

Attitudes:

Collaborative approach to solving emerging agribusiness, rural development, problems at farm and regional level.

Autonomy, responsibility:

Think responsibly about the environmental and social impacts of economic decisions and about the social and environmental responsibility of agribusiness.

Course content , topics:

The course covers the processing of field crops and horticultural crops, as well as the processing technology of animal products. The course covers the certification of raw materials, processing technologies and the certification of the final product.

Learning methods:

During the internship, students will get hands-on experience of processing methods, and may also be involved in factory production. Visits to factories and field trips are planned to learn about large-scale production technologies.

Assessment

The subject can be completed by a colloquium, which is a written and/or oral examination

Compulsory readings:

Recommended readings:

Priti J, Pratibha P., Technolgy of Fruits and Vegetable Processing - http://www.jnkvv.org/PDF/23042020143158224202205.pdf

Osburn, B. I., “Animal Health Technologies, ” commissioned background paper prepared for the. Office of Technology Assessment, 1991

Serap G., Cahit G., The innovative technoloquies in animal husbandry, In book: Animal Husbandry and Nutrition, 2018, DOI:10.5772/intechopen.72501

Syllabus

Week	Topics
1.	LO:
2.	Milling technologies. Products of milling technologies. LO:
3.	Baking technologies. Technology of baking products. Pasta technology. LO:
4.	Technologies of maize and products. Technologies of potato and products. LO:
5.	Technologies of oil plants/vegetables/cereals. Technology of starch LO:
6.	Technologies of confectionaries. LO:
7.	Ingredients and composition of fruits and vegetables. Processes during maturation and ripening. Producing technology of frozen fruit and vegetable products. LO:
8.	Theory of heat extraction preservation. Effects to the products and deterioration processes. Technological parameters and equipment types. LO:
9.	Theory of water extraction technology. Processes of drying horticultural products. Drying operations and their equipment. Production of dried vegetables and fruits LO:
10.	Lactic acid fermentation, pickles. Wine production. Fruit wine production. Vinegar production LO:
11.	Quality parameters of milk. LO:
12.	Technologies of dairy products LO:
13.	Chemicals and quality parameters of meat. LO:
14.	Technologies of meat products. LO:

*LO learning outcomes

Course title:	Hungarian:	**Növénytermesztés**	Code:	**GT_AGVNE011-17**
	English:	**Plant cultivation**		

Institute:				Faculty of Economics and Business,				
Prerequisites:							Code:	
		Classes per week				Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)				
		per week	**2**	per week	**2**	**exam**	**4**	**English**
Responsible instructor				name:	**Dr. Péter Pepó**		post	**Professor**

Course goals:

Main aims of course to study the basic knowledge of crop production, its ecological, biological and agrotechnical elements and to introduce in different crop models.

Competences:

Knowledge:

- Basic and sophisticated knowledge of crop production
- Acquired knowledge to up-to date technologies used in sustainable crop production and their practical application
- Students will be able to proactively learn new skills
- Students are capable to communicate effectively and professionally; can participate in the sustainable crop production process directly or support it

Capabilities:

- Ability to recognize and solve routine like and sophisticated problems occurring in integrated crop production processes
- Students can understand and observe the law, protocols and regulations connected to sustainable crop production

Attitudes:

- Able to approach professional questions constructively
- Students look for ways to change work methods to improve performance

Autonomy, responsibility:

- Students are able to bear the responsibility of the decisions and are responsible for their own and the workforce's work connected to them
- Students are decisive at the right time
- Based on professional knowledge students can set up the implementation plan of R&D projects independently

Course content, topics:

Ecological, biological-genetic and agrotechnical factors in crop production. Evaluation of processes in crop production. Introduction into some crop models.

Learning methods:

Lectures, practices, knowledge of field crops and seeds, field excursions.

Assessment

Oral and written (complex) exam

Compulsory readings:

Dr. Rajendra Prasad (ed.) Textbook of Field crop production I (New Delhi, 2018, Fourth Edition)
II (New Delhi, 2018, Fourth Edition)

Recommended readings:

J.H. Martin–R.P. Waldren–D.L. Stamp: Principles of Field crop production (2006, Fourth Edition, Pearson-Prentice Hall)

Syllabus

Week	Topics
1.	History, development of crop production importance of crop sciences LO:
2.	Crop models and their agronomic and economic evaluations. LO:
3.	Ecological, biological and agrotechnical factors in crop production and their impacts on field formation processes. LO:
4.	Special economic aspects of crop production, their increasing possibilities in the future. LO:
5.	Importance of wheat production in the world and in Hungary, role of agroecological factors, site-specific agronomic technologies. LO:
6.	Biological-genetic factors in wheat production, variety/hybrid selection, variety-specific technologies. LO:
7.	Agrotechnical element in wheat production, wheat models with different intensity. LO:
8.	Importance of maize production in the world and in Hungary, role of ecological factors, site specific agronomic technologies. LO:
9.	Biological-genetic factors in maize production, hybrid-portfolio, hybrid-specific technologies. LO:
10.	Agrotechnical elements in maize production, maize models with different intensity. LO:
11.	Agronomic roles of oil crops in farming. Importance of sunflower production. Ecological factors in sunflower production. LO:
12.	Biological factors in sunflower production. Agronomic elements in sunflower growing. LO:
13.	Role of fodder crops in farming. Ecological and biological factors in alfalfa production. LO:
14.	Agronomic factors of alfalfa production and their interactive models. LO:

*LO learning outcomes

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Kertészet</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE012-17</td></tr>
<tr><td>English:</td><td colspan="3">Horticulture</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="5">Faculty of Agricultural and Food Sciences and Environmental Management, Institute of Horticultural Science</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3"></td><td>Code:</td><td>-</td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week</td><td colspan="2" rowspan="2">Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td colspan="2"></td><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td><td></td><td></td></tr>
<tr><td>full-time</td><td>x</td><td>per week</td><td>2</td><td>per week</td><td>2</td><td>Written exam</td><td>4</td><td>English</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Sipos Marianna</td><td>post</td><td>assistant professor</td></tr>
</table>

Course goals:

The aim of the course is for students to learn the basics of growing vegetables, fruits, and grapes, just as ornamental plants. They will gain knowledge about the vegetable, fruit, and grape, just as ornamental plant production, as well as the perspectives of the most important cultivated vegetable and fruit species. The course includes focus topics: morphology, ecological demands, cultivation of horticultural species and the modern technologies.

Competences:

Knowledge:

During the course, the student gets acquainted with the general characteristics, development directions and place of Hungarian horticultural cultivation in Hungarian agriculture. They know the basic information of fruit and vegetable production, and viticulture, just as ornamental plant production.

Capabilities:

After a basic theoretical knowledge of the horticultural sectors, they can consider the possibilities of practical implementation related to them. They can make basic suggestions for solving the problems that arise, they apply the new knowledge in an innovative way.

Attitudes:

They have a high level of professionalism, makes constructive suggestions on professional issues, which they can also take on towards the community.

Autonomy, responsibility:

They understand the general and more complex problems related to horticultural production, can find solutions to them independently, and to formulate their suggestions in an understandable way. Based on the acquired knowledge, they manage with the appropriate weight the possibilities and limitations of the Hungarian horticultural sector. After graduating, they can purposefully enforce their interests and suggestions either in their individual farming or within smaller, larger agricultural holdings.

Course content, topics:

Vegetable production

• Characterization of vegetable production; Classification of vegetables according to heat demand and applied propagation methods
• General characterization of root vegetables
• General characterization and cultivation of onions and legumes
• Environmental needs and cultivation of sweet corn, cucumber, and melons
• Environmental needs and cultivation of pepper and tomato
• Characterization and development of fruit production, classification of fruit species, propagation

Fruit production

• Ecological demands of cultivated fruit species
• Plantation establishment, site, rootstock, and variety selection
• Planting systems and canopy formations in fruit production
• Cultivation, fertilization, and irrigation of fruit orchards

Viticulture

• Importance of vine production, morphology
• Biological phases and propagation of vine
• Establishment and maintenance of plantation, cultivation and pruning methods

• Harvest, grape processing, wine production technologies
Ornamental plant production
• Basics of perennial ornamental plant production and utilization
• Basics of annual herbaceous plant production and utilization

Learning methods:

Interactive presentations

Assessment

Mid-term test
Written exam at the end of the semester – all parts shall meet the minimum requirements in order to take the exam

Compulsory readings:

1. Sánchez, E. S. (2010): Vegetable Gardening, The Pennsylvania State University, 64 p. http://www.webgrower.com/regional/pdf/PA_Veg_agrs115.pdf
2. Ric Bessin, R. (ed.) (2012): Vegetable Production Guide for Commercial Growers. Cooperative Extension Service University Of Kentucky College of Agriculture, Lexington, 132 p. http://www2.ca.uky.edu/agcomm/pubs/id/id36/id36.pdf
3. Parshant Bakshi V. K. Wali (2011): Practical manual for fruit production. https://www.researchgate.net/publication/270509577_Practical_manual_of_fruit_production
4. Strik, B. C. (2011): Growing table grapes. https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/ec1639.pdf

Recommended readings:

1. Kemble, J. M. (2020): Vegetable Crop Handbook, Southeastern U.S. 355 p. https://www.aces.edu/wp-content/uploads/2019/12/2020_SEVG_final_web.pdf
2. Tree Fruit Production Guide. Pennsylvania 2012–2013. https://polk.extension.wisc.edu/files/2014/02/Tree-Fruit-Production-Guide-Penn-State-2013.pdf
3. Goldammer, T. (2018): Grape Grower's Handbook. A Guide to Viticulture for Wine Production. 28 p.
4. http://www.apex-books.com2018

Syllabus

Week	Topics
1.	Characterization of vegetable production; Classification of vegetables according to heat demand and applied propagation methods
2.	General characterization of root vegetables
3.	General characterization and cultivation of onions and legumes
4.	Environmental needs and cultivation of sweet corn, cucumber, and melons, pepper and tomato
5.	Characterization and development of fruit production, classification of fruit species, propagation
6.	Orchard establishment, site, rootstock, and variety selection
7.	Planting systems and canopy formations in fruit production
8.	Cultivation, fertilization, and irrigation of fruit orchards
9.	Importance of vine production, morphology
10.	Biological phases and propagation of vine
11.	Establishment and maintenance of plantation, cultivation and pruning methods
12.	Harvest, grape processing, wine production technologies
13.	Basic of perennial ornamental plant production
14.	Basics of herbaceous plant production

*LO learning outcomes

<table>
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<tr><td>English:</td><td colspan="3">Animal husbrandy</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="4">Department of Animal Science</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3"></td><td>Code:</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week</td><td colspan="2" rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
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<tr><td></td><td></td><td>per week</td><td>2</td><td>per week</td><td>2</td><td rowspan="2"></td><td rowspan="2">4</td><td rowspan="2">English</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Dr. Levente Czeglédi</td><td>post</td><td>Professor</td></tr>
</table>

Course goals:

The aim of the course is to familiarise students with the breeding of the main farm animal species, the husbandry technology and the process of product production. After successfully completing the course, they will have a knowledge of the sector and production that they can use in both industry and administration.

Competences:

Knowledge:

Knows the basic technologies required for the operation and organisation of the main crop, horticultural and livestock sectors. Knows the main principles of farming and production in ecological, organic and integrated production systems.

Capabilities:

Ability to organise and control production processes, particularly in agriculture, decision-making and preparation.

Attitude:

Developed professional identity, a professional and professionally oriented approach, with a sense of vocation, which is supported by the professional and wider social community a professional and professionally developed profile and a commitment to the professional and wider community.

A strong sense of professionalism and a commitment to a broader community initiative, receptive to new ideas and receptive to the views of others, to the sectoral, regional, national and European values of agriculture.

Autonomy and responsibility:

Responsible reflect on the environmental and social impact of economic decisions, and the social and environmental impact of agricultural enterprises social and environmental responsibility in agribusiness.

Course content , topics:

The characteristics and volume of the domestic livestock sector will be described and positioned in an international perspective. In the areas of cattle, sheep, pig and poultry breeding, the discipline is based on animal husbandry, nutrition, breeds, hybrids, genotypes and reproductive biology.

Learning methods:

Deliver presentations using ppt and video files.

Assessment

The exam is a written test which will be evaluated according to the following grading schedule:
0-50% fail
51-60 % sufficient
61-70% fair
71-84% good
85-100% excellent

Compulsory readings:

Thomas Field – Robert Taylor (2019): Scientific Farm Animal Production. 12th edition. Pearson. 1-608.

Recommended readings:

Topel D, Marple D, Lonergan S, Parrish F (2013): The Science of Animal Growth and Meat Technology. Meat Science Press. 1-205.

Syllabus

Week	Topics
1.	Presentation of the domestic and international situation of the sector, production volumes and trends. LO: The student will be able to place the size, position, intensity and nature of the livestock sector.
2.	Introduction to feedstuffs. LO: The student will learn the characteristics and usage of forages and concentrates.
3.	The role of milk and meat production performance and reproduction LO: The student will learn about the main traits of cattle.
4.	The impact of the breeding and nutrition technologies used in cattle production on product quality. LO: The student will learn about cattle breeding and feeding.
5.	The impact on product quality of the technological elements currently used in cattle production. LO: The student will be familiar with cattle husbandry technology.
6.	The nutritional, economic and external market importance of slaughter pig production. Description and importance of phenotypes. LO: The student will understand the importance of pork as a product.
7.	The main traitwith economic value of pigs (reproductive performance, growth vigour, feed conversion, slaughter value, heredity). LO: The student will become familiar with the main value measuring characteristics of pigs.
8.	Breeding practices used in pig production. Breeds and hybrids. Pig nutrition. LO: The student will become familiar with the main pig breeding techniques.
9.	Importance of sheep farming in the world and Europe. Directions for development. Basic knowledge of sheep production, domestication and its impact. LO: The student will learn about the status of sheep production and its importance in the world economy.
10.	Traits with economic importance of sheep and the relationship between them. Theory and practice of breeding procedures in sheep production. The biological basis, theory and practice of sheep breeding, reproduction and the possibilities of increasing the reproductive rate and the reproductive output. LO: The student will learn about the value traits, reproduction and breeding of sheep.
11.	Biological and physiological characteristics of sheep nutrition, principles and practices of sheep feeding in relation to product quality. LO: The student will learn about sheep nutrition and its role in quality.
12.	Sectoral picture, poultry products. LO: The student will learn about the importance of poultry farming and its main products.
13.	Biological characteristics of poultry products, aspects of product quality, quality criteria. LO: The student will learn about the quality production of poultry.
14.	Breeding methods for poultry species, husbandry and feeding technology in relation to product quality. LO: The student will learn about breeding, rearing and feeding methods.

*LO learning outcomes

Course title:	Hungarian:	**Műszaki alapismeretek**	Code:	**GT_AGVNE014-17**
	English:	**Agriculture Technology**		

Institute:				Institute of Land Use, Engineering and Precision Farming Technology				
Prerequisites:				-		Code:		
		Classes per week				Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)				
		per week	**2**	per week	**1**	**written exam**	**4**	**English**
Responsible instructor				name:	**Endre Harsányi, PhD**		post	**professor**

Course goals:

Students attain basic knowledge of agricultural machinery, the different types of agricultural tools, their areas and conditions of use, as well as the structure and operation of machines.
The aim of the course is to train professionals who, with the knowledge they have acquired, are able to participate in the planning, organization and management of agricultural production, processing and farming.

Competences:

Knowledge:

Knowledge of the natural and technical contexts related to the production of agricultural (crops, livestock, horticulture) sectors.

Capabilities:

Ability to develop and communicate an independent and professionally sound position in the field of rural development and agriculture. Ability to design and implement rural development programmes, allocate resources, participate in the preparation of proposals to underpin professional decisions, and draw conclusions, not only at operational level. Knowledge, understanding and application of the principles of environmental protection and nature conservation and their application to rural development. Ability to carry out agricultural engineering tasks related to rural development and to apply the necessary IT skills (database management, software applications). Ability to prioritise environmentally friendly solutions that support human health and food chain safety.

Attitudes:

Open to representing the role of rural development and related disciplines in society. Proactive and receptive to innovation in rural development issues. Sensitive to environmental and human health issues and to problems related to the rural economy. Collaborative approach to solving rural development and quality assurance problems that arise.

Autonomy, responsibility:

A sense of responsibility for professional, legal, ethical, health-related standards and rules regarding his/her behaviour. Responsibility for his/her own work and that of the staff under his/her supervision. He/she takes responsibility for the consequences of his/her statements and opinions.

Course content, topics:

Students learn about the structure and operation of agricultural production machinery in terms of crop production, power machines, machinery, plant protection, tillage, sowing, harvesting and animal husbandry, livestock equipment, feeding, watering, etc., as well as the technical factors of precision farming.

Learning methods:

2 classes of lecture and 2 classes of practice per week.

Assessment

Participation in the practice as specified in the Study and Examination Regulations of the University of Debrecen. The subject has a weekly practice class, i.e. the maximum number of absences is 4 times.
Examination method: Written exam. The condition for entering the exam is participation in the practice classes.

Compulsory readings:

Course lectures. Slides and calculation provided to the students for each subject.

Recommended readings:

Watched movies on lectures and practises.
Chris Lockwood (2016): Know Your Farm Machinery, ISBN 9781910456316.
Rattan Lal; B. A. Stewart (2016): Soil-specific farming: precision agriculture. ISBN 978-1-4822-4533-2. Chapter 1-16.
Pepó Péter (2019): Integrált Növénytermesztés 1. Általános növénytermesztési ismeretek, Mezőgazda Lap és

Könyvkiadó, Budapest, ISBN 978-963-286-740-3, chapters 9. – 10. (pp 191-215) (number of pages: 25) Szendrő Péter (2003): Géptan. Mezőgazda Kiadó, Budapest, ISBN: 963 286 021 7; chapters 4.1-4.3 (pp 96-133), chapters 6.1-6.3.5 (pp 166-238), chapters 6.4-6.5 (pp 250-302), chapters 7.1-7.2 (pp 339-414), chapters 9.2-9.3 (pp 569-622), chapters 9.6.1.-9.6.2 (pp 642-651), chapters 12.2-12.3 (pp 752-770) (number of pages: 356 old.), Pakurár Miklós (2000): Mezőgazdasági alapismeretek. Egyetemi jegyzet, Debreceni Egyetem; I. chapters 2-3 (pp 9-19), II. chapters 1-4, 7-8 (pp 28-86, 102-110), III. chapters 1, 2, 6 (pp 113-166, 199-205) IV. chapter 1, IV. chapter 3 (pp 209-221., 232-236) (number of pages: 151 old.).

Syllabus

Week	Topics
1.	Introduction, Internal combustion engines, electric engines
2.	Tractors I. Transmission: clutch, gears, differential
3.	Tractors II. Steering, brakes, tractor – implement connection, cab, maintenance
4.	Introduction to precision farming and precision livestock management
5.	The machinery of tillage
6.	The machinery of nutrient management
7.	The machinery of sowing
8.	The technical aspects of plant protection
9.	Harvesting machinery for cereals and oil crops
10.	Machinery for harvesting fodder I – mowing and swathing machines
11.	Machinery for harvesting fodder II – trailers for swathing machines, forage harvesters, baling, bale packaging
12.	Cattle breeding machines, equipment, buildings I. - Dairy farming
13.	Cattle breeding machines, equipment, buildings II. - Milking parlors, milking machines and equipment
14.	Pig farming machines, equipment, buildings

*LO learning outcomes

Course title:	Hungarian:	**Precíziós mezőgazdaság**				Code:	**GT_AGVNE015-17**	
	English:	**Precision Agriculture**						
Institute:		Institute of Land Use, Engineering and Precision Farming Technology						
Prerequisites:						Code:		
		Classes per week				Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)				
		per week	**2**	per week	**1**	**Exam**		**English**
Responsible instructor		name:	**Dr. Csaba Bojtor**			position:	**Assistant professor**	

Course goals:

Students will acquire a basic knowledge of precision agriculture. Learn and apply the steps of precision agriculture planning, decision-making mechanisms and technology.

Competences:

Knowledge:

They are familiar with the applications of digitalisation and automation, the positive and negative consequences of their widespread use, and their role in agricultural logistics, production and machine operation.

Capabilities:

Possesses the digital skills and competences specific to the agricultural sector.

Graduates will have interpersonal, problem identification and problem solving, collaboration and communication skills.

Attitudes:

In professional matters, he or she is characterised by creativity, good problem identification and solving skills, analytical and synthesising abilities, commitment to the principle of sustainability, good communication and cooperation skills, a sense of professional responsibility and a desire for professional development.

Autonomy, responsibility:

At the middle level of the production-organisational units, he/she exercises autonomously the management functions, takes responsibility for his/her decisions and is accountable for his/her own work and that of the staff under his/her control.

Course content, topics:

Students will learn about the development, elements, technical conditions and technological steps of precision agriculture.

Learning methods:

Lectures and seminars

Assessment

Preparing an individual exercise and a written exam at the end of the semester.

Compulsory readings:

Qin Zhang: Precision Agriculture Technology for Crop Farming. Apple Academic Press Inc. 2015

Recommended readings:

Shannon, D. Kent; Clay, David E.; Kitchen, Newell R. Precision agriculture basics. John Wiley & Sons, 2020.

Syllabus

Week	Topics
1.	Definition and characteristics of precision farming. Comparison of conventional and precision farming. Positioning and navigation systems in precision farming. The role of satellites in imaging. LO: Understand the basics of precision farming, be able to distinguish between precision technology elements.
2.	The role of soil and crop sensors and their application in precision farming LO: Understand soil and crop sensors and data sources, be able to identify the data sources available to them and use them to make decisions.
3.	The role of soil in precision farming. Determining soil heterogeneity within a field. LO: Understand the main options for determining soil heterogeneity, be able to delineate from satellite imagery the areas of the field that require more precise analysis.
4.	Presentation of an individual practical exercise - defining a management zone within a field using Quantum GIS software. LO: Be able to independently produce a soil heterogeneity map from free satellite imagery based on Quantum GIS.
5.	Use precision farming machines in data collection. Operate the precision farming machine system. Services supporting the operation of the precision farming machine system. LO: Understand the technical conditions of precision farming, the data recorded by machines and their potential use in precision decision making.
6.	Soil management objectives. Technical solutions for precision tillage. Conventional and precision tillage systems. Soil tillage in plant stock, intercropping. LO: Understand the operational elements, procedures and precision tillage technology.
7.	Precision nutrient management sampling strategies and nutrient management planning and technology. LO: Understand the site-specific implementation of nutrient management from soil sampling through planning to application technology.
8.	Sensor technology and equipment supporting precision seeding. Variable rate seeding, intercropping and depth delimitation. Seeding diagnostic systems and special layout seeding. LO: Understand precision seeding techniques, sensor technology and variable rate seeding.
9.	Precision crop protection planning and technology. Precision harvesting design, technology and equipment LO: Understand the principles of precision crop protection and the technology of its implementation.
10.	Precision crop production technologies, precision farming of maize, wheat, sunflower, sorghum and soybean. LO: Learn the steps of precision farming of major crops from tillage to harvesting.
11.	Use of drones in precision farming. Types of drones, construction of drones and regulation of drone use. LO: Learn about the applicability of sensor-carrying drones in precision farming
12.	Sensors and cameras for agricultural drone photography. Vegetation indexes. Steps in processing drone images, analysis of images. LO: Learn the steps for processing and evaluating images taken by cameras mounted on drones.
13.	Regulating the use of drones for crop protection. The construction and operation of spraying drones. LO: Understand how to carry out crop protection with agricultural spraying drones.
14.	Precision animal husbandry. Expert systems in precision agriculture. LO: Understand the role of individual identification in precision livestock production and the structure of precision farming advisory systems.

*LO learning outcomes

<table>
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<tr><td>English:</td><td colspan="3">Environmental management</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="5">Faculty of Agricultural and Food Science and Environmental Management
Institute of Land Use, Engineering and Precision Farming Technology</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3">-</td><td>Code:</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week</td><td colspan="2" rowspan="2">Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
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<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Prof. Dr. Juhász Csaba</td><td>post</td><td>Full time professor</td></tr>
</table>

Course goals:

acquire general and partly specific knowledge of environmental management in agricultural production. To develop students' environmental awareness.

Competences:

Knowledge:

- Understand the theoretical and practical background of sustainable development and the requirements for the quality of life of rural populations, and understand and apply the concept of the circular farming model in the food economy.
- Knowledge of the basic technologies needed to manage and organise the main crop, horticultural and livestock sectors, landscape management, organic farming, precision and integrated production strategies.
- Knowledge and understanding of the EU Common Agricultural Policy, the EU and national agricultural and rural development support schemes and related application requirements.

Capabilities:

- In business organisations, it performs an overall economic function, plans and manages complex business processes and manages resources.
- Ability to consider the impact of specific business, institutional or community projects on the economic, social and natural environment of the countryside.
- Ability to contribute to the development and implementation of strategies and technologies for landscape management, organic farming and integrated production.
- Graduates will have interpersonal, problem identification and problem solving, cooperation and communication skills.

Attitudes:

- Open to representing the role of the economy, rural and regional development and related disciplines in society
- Sensitive to environmental and human health issues and to problems related to the agricultural and rural economy.

Autonomy, responsibility:

- They are also responsible for the professional, legal, ethical and health-related standards and rules governing their behaviour, and plan their own professional development.
- He/she thinks responsibly about the environmental and social impact of economic decisions and about the social and environmental responsibility of agribusiness enterprises.

Course content, topics:

Students in the Agribusiness and Rural Development Management course will learn about the living and non-living environmental elements associated with agriculture. The course will provide an overview of the cause and effect relationships of environmental problems and the basic options for their control. The aim is to learn the input and output methods of pollution control and the basic design context of technical interventions. To provide practical knowledge in the field of environmental management, emphasising natural science and problem-solving.

The main topics are. Knowledge of the basic concepts of environmental management. The concept, principles, environmental, economic and social aspects of sustainable development. The history of human societies and their impact on the environment. The process of environmental pollution, its elements, options for protection. Environmental aspects of agricultural production. Management of natural resources (soil, water, air). Environmental models, modelling.

Learning methods:

Lecture.

Assessment

Written, oral exam.

Compulsory readings:

https://www.pdfdrive.com/sustainable-agricultural-development-recent-approaches-in-resources-management-and-environmentally-balanced-production-enhancement-e157105173.html
https://www.pdfdrive.com/climate-and-land-degradation-environmental-science-and-engineering-environmental-science-environmental-science-and-engineering-environmental-science-e157218251.html

Recommended readings:

Juhász, Cs.-Pregun, Cs.: (2013). Water management. 140. p. Debrecen, University of Debrecen. ISBN: 9789634736639

Pregun, Cs.-Juhász, Cs.: (2011). Water resources management and water quality protection. 111. p. Debrecen, DE AGTC.

Syllabus

Week	Topics
1.	Basic concepts related to environmental management (environment, conservation, nature protection, environmental management, pollution). LO: Knowledge of the specificities of rural and territorial development (the role of agriculture in maintaining and developing rural areas) and the reasons for these specificities. Knowledge of the relationship between the rural economy, society and the agricultural sector, the social need for community development and the related environmental policy context. Ability to assess the impact of specific business, institutional or community projects on the economic, social and natural environment of rural areas. Ability to improve the living conditions and livelihoods of people living in rural areas affected by specific agribusiness sectors, to integrate available resources, to develop the local economy and to achieve sustainable development.
2.	Grouping of environmental elements. Characteristics and main types of systems. Concepts of models and modelling, characteristics of a model. Principles of environmental protection. LO: He/she is familiar with landscape, organic and integrated production technologies, with particular attention to precision farming. After acquiring practical knowledge and experience, you will be able to manage departments in small, medium and possibly larger agricultural enterprises relevant to your field of expertise. Performs a comprehensive agro-economic and IT function in farm organisations, planning and managing complex agribusiness processes and resources.
3.	The concept and classification of natural resources. Biogeochemical cycles (carbon, nitrogen, sulphur cycles). Biodegradability of materials. LO: He/she is familiar with landscape, organic and integrated production technologies, with particular attention to precision farming. After acquiring practical knowledge and experience, you will be able to manage departments in small, medium and possibly larger agricultural enterprises relevant to your field of expertise. Performs a comprehensive agro-economic and IT function in farm organisations, planning and managing complex agribusiness processes and resources.
4.	The impact of societies on the environment (agrarian societies, urbanisation, economic and technological development and their negative environmental effects). LO: Knowledge of the specificities of rural and territorial development (the role of agriculture in maintaining and developing rural areas) and the reasons for these specificities. Knowledge of the relationship between the rural economy, society and the agricultural sector, the social need for community development and the related environmental policy context. Ability to assess the impact of specific business, institutional or community projects on the economic, social and natural environment of rural areas. Ability to improve the living conditions and livelihoods of people living in rural areas affected by specific agribusiness sectors, to integrate available resources, to develop the local economy and to achieve sustainable development.
5.	International environmental protection in an organised form. Overview of major environmental conferences and conventions. LO: Knowledge of the planning and management rules, professional and ethical standards of projects managed by agribusinesses and other farming organisations. You will have the knowledge required to prepare project plans and proposals for EU and national funding, both individually and in teams. You will also be familiar with modern, theoretically demanding mathematical-statistical, econometric and modelling methods of problem identification, formulation and solution, information gathering and processing, as well as their limitations. Participates in management processes, projects and group problem solving. Ability to work independently and in teams to develop and implement business, operational, tactical and strategic plans.
6.	Global environmental problems (war and peace, overpopulation, food crisis, material and energy crisis, environmental crisis). LO: Knowledge of the specificities of rural and territorial development (the role of agriculture in maintaining

	and developing rural areas) and the reasons for these specificities. Knowledge of the relationship between the rural economy, society and the agricultural sector, the social need for community development and the related environmental policy context. Ability to assess the impact of specific business, institutional or community projects on the economic, social and natural environment of rural areas. Ability to improve the living conditions and livelihoods of people living in rural areas affected by specific agribusiness sectors, to integrate available resources, to develop the local economy and to achieve sustainable development.
7.	Pollution of the environment, classification of pollutants, forms and causes of pollution. LO: Knowledge of the planning and management rules, professional and ethical standards of projects managed by agribusinesses and other farming organisations. You will have the knowledge required to prepare project plans and proposals for EU and national funding, both individually and in teams. You will also be familiar with modern, theoretically demanding mathematical-statistical, econometric and modelling methods of problem identification, formulation and solution, information gathering and processing, as well as their limitations. Participates in management processes, projects and group problem solving. Ability to work independently and in teams to develop and implement business, operational, tactical and strategic plans.
8.	Soil protection. The concept and functions of soil. The concept of soil degradation, its causes, factors inhibiting soil fertility. LO: Knowledge of the planning and management rules, professional and ethical standards of projects managed by agribusinesses and other farming organisations. Have the knowledge necessary to prepare, individually or in teams, project plans and proposals for EU and national funding. He/she is familiar with modern, theoretically demanding mathematical-statistical, economo-metric and modelling methods of problem identification, formulation and solution, information gathering and processing, as well as their limitations. Participates in management processes, projects and group problem solving. Ability to work independently and in teams to develop and implement business, operational, tactical and strategic plans.
9.	Sources of soil pollution. Heavy metal and oil pollution of soils. Remediation techniques, phytoremediation. Soil self-cleaning. LO: Knowledge of the planning and management rules, professional and ethical standards of projects managed by agribusinesses and other farming organisations. You will have the knowledge required to prepare project plans and proposals for EU and national funding, both individually and in teams. You will also be familiar with modern, theoretically demanding mathematical-statistical, econometric and modelling methods of problem identification, formulation and solution, information gathering and processing, as well as their limitations. Participates in management processes, projects and group problem solving. Ability to work independently and in teams to develop and implement business, operational, tactical and strategic plans. Ability to apply and use modern IT tools and software related to the operation of the agribusiness, to communicate professionally and effectively in oral and written form.
10.	Air quality protection. The concept, structure and composition of the atmosphere. Thinning of the ozone layer, greenhouse effect, odorous substances in the atmosphere, air pollution from landfills. Atmospheric aerosols. Classification and characteristics of smog. Air purification. LO: Knowledge of the planning and management rules, professional and ethical standards of projects managed by agribusinesses and other farming organisations. You will have the knowledge required to prepare project plans and proposals for EU and national funding, both individually and in teams. You will also be familiar with modern, theoretically demanding mathematical-statistical, econometric and modelling methods of problem identification, formulation and solution, information gathering and processing, as well as their limitations. Participates in management processes, projects and group problem solving. Ability to work independently and in teams to develop and implement business, operational, tactical and strategic plans. Ability to apply and use modern IT tools and software related to the operation of the agribusiness, to communicate professionally and effectively in oral and written form.
11.	Water protection basics. Classical water classification. Urban wastewater collection, treatment and disposal. LO:

	Knowledge of the planning and management rules, professional and ethical standards of projects managed by agribusinesses and other farming organisations. You will have the knowledge required to prepare project plans and proposals for EU and national funding, both individually and in teams. You will also be familiar with modern, theoretically demanding mathematical-statistical, econometric and modelling methods of problem identification, formulation and solution, information gathering and processing, as well as their limitations. Participates in management processes, projects and group problem solving. Ability to work independently and in teams to develop and implement business, operational, tactical and strategic plans. Ability to apply and use modern IT tools and software related to the operation of the agribusiness, to communicate professionally and effectively in oral and written form.
12.	Environmental impacts of agricultural production. Erosion, deflation, salinisation, acidification. Impact of crop and livestock production on soil, water and air. LO: Knowledge of the planning and management rules, professional and ethical standards of projects managed by agribusinesses and other farming organisations. You will have the knowledge required to prepare project plans and proposals for EU and national funding, both individually and in teams. You will also be familiar with modern, theoretically demanding mathematical-statistical, econometric and modelling methods of problem identification, formulation and solution, information gathering and processing, as well as their limitations. Participates in management processes, projects and group problem solving. Ability to work independently and in teams to develop and implement business, operational, tactical and strategic plans. Ability to apply and use modern IT tools and software related to the operation of the agribusiness, to communicate professionally and effectively in oral and written form.
13.	Waste, the concept of waste management. Classification of waste. LO: Knowledge of the planning and management rules, professional and ethical standards of projects managed by agribusinesses and other farming organisations. You will have the knowledge required to prepare project plans and proposals for EU and national funding, both individually and in teams. You will also be familiar with modern, theoretically demanding mathematical-statistical, econometric and modelling methods of problem identification, formulation and solution, information gathering and processing, as well as their limitations. Participates in management processes, projects and group problem solving. Ability to work independently and in teams to develop and implement business, operational, tactical and strategic plans. Ability to apply and use modern IT tools and software related to the operation of the agribusiness, to communicate professionally and effectively in oral and written form.
14.	Environmental models, modelling. LO: Knowledge of the planning and management rules, professional and ethical standards of projects managed by agribusinesses and other farming organisations. You will have the knowledge required to prepare project plans and proposals for EU and national funding, both individually and in teams. You will also be familiar with modern, theoretically demanding mathematical-statistical, econometric and modelling methods of problem identification, formulation and solution, information gathering and processing, as well as their limitations. Participates in management processes, projects and group problem solving. Ability to work independently and in teams to develop and implement business, operational, tactical and strategic plans. Ability to apply and use modern IT tools and software related to the operation of the agribusiness, to communicate professionally and effectively in oral and written form.

*LO learning outcomes

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Környezetgazdaságtan</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE017-17</td></tr>
<tr><td>English:</td><td colspan="3">Environmental Economics</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="5">University of Debrecen, Faculty of Economics and Business, Institute of Economics</td></tr>
<tr><td colspan="3">Prerequisites: -</td><td colspan="3">-</td><td>Code:</td><td></td></tr>
<tr><td colspan="2" rowspan="2">Type</td><td colspan="2">Classes per week</td><td colspan="2">Seminars(s)</td><td rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
<tr><td colspan="2">Lecture(s)</td><td colspan="2"></td></tr>
<tr><td>Full time</td><td>X</td><td>Per week</td><td>2</td><td>Per week</td><td>0</td><td>exam</td><td>3</td><td>English</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>neve:</td><td colspan="2">Andrea Bauerné Gáthy, PhD</td><td>post:</td><td>associate professor</td></tr>
</table>

Course goals:

This course provides an introduction to economic perspectives on contemporary environmental issues. We will study economic theories related to natural resources and the environment, and their application to environmental policy. The first part of the course will focus on concepts and theory, and the second part will deal with applications including population and food supply, renewable and non-renewable resources, pollution control policy, global climate change, international trade, and environmental politics.

Competences:

- Knowledge: Possesses knowledge of the basic, broad concepts, theories, facts, national economic and international contexts of economics, relevant economic actors, functions and processes.
- Ability to: Using the theories and methods learnt, identify facts and basic relationships, organise and analyse, draw independent conclusions, make critical observations, prepare proposals for decisions, make decisions in routine and partly unfamiliar contexts, both domestic and international.
- Attitude: Receptive to new information, new professional knowledge and methodologies.
- Autonomy and responsibility: Takes responsibility for his/her analyses, conclusions and decisions.

Course content , topics:

Economic growth and environment; externalities; natural resources; ecological crisis; population

Learning methods:

lectures, case studies, processing of scientific articles and other sources of information. Lectures with slide presentation.

Assessment

The course ends with a written exam in the exam period. There won't be midterm test.
Grade determination:
0–50% failed (1)
50,01%–64% acceptable (2)
64,01%–76% medium (3)
76,01%–87% good (4)
87,01%–100% excellent (5)

Compulsory readings:

Harris, Jonathan M. – Roach, Brian: Environmental and Natural Resources Economics: A Contemporary Approach (3rd Edition), Routledge, 2013, 584 p. ISBN-13: 978-1138659476

Recommended readings:

Costanza, R., Norgaard, R., Daly, H., Goodland, R., & Cumberland, J. (2007). An Introduction to Ecological Economics (e-book). Available at: http://www.eoearth.org/view/article/150045
Perman, R., Ma, Y., McGilvray, J., & Common, M. 2003. Natural resource and environmental economics. Pearson, 726 p. Common, M. & Stagl, S. Ecological Economics. An introduction. 2005, Cambridge University Press, 560 p.

Syllabus

1. Introduction to Environmental Economics
LO: Recognition of ecological crisis
2. Economic Growth and the Environment
LO: To connect economic and ecological concerns of the world development
3. Sustainable Development
LO: Knowledge on wide range of sustainability concepts
4. The Theory of Externalities
LO: Examples of externalities
5. Common Property Resources
LO: An example – the tragedy of commons
6. Public Goods
LO: Knowledge on environmental management of public goods
7. Resources Allocation over Time
LO: Knowledge on role of time in management of resources
8. Valuing the Environment
LO: Tools and examples of monetary valuation
9. Ecological Economics: Basic Concepts
LO: Knowledge on ecological economics
10. National Income and Environmental Accounting
LO: Information of environmental performance of states
11. Population and the Environment
LO: Knowledge on dynamics of the population
12. Agriculture, food and environment
LO: Knowledge on food production
13. Pollution: Analysis and Policy
LO: Connection between environmental policy and the environmental economics
14. Summary
LO:

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="4">Pénzügyi alapismeretek</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE018-17</td></tr>
<tr><td>English:</td><td colspan="4">Basic of Finance</td></tr>
<tr><td colspan="9"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="5">Department of Accounting and Finance</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="4"></td><td>Code:</td><td></td></tr>
<tr><td colspan="2" rowspan="2">Training type</td><td colspan="4">Classes per week</td><td rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
<tr><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td></tr>
<tr><td>Full time</td><td>X</td><td>per week</td><td>2</td><td>per week</td><td>2</td><td rowspan="2">Exam</td><td rowspan="2">4</td><td rowspan="2">English</td></tr>
<tr><td>Correspondence</td><td></td><td>per semester</td><td>20</td><td>per semester</td><td>20</td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Balázs Fazekas, PhD</td><td>post</td><td colspan="2">senior lecturer</td></tr>
</table>

Course goals:

In Finance Students get acquainted with the basic concepts of money and the time value of money, the financial system, money and capital markets, banking system, payment methods, stock exchanges and the major securities.

Course content , topics:

During the course Students get acquainted with money and time value calculation, the money and capital markets, financial intermediation and the major financial intermediaries, banking system and bank services, financial system, securities and stock exchange.

Learning methods:

Students need to process the topics discussed on the lectures at home as well. The understanding of the topics is helped by various calculation based practical exercises. Students have access to various e-learning systems.

Assessment

Requirements for getting the signatures:

Requirement for getting the signature is the regular attendance of seminars in accordance to the Statue of Teaching and Examination and the Ethical Code of UD. Based on the Statue of Teaching and Examination the number of absences cannot exceed 2 occasions, otherwise the signature is denied.

Learning materials:

In the e-learning course the lecturers publish the learning materials of lectures and seminars. The workload of lessons and home learning is approximately 50-50%, the materials for home learning are given in compulsory readings.

Grading system:

Exam opportunities:

For passing the course the requirement is to take a successful exam. Exam dates will be published for every week during the exam period. The limit of exams is 1.5 times the number of Students who are entitled for taking the exam. The exam dates will be published in the Neptun for the Students in the final week of the term-time. After that the limits won't be extended and further exam dates won't be published. Only those Students are entitled for participating on the exam, who registered for the given exam in the Neptun. Based on the Statue of Teachings and Examination if the number of Students registered for the exam is below 10 the teachers are not liable to keep the exam.

Topics and structure of tests:

Exams cover all the topics of the semester. Tests are electronic written tests via the official e-learning site of UD. Tests include theory and practical questions in 50-50% ratio. The questions are connected to the topics of lectures and seminars and to the compulsory readings.

Evaluation of tests:

Exam grade is given based on the score of the test. (Theory and practical parts have 50-50% in evaluation, but there is no minimum requirement for the theory or the practical part alone, the final score is the average of the theory and practical parts.) Based on test score the grades are the following:

under 60%: 1, fail
60-69%: 2, pass
70-79%: 3, satisfactory
80-89%: 4, good
90-100%: 5, excellent

Teachers and Students must follow the guidelines in every situation the UD's Statue of Teaching and Examination and its Ethical Code.

Compulsory readings:

Topics of the lectures and seminars.

Becsky-Nagy, P. – Fazekas, B. (2018): Exercises and Case Studies from Corporate Finance I – Time value of money and the basics of the valuation of securities. University of Debrecen, Debrecen

Becsky-Nagy, P. – Fazekas, B. (2018): Exercises and Case Studies from Corporate Finance II – Investment decisions. University of Debrecen, Debrecen

Recommended readings:

Titman, Sharidan- Keown, A. J., Martin J. D. (2010): Financial Management. Principles and Applications – 11th edition- ISBN – 13: 978-0-13-217422-0

Mishkin, Frederic S. (2013): The economics of money, banking, and financial markets) 10th edition, (The Addison-Wesley series in economics), ISBN 0-321-12235-6

Syllabus

Week	Topics
1.	Syllabus. Money: functions and evolution. Modern money, inflation, exchange rates. I. LO: The Students understand the economic relevance of money and its role in the economy.
2.	Syllabus. Money: functions and evolution. Modern money, inflation, exchange rates. II. LO: The Students understand the economic relevance of money and its role in the economy.
3.	Principles of time value of money and future value LO: The Students understand the basic principles of time value.
4.	Present value and interest rates LO: Students understand basic time value calculations.
5.	Annuities LO: Students can valuate cash flow streams.
6.	Financial markets, financial intermediaries LO: The Students understand the logic of financial markets and financial intermediation.
7.	Banking and monetary policy I. LO: The Students understand the basics of monetary policy and banking system.
8.	Banking and monetary policy II. LO: The Students understand the basics of banking services.
9.	Basics of securities LO: The Students understand the logic of securities markets. The Students are familiar with the major securities.
10.	Bonds. LO: Students understand bond markets.
1.1	Financial intermediaries LO: Students are familiar with financial intermediaries
12.	Stock Exchanges LO: Students understand the basics of trading with securities on open markets.

*LO learning outcomes

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian:</td><td>Számvitel I.</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE019-17</td></tr>
<tr><td>English:</td><td>Accounting I</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td colspan="3">Institute: Accounting and Finance</td><td colspan="3">Faculty of Economics and Business</td></tr>
<tr><td colspan="3">Prerequisites: -</td><td colspan="2">-</td><td>Code:</td><td>-</td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week</td><td>Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td colspan="2"></td><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td><td></td><td></td><td></td></tr>
<tr><td>Daytime x</td><td></td><td>per week</td><td></td><td>per week</td><td></td><td rowspan="2">Exam</td><td rowspan="2">5</td><td rowspan="2">English</td></tr>
<tr><td>Correspondent</td><td></td><td>Semianually</td><td>10</td><td>Semiannually</td><td>10</td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Dr. Ildikó Orbán</td><td>post</td><td>associate professor</td></tr>
<tr><td colspan="7">Course goals:
The main purpose of this subject is to provide insights into the impact of financial accounting in an international environment.</td></tr>
<tr><td colspan="7">Competences:
Knowledge:
The subject will provide students with an international perspective on financial accounting including theory, practice, and its applications under International Financial Reporting Standards (IFRS).
Capabilities:
Students will be able to understand the information presented in financial statements prepared under International Financial Reporting Standards (IFRS). Nevertheless, students will become capable of accounting for several business transactions and preparing different financial statements or extracts.
Attitudes:
Students will accept the importance and necessity of financial reporting and accounting under IFRS.
Autonomy, responsibility:
Students will become responsible for improving their knowledge in financial and corporate reporting.</td></tr>
<tr><td colspan="7">Course content , topics:
The course will provide students with an international perspective on financial accounting including theory, practice, and its applications under International Financial Reporting Standards (IFRS). Primary areas of study include definition and principles of accounting and double entry bookkeeping, recognition and measurement of assets, liabilities, and equity, the impact of economic transactions on different financial statements, the definition and recognition of revenue and income, accounting policies, general and special journals, the accounting cycle, and the process of preparation of different financial statements. Nevertheless, students will be introduced into several financial reporting issues under IFRS.</td></tr>
<tr><td colspan="7">Learning methods:
Explaining the provisions of International Financial Reporting Standards (IFRS) through illustrative examples.</td></tr>
<tr><td colspan="7">Assessment
Signature: The lecture is not compulsory.
More than 3 missed seminars are not allowed.
Grade: Exams with theoretical and practical examples with tests, essays, excel are going to be on the e-learning system (50% - 2, 62,5% - 3, 75% - 4, 87,5%- 5) based on the Neptun-registration to the exam. The exam will take place at the university’s computer room.</td></tr>
<tr><td colspan="7">Compulsory readings:
David Alexander and Christopher Nobes: Financial Accounting: An International Introduction (selected, appointed chapters)
Suwardy, Suwardy, Harrison, Tietz, Horngren & Thomas: Financial Accounting, Global Edition, 11th Edition, 2019 (selected, appointed chapters)
Elliott & Elliott Financial Accounting and Reporting, 19th Edition, 2019 (selected, appointed chapters)
Cotter Advanced Financial Reporting: A Complete Guide to IFRS, 2019 (selected, appointed chapters)
Conceptual Framework for Financial Reporting 2010 (the IFRS Framework) approved by the IASB,
the Framework is available at http://www.ifrs.org/News/Press-Releases/Documents/ConceptualFW2010vb.pdf</td></tr>
</table>

	Related International Accounting Standards/International Financial Reporting Standards: IAS 1, IAS 7, IAS 8, IAS 10, IAS 16, IAS 33, IAS 38, IAS 40, IFRS 5, IFRS 8 the standards are available at http://www.ifrs.org/IFRSs/Pages/IFRS.aspx (free registration required) Study materials, illustrative examples, solutions provided by the instructor in the classes (They will be uploaded to the Moodle system)
Recommended readings:	
	Clyde P. Stickney, Roman L. Weil, Katherine Schipper, and Jennifer Francis: Financial Accounting: An Introduction to Concepts, Methods and Uses, South-Western Cengage Learning, 2010 Barry J. Epstein and Eva K. Jermakcowicz: Wiley IFRS: Interpretation and Application of International Accounting and Financial Reporting Standards 2010, Wiley, 2010 Thomas R. Ittelson: Financial Statements: A Step-by-Step Guide to Understanding and Creating Financial Reports, Career Press, 2010

Syllabus

Week	Topics
1.	Introduction. The context of accounting, basic requirements. The purposes and users of accounting. Fundamentals of financial accounting LO: Students will be able to understand the fundamentals of financial accounting
2.	Basic financial statements, statement of financial position, statement of profit or loss, statement of cash flows LO: Students will be able to understand the basic financial statements
3.	Introduction to International Accounting Standards/International Financial Reporting Standard LO: Students will be able to understand the structure and governance of the IFRS Foundation
4.	The contents of financial statements, statement of financial position, comprehensive income (CI) other comprehensive income (OCI). LO: Students will be able to understand the the contents of financial statements under IFRS
5.	The contents of financial statements, statement of changes in equity, statements of cash-flows, Notes LO: Students will be able to understand the the contents of financial statements under IFRS
6.	Spring holiday
7.	Non-current Assets Held for Sale and Discontinued Operations (IFRS 5), Operating segments (IFRS 8), LO: Students will be able to understand the accounting treatment of Non-current Assets Held for Sale and Discontinued Operations, and the operating segments under IFRS
8.	Earnings per Share (EPS) LO: Students will be able to understand how Earnings per Share is calculated under IFRS
9.	The double-entry bookkeeping system. Journals, journalizing and posting transactions, adjusting and closing procedures, composition of financial statements I. LO: Students will be able to understand the the double-entry bookkeeping system
10.	The double-entry bookkeeping system. Journals, journalizing and posting transactions, adjusting and closing procedures, composition of financial statements II. LO: Students will be able to understand the the double-entry bookkeeping system
11.	Financial reporting issues, recognition of assets and liabilities, revenues/expenses I. LO: Students will be able to understand the recognition of assets, liabilities and revenues/expenses under IFRS
12.	Depreciation of cost of assets. Measurement subsequent to initial recognition under IFRS LO: Students will be able to understand the depreciation of cost of assets

*LO learning outcomes

Course title:	Hungarian:	Számvitel II.	Code:	GT_AGVNE020-17
	English:	**Accounting II**		

Institute: Accounting and Finance				Faculty of Economics and Business				
Prerequisites: International Financial Accounting I				International Financial Accounting I			Code:	GT_AGVN019-17
Division		Classes per week				Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)				
Daytime	x	per week	2	per week	2	Exam	5	English
Correspondent		Semiannually		Semiannually				
Responsible instructor				name:	Dr. Ildikó Orbán		post	associate professor

Course goals:

The main purpose of this subject is to provide insights into the impact of financial accounting in an international environment.

Competences:

Knowledge:

The subject will provide students with an international perspective on financial accounting including theory, practice, and its applications under International Financial Reporting Standards (IFRS).

Capabilities:

Students will be able to understand the information presented in financial statements prepared under International Financial Reporting Standards (IFRS). Nevertheless, students will become capable of accounting for several business transactions and preparing different financial statements or extracts.

Attitudes:

Students will accept the importance and necessity of financial reporting and accounting under IFRS.

Autonomy, responsibility:

Students will become responsible for improving their knowledge in financial and corporate reporting.

Cour se content , topics:

The course will provide the students with an international perspective on accounting including theory, practice, and its applications under International Financial Reporting Standards (IFRS). Students will be introduced into several financial reporting issues, such as accounting for impairment, borrowing costs, government grants, leases, inventories, financial instruments, provisions, employee benefits, and share-based payments. Topics of corporate taxation, group accounting, consolidated financial statements, foreign currency translation, the procedure of preparation of different financial statements and extracts will be discussed as well.

Learning methods:

Explaining the provisions of International Financial Reporting Standards (IFRS) through illustrative examples.

Assessment

Signature:

The lecture is not compulsory. More than 3 missed seminars are not allowed..
For the signature presentation of a chosen company's IFRS financial statement is compulsory.

Grade: Exams with theoretical and practical examples with tests, essays, excel are going to be on the e-learning system (50% - 2, 62,5% - 3, 75% - 4, 87,5%- 5) based on the Neptun-registration to the exam. The exam will take place at the university's computer room.

Compulsory readings:

David Alexander and Christopher Nobes: Financial Accounting: An International Introduction, Prentice Hall, 2016, 6th Edition, chapters 10, 11, 12, 13, 14, 15
Related International Accounting Standards/International Financial Reporting Standards: IAS 16, IAS 40, IAS 38, IAS 23, IAS 20, IAS 17, IAS 36, IAS 41, IAS 2, IAS 32, IAS 39, IAS 19, IAS 12, IAS 28, IAS 21, IFRS 2, IFRS 3, IFRS 7, IFRS 9, IFRS 10, IFRS 11, IFRS 13, IFRS 16,
the standards are available at http://www.ifrs.org/IFRSs/Pages/IFRS.aspx (free registration required)
tudy materials, illustrative examples, solutions provided by the instructor in the classes (They will be uploaded to the Moodle system)

Clyde P. Stickney, Roman L. Weil, Katherine Schipper, and Jennifer Francis: Financial Accounting: An Introduction to Concepts, Methods and Uses, South-Western Cengage Learning, 2010
Barry J. Epstein and Eva K. Jermakcowicz: Wiley IFRS: Interpretation and Application of International Accounting and Financial Reporting Standards 2010, Wiley, 2010
Thomas R. Ittelson: Financial Statements: A Step-by-Step Guide to Understanding and Creating Financial Reports, Career Press, 2010

Syllabus

Week	Topics
1.	Measurement of the elements of financial statements. Measurement and accounting for property, plant and equipment and intangible assets (IAS 16, IAS 38) LO: Students will be able to understand the measurement of the elements of financial statements under IFRS
2.	Investment properties LO: Students will be able to understand the accounting treatment of investment properties under IFRS
3.	Impairment of assets. Leases LO: Students will be able to understand the accounting treatment of impairment under IFRS
4.	Borrowing cost. Government grants LO: Students will be able to understand the accounting treatment of borrowing cost government grants under IFRS
5.	Inventories, counting inventory. Valuation of inventory, cost methods, using output values. LO: Students will be able to understand the accounting treatment of Inventories and biological assets under IFRS
6.	Inventories, counting inventory. Agriculture. Biological assets and agricultural produce LO: Students will be able to understand the accounting treatment of Inventories and biological assets under IFRS
7.	Financial instruments. Financial assets, cash and receivables, investments Fair value measurement LO: Students will be able to understand the accounting treatment of financial instruments and fair value measurement under IFRS
8.	Liabilities, equity, reserves and provisions. LO: Students will be able to understand the accounting treatment of liabilities, equity, reserves and provisions under IFRS
9.	Employee benefits LO: Students will be able to understand the accounting treatment of employee benefits under IFRS
10.	Income taxes, Accounting and taxation, international differences LO: Students will be able to understand the accounting treatment of income taxes under IFRS
11.	Tax rates, tax expenses and deferred tax LO: Students will be able to understand the accounting treatment of deferred tax under IFRS
12.	Revenues, Gains, Foreign currency translation LO: Students will be able to understand the accounting treatment of revenues, gains and of foreign currency translation under IFRS

*LO learning outcomes

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Marketing</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE021-17</td></tr>
<tr><td>English:</td><td colspan="3">Marketing</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="4">Institute of Marketing and Commerce</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3"></td><td>Code:</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week</td><td colspan="2">Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td colspan="2"></td><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td><td></td><td></td></tr>
<tr><td>full-time</td><td>X</td><td>per week</td><td>2</td><td>per week</td><td>0</td><td>exam</td><td>3</td><td>English</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">Responsible instructor</td><td>name:</td><td colspan="2">Dr. Szakály Zoltán</td><td>post</td><td>professor</td></tr>
</table>

Course goals:

The aim of the course is to provide the students with an insight into the language and issues of marketing with an emphasis on learning to develop responsive marketing strategies that meet customer needs

Competences:

Knowledge:

From the textbook, participation assignments/homework, and class discussions, students will learn about the decisions that marketers must make and tools/frameworks that will assist them in making those decisions effectively.

Capabilities:

The course aims to develop analytical, communication, and presentation skills (through use of technological aids, such as Microsoft Word, PowerPoint, and the Internet)—the basic tools of marketing. Beside this, students will be able to work in teams.

Attitudes:

Students will be able to analyze the role of marketing within the firm and society. On the practical side, this new understanding of marketing should make each of them a more knowledgeable consumer.

Autonomy, responsibility:

By the end of the course, students should understand the complexity and challenges associated with making marketing decisions as well as ways to design effective marketing strategies.

Course content , topics:

The course focuses on basic marketing concepts and the role of marketing in the organization. Topics include market segmentation, product development, distribution, and pricing. Other topics, which will be incorporated into the course, are external environment (which will focus on integrative topics with marketing, such as economics, politics, government, and nature) and marketing research

Learning methods:

Students participate in the lectures

Assessment

The exam is a written test which will be evaluated according to the following grading schedule:

(2=60%; 3=70%; 4=80%; 5=90%)

Compulsory readings:

KOTLER, P.—ARMSTRONG, G. (2018): Principles of Marketing plus Pearson MyLab Marketing with Pearson eText: Global Edition, 17/E, Pearson, ISBN-10: 1292220287, ISBN-13: 9781292220284

Recommended readings:

KOTLER, P.—KELLER, K. L. (2016): Marketing Management. Global edition, 15th edition, Pearson/Prentice Hall, Boston, ISBN-10: 1292092629, ISBN-13: 9781292092621

Syllabus

Week	Topics
1.	Basic concepts of Marketing
2.	Types of corporate market orientation
3.	Customer value, customer satisfaction
4.	The process of modern marketing
5.	Marketing information system and marketing research
6.	Analysis of consumer behavior
7.	Segmentation
8.	Targeting and positioning
9.	Product lifecycle management, market development theory
10.	Basics of product strategy
11.	Basics of price strategy
12.	Basics of place strategy
13.	Basics of communication strategy I.
14.	Basics of communication strategy II.

*LO learning outcomes

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="2">Üzemtan I.</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE022-17</td></tr>
<tr><td>English:</td><td colspan="2">Agronomy I.</td></tr>
<tr><td colspan="7">Rural Development Engineer BSc.</td></tr>
<tr><td colspan="3">Institute:</td><td colspan="3">Institute of Economics</td><td></td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="2">-</td><td>Code:</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week</td><td>Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td colspan="2"></td><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td><td></td><td></td></tr>
<tr><td></td><td></td><td>per week</td><td>2</td><td>per week</td><td>2</td><td rowspan="2">P (practical grade)</td><td rowspan="2">4</td><td rowspan="2">English</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Dr. Krisztián Kovács, Ph.D.</td><td>post</td><td>assistant professor</td></tr>
</table>

Course goals:

The aim of the course is for students graduating from the curriculum to be familiar with the basics of Agronomy and Farm Business Management, including the basic farm business economic calculations required to manage a business. The subject serves as a required subject in Agronomy 2.

Competences:

Knowledge:

He knows the economic and financial contexts and interactions of the processes taking place in rural development and agriculture. In its context, he understands the goals and basic laws of corporate management.

Knows the natural and technical contexts related to the production of the agricultural (crop, livestock, horticultural) sectors.

Knows the planning, production programming, trade and logistics methods of the agricultural economy, knows the processes and actors of the food chain.

Capabilities:

Able to form and pass on an independent professional position in the field of rural development and agriculture.

Able to comprehensively see the system of conditions necessary for starting and developing a given enterprise in the field of rural development, agriculture and environmental protection.

Able to prepare financial, investment, financing, investment decisions, to prepare and evaluate loan applications, financial plans and applications.

Attitudes:

The graduate student is open to the management of agricultural enterprises.

Open to the management of (family) farms.

Initiative in rural development issues, receptive to innovations, interested in innovations.

Receptive to new information, new professional knowledge and methodologies, open to new, independent and collaborative tasks and responsibilities.

Autonomy, responsibility:

At the middle level of the production organizational units, he independently exercises the management functions and takes responsibility for his decisions.

He is able to independently plan management processes, manage purchasing and sales processes.

Based on the knowledge and methods related to rural development, it performs a detailed independent analysis, explores basic connections, and draws independent conclusions.

Course content , topics:

- The nature and development of Agronomy (Farm Business Management), the company, multifunctional agriculture
- Specialties of the company, the agricultural enterprise
- Production value and categories
- Production cost and categories
- Income and efficiency
- Resources: capital, capital management
- Resources: arable land and pasture
- Resources: labor management
- Fixed assets, investment economy
- Current assets
- Forms of enterprise in agriculture I.
- Forms of enterprise in agriculture II.

Learning methods:

Requirement for signing the semester: Regular attendance of the practical sessions according to the relevant provisions of the "Study and Examination Regulations". The presence is constantly monitored.
Adequate progress is monitored by completing the required mid-term exams during the semester. The condition for obtaining the signature is to achieve 50% of the practical part of the two mid-term exams separately for each exam.
The theoretical questions and practical tasks included in the exams are formulated from the course topics, in the form of short definitional questions, explanatory questions, and computational tasks.

Assessment

During the semester, full-time students write mid-term exam twice, which consists of a theoretical (max 30 points) and a practical (max 20 points) part. The condition for obtaining the signature is to achieve 50% performance (10-10 points) of the practical part of the two mid-term exams (max. 20-20 points) separately for each mid-term exam. Appearance is mandatory on both mid-term exams.
In order to obtain the signature, it is possible to have an additional written exam (max. 20 points) from the practical part during the examination period, it is necessary to achieve 50% performance in order to obtain the signature in this exam.
The "offered course grade" allows students who have reached at least 60% of the average of the two mid-term exams during the semester (min 60 points) and have passed the 50-50% signature threshold from the practical part of exam.
Students who have obtained a signature during the semester during the examination period have the opportunity to take a written examination of the entire material of that semester, at which a performance of at least 60% is required for a sufficient grade.

The exam is a written test which will be evaluated according to the following grading schedule:
Points range:

- 0-59 (1 -failed)
- 60-69 (2 - satisfactory)
- 70-79 (3 - average)
- 80-89 (4 - good)
- 90-100 (5 - excellent)

Compulsory readings:

1. R. D. Kay – W. M. Edwards – P. A. Duffy (2007): „Farm Management" McGraw-Hill Inc. (Sixth Edition), 2007. ISBN-10: 0073028290 | ISBN-13: 978-0073028293Farm Business Management: The Fundamentals of Good Practice by Peter L. Nuthall ISBN-13: 978-1780646565, ISBN-10: 1780646569
2. Fundamentals of Farm Business Management by S.S. Johl – T.R. Kapoor Kalyani Publishers (2003) ISBN-10: 8176631809

Recommended readings:

1. K. OLSON (2010): „Economics of Farm Management in a Global Setting", John Wiley & Sons, Inc.; (First Edition), 2010. ISBN: 978-0-470-59243-4
2. The business of farming : a guide to farm business management in the Tropics by Johnson, David T. London : Macmillan, 1990. ISBN 0333499212
3. Ronald A. Schrimper: Economics of agricultural markets, North Carolina State Universty 2001, Upper Saddle River, New Jersey 07458, ISBN 0-13-775776-x

Syllabus

Week	Topics
1.	Description of requirements system; Basic definitions;
	LO *: Knows the basic concepts of operation and corporate economics, the different ideas, their peculiarities and the basic connections between them.
2.	The nature and formation of plant science, the company, the plant, multifunctional agriculture. Peculiarities of the company, the agricultural enterprise
	LO: Knows the functions and characteristics of the company, including the specialties and multifunctional nature of agricultural enterprises.
3.	Production value and categories
	LO: Knows the definition of production value and its elements, as well as how and in what area it can modify each element. He also knows the categories of production value.
4.	Production cost and categories
	LO: Knows the definition of production cost and its elements, and how and in what area it can modify each element. He also knows the categories of production cost.
5.	Income and efficiency
	LO: Students knows the definition of income and its elements, and how and in what area you can modify each element. He also knows the categories and methods of calculating income.
6.	First mid-term exam
	LO: It gives an account of the knowledge acquired in the first half of the semester in the form of theoretical and practical tasks.
7.	Resources: capital, capital management
	LO: Knows the principles of capital and the characteristics (advantages and disadvantages) of equity and debt.
8.	Resources: land
	LO: Able to determine the value of arable land, know the characteristics of arable land and the ways and principles of its use.
9.	Resources: labor management
	LO: Knows the main principles of manpower management in companies and the possibilities of hiring and motivating human resources. He is aware of the main areas of human resource management as well as wages and their contributions.
10.	Fixed assets, investment economy
	LO: Knows the characteristics and groups of fixed assets and is able to calculate investment economy calculations and indicators.
11.	Current assets
	LO: Knows the concept and grouping possibilities of current assets as well as the basics of inventory management and current asset turnover.
12.	Types of enterprise in agriculture I.
	LO: Knows the individual forms of business, their advantages and limitations, as well as the responsibilities of their managers and the circumstances of their establishment. You can compare different forms of business.
13.	Types of enterprise in agriculture II.
	LO: Knows the individual forms of business, their advantages and limitations, as well as the responsibilities of their managers and the circumstances of their establishment. You can compare different forms of business.
14.	Second mid-term exam
	LO: It gives an account of the knowledge acquired in the second half of the semester in the form of theoretical and practical tasks.

*LO learning outcomes

The exercises follow the material of the lectures in parallel.

Themes of exercises

Week	Topics
1-2.	Yield and Production Value
3-4.	Production Cost
5-6.	Production Cost and Unit production cost calculations
7-8.	Income and their categories
9-10.	Current and noncurrent assets and depreciation
11-12.	Labor cost and critical volume calculation
13-14.	Repetition and Mid-term exam (Part 2)

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="2">Üzemtan II.</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE023-17</td></tr>
<tr><td>English:</td><td colspan="2">Agronomy II.</td></tr>
<tr><td colspan="7">Rural Development Engineer BSc.</td></tr>
<tr><td colspan="3">Institute:</td><td colspan="4">Institute of Economics</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="2">Agronomy I.</td><td>Code:</td><td>GT_AGVNE022-17</td></tr>
<tr><td colspan="2" rowspan="2"></td><td colspan="2">Classes per week</td><td rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
<tr><td>Lecture(s)</td><td>Seminar(s)</td></tr>
<tr><td></td><td></td><td>per week</td><td>2</td><td>per week</td><td>2</td><td rowspan="2">Exam</td><td rowspan="2">5</td><td rowspan="2">English</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Dr. Krisztián Kovács, Ph.D.</td><td>post</td><td>assistant professor</td></tr>
</table>

Course goals:

The aim of the course is for the students to get to know:

- agricultural characteristics of costs, yields and income behavior through cost, yield and income functions;
- the operational characteristics of the market for the main inputs used in agricultural production (fertilizers, pesticides, feed, livestock, machinery, etc.);
- the international and domestic economic importance of the crop, horticultural and livestock sectors, integration into the farming system, the structure, characteristics and regulation of the sector, as well as the main work processes of production and the peculiarities of its work organization.

The students through the exercises - complex example tasks (simulating real situations) - get acquainted with the methodology of preparing sectoral economics calculations (data collection, data processing, evaluation analysis), the interpretation of the necessary concepts and the mechanism and peculiarities of economic decision-making.

Competences:

Knowledge:

Knows the basic concepts of food chain security management and economics that form the basis of agricultural production.

Possesses all the knowledge that enables precise professional communication, direct participation in agricultural production, its support, as well as active - operative - participation in the practical implementation of R & D & I projects.

Capabilities:

Ability to start and run a family farm.

Able to recognize and eliminate routine problems in the process of agricultural production.

As a middle manager of agricultural enterprises, he has a sufficient ability to cooperate, through which he can clearly interpret professional instructions and communicate them to his subordinates.

Attitudes:

Approaches professional issues constructively.

The agricultural engineer performs his duties independently in the course of his work.

Plan your career independently.

Autonomy, responsibility:

Takes responsibility for the decisions made in the performance of his / her duties and for the work of himself / herself and the workforce entrusted to him / her.

Represents your professional beliefs responsibly in your professional communication.

Expresses his / her opinion independently, professionally, and responsibly.

Course content, topics:

The subject includes knowledge of yield, cost and income functions, the market of agricultural inputs and production resources, the business environment of the enterprise, the organization of crop production, livestock and horticulture, the structure and operation of these product lines.

Learning methods:

Requirement for signing the semester: Regular attendance of the practical sessions according to the relevant provisions of the “Study and Examination Regulations”. The presence is constantly monitored. Adequate progress is monitored by completing the required mid-term exams during the semester. The condition for obtaining the signature is during the regular participation in practical classes, in accordance to the relevant provisions of the "Study and Examination Regulations". The theoretical questions and practical tasks included in the exams are formulated from the course topics, in the form of short definitional questions, explanatory questions, and computational tasks.

Assessment

During the semester, full-time students write mid-term exam twice, which consists of a theoretical (max 30 points) and a practical (max 20 points) part.

The “offered course grade” allows students who have reached at least 60% of the average of the two mid-term exams during the semester (min 60 points) and have passed the 50-50% threshold from the practical part of exam. Students who have obtained a signature during the semester during the examination period have the opportunity to take a written examination of the entire material of that semester, at which a performance of at least 60% is required for a sufficient grade.

The exam is a written test which will be evaluated according to the following grading schedule:

Points range:

- 0-59 (1 -failed)
- 60-69 (2 - satisfactory)
- 70-79 (3 - average)
- 80-89 (4 - good)
- 90-100 (5 - excellent)

Compulsory readings:

- Hungarian Central Statistical Office: The Hungarian agriculture and food industry in figures.
- The business of farming: a guide to farm business management in the Tropics by Johnson, David T. London: Macmillan, 1990. ISBN 0333499212

Recommended readings:

- R. D. Kay – W. M. Edwards – P. A. Duffy (2007): „Farm Management” McGraw-Hill Inc. (Sixth Edition), 2007. ISBN-10: 0073028290 | ISBN-13: 978-0073028293Farm Business Management: The Fundamentals of Good Practice by Peter L. Nuthall ISBN-13: 978-1780646565, ISBN-10: 1780646569
- Fundamentals of Farm Business Management by S.S. Johl – T.R. Kapoor Kalyani Publishers (2003) ISBN-10: 8176631809

Syllabus

Week	Topics
1.	Description of requirements system. Description and explanation of the topics and content of the lectures and exercises. By systematizing basic concepts related to production costs, yield, and income. LO*: Understanding the logic of lectures and exercises, building on each other. Understanding the basic concepts of operation
2.	Machine work and mechanization in agriculture. LO*: Peculiarities and costs of agricultural mechanization. Irrigation works and their peculiarities and characteristics in agriculture.
3.	Economic and technological factors related to irrigation in agriculture. LO*: Knowledge of economic and technological factors related to irrigation in agriculture
4.	Economics of fertilization management and plant protection in agriculture. LO*: Volume of the market of fertilizers and plant protection products, development tendencies, factors determining prices.
5.	Economics of feed management LO*: Understanding economic decisions related to feeding
6.	Economic issues of sector efficiency measuring LO*: Knowledge of the methodology of efficiency analysis
7.	Competitiveness and innovation LO*: Factors of agricultural competitiveness and their measurement, as well as knowledge of the conditions of innovation
8.	Management functions in the company LO*: Knowledge of the function of planning, analysis and decision making
9.	Temporal aspects of agricultural markets LO*: Getting to know stock market transactions and warehousing decisions
10.	Market relations in agriculture (integrations, cooperatives, supply chains) LO*: Knowledge of the system of various collaborations in agriculture. Risk and management in agriculture
11.	Coping with risk in agriculture LO*: Types of risks and knowledge of management strategies
12.	The role of Hungarian agriculture in the national economy, its structure, and tendencies LO*: Production volume and value of Hungarian agriculture, structure of foreign trade, weight, and role of the food industry
13.	Exam

*LO learning outcomes

The exercises follow the material of the lectures in parallel.

Themes of exercises

Week	Topics
1-2.	Description of requirements system. Repetition of basic operational concepts
3-4.	Peculiarities of Food Business Management, Cost, Yield and Income Behavior - I. ("Bakery sample task", Part 1)
5-6.	Peculiarities of Food Business Management, Cost, Yield and Income Behavior - I. ("Bakery sample task", Part 2)
7-8.	Repetition and Mid-term exam (Part 1)
9-10.	Peculiarities of farming, cost, yield and income behavior - I. ("Pepper sample task", Part 1)
11-12.	Peculiarities of farming, cost, yield and income behavior - I. ("Pepper sample task", Part 2)
13-14.	Repetition and Mid-term exam (Part 2)

<table>
<tr><td rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Agrárvállalkozások üzleti tervezése</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE024-17</td></tr>
<tr><td>English:</td><td colspan="3">Business Planning of Agricultural Enterprises</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="5">Institute of Economics</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3">-</td><td>Code:</td><td>-</td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week</td><td colspan="2" rowspan="2">Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td colspan="2"></td><td colspan="2">Lecture(s) Seminar(s)</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td></td><td></td><td>per week</td><td>0</td><td>per week</td><td>2</td><td>P (professional grade)</td><td>3</td><td>English</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Dr. László Szőllősi, PhD</td><td>post</td><td>associate professor</td></tr>
</table>

Course goals:

The aim of the course is to let and make students understand and acquire the knowledge that is connected to the business planning of agricultural and food industry enterprises in market economies and the theoretical knowledge these activities are based on; the main points and necessity of business planning in agriculture and food industry, its information requirements, its role in how enterprises work and the details of the planning itself, on which the course wished to put special emphasis. The course creates a synthesis of a lot of the material covered by other subjects, which means the students are supposed to have become familiar with; the material of all those economic subjects that have been covered by studies prior to the course: micro- and macro-economics, finances, enterprise finance, marketing, enterprise management, accountancy, management and economic analysis. In addition, students prepare a business plan in teamwork (3-4 persons) based on the instructor's guideline.

Competences:

Knowledge:

Graduates know the basic technologies required for operating and organizing the major sectors of crop production, horticulture, and animal husbandry, as well as the strategies for landscape utilization, eco-farming, precision farming, and integrated farming.

They are familiar with the accounting and financial background of the operation and development of the agribusiness sector, and comprehensively understands the important agrarian informatics tools, management, planning, analysis, and farm management software used in agriculture.

They understands the essence, tools, and achievements of the technological revolution (Industry 4.0) that has begun in the field of agrarian production.

They know and understand the system of domestic and European Union specialized administration related to the operation of the domestic food economy, as well as the processes occurring in his/her field and the interrelationships between them.

They know the international, national, and regional interconnections of the operation and development of rural and food economies.

Capabilities:

Graduates are capable of organizing, controlling, economically analyzing, and evaluating production processes primarily in agriculture, and also of performing financial analysis, decision preparation, and decision-making tasks related to agriculture in financial institutions and companies.

After acquiring practical knowledge and experience, they are capable of leading small, medium, and large agricultural and food economy enterprises, as well as specific organizational units. They perform comprehensive economic functions in economic organizations, plans and directs complex economic processes, and manages resources.

They are capable of participating in the analytical, decision-preparatory, and decision-making activities related to the establishment, operation, and termination of enterprises interested in rural economies.

They are independently capable of planning management processes and directing procurement and sales processes.

Attitudes:

Graduates open to representing the social role of the economy, rural and regional development, and related scientific fields, as well as to managing family farms.

In matters of agricultural economy and rural development, they are proactive, receptive to innovations, open to others' opinions, and appreciates the sectoral, regional, national, and European values of agriculture.

In professional matters, they are characterized by creativity, good problem identification and solving skills,

analytical and synthesizing abilities, commitment to the principles of sustainability, good communication and cooperation skills, a sense of professional responsibility, and a desire for professional development.

Autonomy, responsibility:

At the middle level of production-organizational units, they independently exercise management functions, take responsibility for their decisions, and also assume responsibility for their work and that of the employees under their direction.

They think responsibly about the environmental and social impacts of economic decisions, as well as the social and environmental responsibility of businesses operating in agriculture.

Course content, topics:

- Planning in businesses, types of business plans; the process and methodology of business planning;
- Strategic planning, strategy creation in enterprises, strategic planning process, phases, strategic planning tools and methods;
- Action planning, aspects of action planning, planning of innovation; business planning, business planning practice, methods and content;
- Executive summary;
- Introduction of enterprise;
- Analysis of business sector;
- Introduction of products and services;
- Operational plan;
- Marketing plan;
- Management and organizational structure;
- Structure and capitalization;
- Financial plan;
- Risk assessment;
- Road map for main phases;
- Written exam;
- Submission a home essay (a business plan);
- Student presentations;

Learning methods:

The students prepare a business plan in the field of agriculture and food industry in a team of 3-4 people. The main content and formal requirements of the business plan are contained in the appendix to the course program, which is supplemented by the instructor's regulations. The deadline for submission: ……. The essay can be submitted electronically via the e-learning system, on the interface of the given course. Preparing of the business plan without proper content and form requirements and failure to comply with the deadline will result in the rejection of the essay and the course signature.

Condition for obtaining the course signature: Regular attendance of classes. The administration of student's class attendance takes place in the e-learning system.

Following the submission of the business plan, the students will give an oral presentation and defend their work in 15 minutes.

The theoretical questions and practical (computational) tasks in the written exam are formulated from the course topics as true-false questions, definition-type questions, explaining questions as well as simpler or more complex computing tasks.

Assessment

The semester ends with a practical (seminar) grade. The final grade includes the result of the home essay (business plan) prepared on the basis of the regulations and submitted to the deadline (max. 15 points), the result of the oral presentation (max. 5 points) and the result of a written exam (classroom test) (up to 50 points). The result of the home essay is determined by its professional, methodological quality and numerical accuracy of the data contained therein. There is no possibility to improve the home essay (business plan) after the submission. The date of writing the classroom test is in the 13th week of the term-time during the class. After it there will be 2 other make-up times in the examination period. The semester is considered as completed if both of the business plan submitted and the classroom test are successful (minimum 60% performance) and the presentation is accepted too.

Borders points:	0-41 points (0-59%)	(1)
	41-48 points (60-69%)	(2)
	49-55 points (70-79%)	(3)
	56-62 points (80-89%)	(4)
	63-70 points (90-100%)	(5)

Compulsory readings:

- Szőllősi, L (ed.): Business Planning: University Textbook – Theory. DE AGTC, Debrecen, 2013. 129 p.
- Siegel, E.S. – Ford, B.R. –Bontsein, J.M.: The Ernest & Young Business Plan Guide. CONEX Kft, Budapest, 1996. 226 p.

- Szőllősi, L. – Kovács, K. – Vida, V.: Business Planning Basics – workbook. University of Debreceni, Debrecen, 2019. 64 p.

Recommended readings:

- Dewhurst, J.A.: An Introduction to Business and Business Planning – Introducing Business throught the Development of a Business Plan. Bookboon, 2014. 123 p. https://www.academia.edu/34567143/An_introduction_to_business_and_business_planning
- Whiteling, I. (ed.): Start Your Own Business 2010. Crimson Publishing, 2009. 291 p. https://www.pdfdrive.com/start-your-own-business-e158036005.html
- McKinney, A. (ed.): Real Business Plans & Marketing Tools. Prep Publishing, 2003. 192 p.
- McKeever, M.: How to Write a Business Plan. Nolo, 2010. 290 p. https://www.academia.edu/35931618/How_to_Write_a_THE_LEADING_BUSINESS_PLAN_BOOK_FOR
- Friend, G. – Zehle, S.: Guide to Business Planning. The Economist, 2004. 288 p. https://www.semanticscholar.org/paper/Guide-to-business-planning-Friend-Zehle/6c1762df37af05db7e026a9977b454e07a131ec8

Syllabus

Week	Topics
1.	**Introduction of the requirements; Elements;** LO: Students know the basic concepts and elements of business planning.
2.	**Planning in businesses, types of business plans; the process and methodology of business planning;** LO: Students knows the various plans, their specifics and the basic relationships between them. They are familiar with the basic goals and objectives of the business planning, the main processes of planning, the necessary information and their resources, they are able to develop business concepts and know the main content and structure of business plans.
3.	**Strategic planning, strategy creation in enterprises, strategic planning process, phases, strategic planning tools and methods;** LO: Students know the basic methodological and professional issues of strategic planning, they are able to draft long-term vision, mission and strategic goals, and assign them medium-term goals and actions.
4.	**Action planning, aspects of action planning, planning of innovation; Business planning, business planning practice, methods and content; Executive summary; Introduction of enterprise;** LO: Students know the methodological and professional issues of action (tactical) planning, know the practice, methods and detailed content of it. They know the basic professional and content elements of writing an executive summary. They are familiar with the content and professional elements of a factual presentation of an existing or starting business.
5.	**Analysis of business sector;** LO: Students are familiar with the main professional and methodological issues of sectoral analysis, they are able to collect secondary data, to present an industry and to make findings and conclusions about the situation of the proposed enterprise within the industry.
6.	**Introduction of products and services;** LO: Students know the technique of presenting the product / service and the professional questions needed to present the product / service market needs. They are able to collect and process related data.
7.	**Operational plan;** LO: Students know the professional issues to be addressed in the operational plan. They are able to compile and professionally view the real processes of a given production / service / trade activity. They are able to identify and calculate the resources (fixed and current assets) needed to implement the business concept and their quantity.
8.	**Marketing plan;** LO: Students know the professional questions to be answered in the marketing plan and the methods to be applied (PEST, SWOT, Porter-five forces model). Based on this, they are able to collect data and compile a marketing situation report. They are able to formulate marketing objectives and related marketing strategy. They are familiar with the core professional issues and relationships of market segmentation, target market definition, target-market strategies, pricing and sales promotion, and marketing budgeting.
9.	**Management and organizational structure; Capitalization and structure;** LO: Students are able to develop and present a human resource policy and strategy related to the needs derived from the operational plan. They are familiar with the principles of corporate finance and able to make decisions about involving external financial resources.
10.	**Financial plan I.;** LO: Students know the financial statements of business activity, the data and methods necessary to prepare these statements, and the relationships between real and financial processes. They are able to compile, evaluate and analyze a sales plan, cost plan, profit and loss plan. They know the professional and methodological context of the compilation of a balance sheet. They are able to prepare and evaluate a cash flow plan.
11.	**Financial plan II.;** LO: Students know the methods and indicators used to analyze the financial plan data: Breakeven analysis, investment analysis (net present value, internal rate of return, profitability index, discounted payback period), financial indicators (liquidity measurement ratios, debt and credit ratios, profitability ratios, efficiency ratios, capital structure ratios, financial strength ratios, growth rates).
12.	**Risk assessment; Road map for main phases;** LO: Students know the forms and types of risks that can arise in the business and the general tools and methods that can be applied to control them. They are know the sensitivity analyses and able to perform critical and scenario analysis of the business plan. They are able to view and timely schedule the tasks required to carry out a business concept.

13.	**Written exam;** LO: Students demonstrate the knowledge they have acquired during the semester in the form of theoretical and practical assignments.
14.	**Business plan submission; Student presentations; Replacement of written exam;** LO: During the preparation of the homework (business plan), students will be able to work with their peers in team work, share ideas with each other, and gain experience in developing a business concept of a start-up business through a practical example. As a result of the presentation, students will be able to highlight and introduce the most important relationships and develop their presentation and debate skills.

*LO learning outcomes

Content and form requirements of the business plan

The required structure and content requirements of the business plan:

Cover page;
Contents;
1. Identification data;
2. Executive summary;
3. General company description;
4. Sectorial analysis;
5. Products and services;
6. Operational plan;
7. Marketing plan;
8. Management and organization;
9. Capitalization and structure;
10. Financial plan;
11. Risk management;
12. Schedule of major milestones;

Annexes;

It is a requirement for each chapter to be elaborated in detail with the topic. Submission of a business plan with incomplete content (missing chapter) will result in the rejection of the essay and the course signature.

Formal requirements of the business plan:

- Min. 35 page;
- Font type: Times New Roman, font size: 12, single spacing, margin: 2.5 cm;
- For the editing of tables and figures and for other formal requirements, the formal requirements of the diploma work are guiding.
- The essay can be submitted electronically by sending to the instructor's e-mail address, which includes three files:
  1) Business plan in a Word document (*.doc, *.docx);
  2) An excel document containing figures and background calculations presented in the business plan (*.xls, *.xlsx);
  3) Slides of the presentation (*.ppt, *.pptx);

<table>
<tr><td rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Emberi erőforrás menedzsment</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE025-17</td></tr>
<tr><td>English:</td><td colspan="3">Human resource management</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="4">Institute of Management and Organization Sciences</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3"></td><td>Code:</td><td></td></tr>
<tr><td colspan="2" rowspan="2">Type</td><td colspan="2">Classes per week</td><td colspan="2" rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
<tr><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td></tr>
<tr><td>Full time</td><td>x</td><td>per week</td><td>2</td><td>per week</td><td>1</td><td rowspan="2">professional grade</td><td rowspan="2">4</td><td rowspan="2">English</td></tr>
<tr><td>Part time</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Dr. Dajnoki, Krisztina</td><td>post</td><td>professor</td></tr>
</table>

Course goals:

The objective of the course is to acquaint students with the basic tasks related to human resource management. Acquisition of basic knowledge, concepts, models and methods related to the topic, explores the connections between systems and methods, which, supplemented with practical examples, enables the student to interpret the integrated system of human resource management.

Competences:

Knowledge:

The student has knowledge of basic, comprehensive concepts, theories, models, facts of human resource management, relevant economic actors, functions and processes. He knows the rules of cooperation in a work organization, the connections of the functions of human resource management, their interaction with each other. Knows the methods of HR activities related to the main areas of activity, the basic operation of HR systems.

Capabilities:

The student using the learned HR theories and methods, he explores, systematizes and analyzes facts and basic connections, formulates independent conclusions and critical remarks, makes decision-making proposals in the field of HR, and makes decisions in routine and partly unknown - domestic and international - environments. He is aware of the peculiarities of working in an international, multicultural environment, HR orientations, international approaches. Able to lead the HR organizational unit in an organization after gaining practical knowledge and experience.

Attitudes:

The student strives to develop his knowledge and working relationships, to work with his colleagues in this. It seeks lifelong learning in the world of work and beyond. In the interest of quality work, he shows problem-sensitive, proactive behavior, is constructive, cooperative and proactive in projects and group tasks. He is open to the changes of the wider economic and social environment of the given job, work organization, enterprise, he strives to follow and understand the HR activities of the changes. Receptive to new information, new professional knowledge and methodologies, open to new, independent and collaborative tasks and responsibilities.

Autonomy, responsibility:

Independently organizes the analysis of HR activities and processes, data collection, systematization and evaluation. He is responsible for his analyzes, conclusions and decisions. He/She is responsible for complying with professional, legal, ethical standards and rules related to his/her work and conduct. It independently monitors changes in the field of socio-economic-legal environment.

Course content , topics:

Basics of human resource management; Job creation (analysis, planning, evaluation); Human strategy, human resource and workforce planning in the organization; Human flow in the organization; International development, characteristics, approaches; Motivation, incentive management, Performance Appraisal, Training and development, Basics of Career Management; The system of labor relations; The practice of Equal Opportunity Human Resource Management; Basics of human controlling; HR trends, new tendencies

Planned educational activities, learning methods

Knowledge transferring interactive lecture. Participation at the events are expected as included in Terms of Education and Examination of the Faculty.

Assessment

Colloquium (written test)

Compulsory readings:

Armstrong, M. (2017): „Armstrong's Handbook of Human Resource Management Practice" Kogan Page Publishers, London and Philadelphia, 14th Edition 738.P.

Purcell, J. - Boxall, P. (2015): Strategy and Human Resource Management (4th Edition). Macmillan International Higher Education

Dessler, G. (2013): „Human Resource Management" Pearson Education, Prentice Hall, 692.P.

+ Lecture Presentations

Recommended readings:

Héder, M. - Szabó Sz. - Dajnoki K. (2018) Effect of Labour Market Changes on HR Functions. Anali Ekonomski Fakulteta U Subotici / The Annals of The Faculty of Economics Subotica (0350-2120): 54 39 pp 123-138.

Poór, J. - Dajnoki K. – Kovács, I. É. – Tóth, A. – Kálmán, B. (2021) : The COVID-19 Pandemic and Hungarian Human Resources (Challenges and Responses) In: The Impact of COVID-19 on Human Resource Management London: Proud Pen Limited

Syllabus

Week	Topics
1.	L: Basics of human resource management
	S: Requirements, the role of personality in the organization
	LO*: The student will learn the concept, goals, functions and development of human resource management.
4.	L: Job creation (analysis, planning, evaluation)
	S: Intelligence, IQ test
	LO: The student will learn the concept of the job, the process of analysis, the methods of planning and evaluation, new directions.
7.	L: Human strategy, human resource and workforce planning in the organization
	S: Job design in practice, the content of job description, specification
	LO: The student will learn the concept of strategy, the process of strategic creation, the phases of human resource planning, and the peculiarities of personnel planning. The student gets to know the phases of human resource planning, the process of staff planning, the basics of labour demand and supply.
10.	L: Human flow in the organization
	S: CV and motivation letter
	LO: The student will learn the peculiarities and methods of recruitment, selection and inclusion.
13.	L: International development, characteristics, approaches
	S: Interview
	LO: The student will learn the development of HR and the international orientations
16.	L: Motivation, incentive management
	S: Effectiveness in the organization
	LO: The student will learn the motivational theories on which the incentive is based, the main criteria for the development of incentive management, the types of incentive systems.
19.	L: Training and development
	S: Human development methods in different situations
	LO: The student will learn the significance, model and development methods of human resource development.
22.	Library Usage Week
23.	L: Basics of Career Management
	S: Exploring work values in practice
	LO: The student will learn the definition and perception of career, the process of the career planning system.
26.	L: Performance appraisal
	S: Performance appraisal interview
	LO: The student will learn the concept of performance, the process of developing a performance appraisal system, performance appraisal methods.
29.	L: The system of labor relations
	S: Labour law case studies
	LO: The student will learn the types of labor relations, the criteria of collective bargaining, the importance of interest representation.
32.	L: The practice of Equal Opportunity Human Resource Management
	S: Discrimination
	LO: The student will learn the HR characteristics of disabled and changed labour capacity people.
35.	L: Basics of human controlling
	S: Leader selection
	LO: The student will learn the importance of human controlling with indicators for measuring and analyzing HR activity.
38.	L: HR trends, new functions
	S: Well-beeing
	LO: The student will learn the basics and significance of the new areas of activity formed during the development of HRM.

*LO learning outcomes

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian</td><td colspan="3">Vezetés és munkaszervezés</td><td rowspan="2">Kódja:</td><td rowspan="2">GT_AGVNE026-17</td></tr>
<tr><td>English</td><td colspan="3">Management and organisation of work</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td colspan="3">Institute</td><td colspan="5">Institute of Management and Organisational Sciences</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="4">-</td><td>Code:</td><td></td></tr>
<tr><td colspan="2" rowspan="2">Type</td><td colspan="4">Classes per week</td><td rowspan="2">Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td colspan="2">Lecture(s)</td><td colspan="2">Semainar(s)</td><td></td><td></td></tr>
<tr><td>Daytime</td><td>X</td><td>Weekly</td><td>1</td><td>Weekly</td><td>2</td><td rowspan="2">exam</td><td rowspan="2">4</td><td rowspan="2">english</td></tr>
<tr><td>Correspondent</td><td></td><td>Semiannually</td><td></td><td>Semiannually</td><td></td></tr>
<tr><td colspan="3">Tantárgyfelelős oktató</td><td>neve:</td><td colspan="2">Anita Pierog PhD</td><td>beosztása:</td><td>associate professor</td></tr>
</table>

A kurzus célja, hogy a hallgatók

Introduce the students into the basics of Management and historical background. Give examples to the decision making process of organizations, highlight the effect of external environment and culture on the work of firms. Examine the change of global environment, how to manage diversity within a company, how to handle the social responsibilities of organizations. During the curse they get information about Innovation chain, Strategy, Structure, Human Resource Management, Communication and Motivation also.

Azoknak az előírt szakmai kompetenciáknak, kompetencia-elemeknek (tudás, képesség stb., KKK 7. pont) a felsorolása, amelyek kialakításához a tantárgy jellemzően, érdemben hozzájárul

Tudás:

Elsajátította a gazdaságtudomány, illetve a gazdaság, az agrárium mikro és makro szerveződési szintjeinek fogalmait, törvényszerűségeit, folyamatait és összefüggéseit, továbbá ismeri a kapcsolódó szakterületek terminológiáját.

Képesség:

- Képes elsősorban az agráriumban a termelési folyamatok megszervezésére, ellenőrzésére, gazdasági elemzésére és értékelésére, továbbá pénzintézeteknél, vállalatoknál az agráriumot érintően pénzügyi elemzői, döntés-előkészítői és döntéshozatali feladatok ellátására.
- A gyakorlati tudás, tapasztalatok megszerzését követően, képes kis-, közepes és nagyméretű agrár- és élelmiszergazdasági vállalkozások, egyes szervezeti egységeinek vezetésére. Gazdálkodó szervezetekben átfogó gazdasági funkciót lát el, összetett gazdálkodás folyamatokat tervez, irányít, az erőforrásokkal gazdálkodik.
- A szakon végzettek rendelkeznek kapcsolatteremtő, problémafelismerő és problémamegoldó képességgel, együttműködési és kommunikációs készséggel.

Attitűd:

- Nyitott a gazdaság, a vidék- és területfejlesztés és a kapcsolódó tudományterületek társadalmi szerepének képviseletére, valamint a családigazdaságok menedzsmentjére.
- Fejlett szakmai identitással, hivatástudattal rendelkezik, melyet a szakmai és széleseb társadalmi közösség felé is vállal.
- Nyitott és befogadó az agrárium és a gazdaságtudomány, valamint a termelési gyakorlat új eredményei iránt, továbbá nyitott mások eltérő véleményére, ha azok szakmai indokokkal kellően alátámasztottak és hitelesen közvetíti szakterülete értékeit.
- Szakmai kérdésekben kreativitás, jó problémafelismerő és -megoldó képesség, elemző és szintetizáló képesség, a fenntarthatóság elve melletti elkötelezettség, jó kommunikációs és együttműködési képesség, szakmai felelősségtudat és szakmai továbbképzés iránti igény jellemzi.

Autonómia és felelősség:

- A termelés-szervezeti egységek középszintjén önállóan gyakorolja a menedzsment funkciókat, döntéseiért felelősséget vállal, továbbá felelősséget vállal a saját és az irányítása alatt álló munkatársak munkájáért.
- Felelősségtudata a magatartásával kapcsolatos szakmai, jogi, etikai, egészségszempontú normákat, szabályokat illetően is megnyilvánul, továbbá önállóan tervezi meg saját szakmai előmenetelét.
- Felelősséggel vállalja nyilatkozatainak, véleményének következményeit, továbbá felelősséget vállal a szakvéleményében közölt megállapításokért és szakmai döntéseiért, az általa, illetve irányítása alatt végzett munkafolyamatokért.
- Felelősen gondolkodik a gazdasági döntések környezeti és társadalmi hatásairól, valamint az agráriumban működő vállalkozások társadalmi és környezeti felelősségvállalásáról.

Course content , topics:

Introduction into Management, Historical Background of Management, Decisions Making, External Environment,

Managing Diversity, Social Responsibility, Innovation, Strategy, Structure, Human Resources, Communication, Motivation, organisation of work.

Learning methods:

Lectures and case studies

Assessment

On a 5 scale base. Students in groups introduce a case study on the basis of the course content, this give 50% of their grade. The other half comes from an exam at the end of the semester.
0-50 insufficient
51-63 satisfactory
64-76 medium
77-89 good
90- excellent

Compulsory readings:

Robbins, S. P. – Coulter M., A. (2021):Management. Global Edition, 15th edition. Pearson, Prentices Hall, p. 618

Recommended readings:

Griffin, R. (2017): Management. 12th Edition. Cengage Learning, p 708.
Lussier, L.R. (2019): Management fundamentals, Concepts, apllications, and skill developmnet. 8th Editon. SAGE Publications. 597.pp. ISBN: 978-1-544-33133-1

Syllabus	
1.	Lecture: Introductory presentation, description of requirements, concept of organization, organizational structure
	Seminar: Introduction, requirement, expectations of managers
	LO*: Mastering knowledge, development of self-knowledge
4.	Lecture: Concept of leadership, interpretations, leader's tasks
	Seminar Predisposition for leadership
	LO*: Mastering knowledge, development of self-knowledge
7.	Lecture: Leadership roles
	Seminar: Creativity, intelligency
	LO: Mastering knowledge, development of creativity competence
10.	Lecture: Plan, organisation
	Seminar: Group dynamics exercise
	LO: Acquire knowledge, understand the individual characteristics affecting the functioning of the group.
13.	Lecture: Leadership, control, managing
	Seminar: Leading personality
	LO*: Mastering knowledge, development of self-knowledge
16.	Lecture: Control, monitoring
	Seminar: Exam of control
	LO: Acquire knowledge, the control competence development of others and one's own work
19.	Lecture: Decision making, problem-solving
	Seminar: Exam of decision-making
	LO: Acquisition of knowledge, development of decision-making competence
22.	Lecture: Communication
	Seminar Leadership communication
	LO: Mastering knowledge, development of communication skills
25.	Lecture: Types of organizations
	Seminart: Organization building practice
	LO: Acquisition of knowledge, development of leadership and management competencies and skills
28.	Lecture: Organization, concept of work organization,
	Seminar: Organizational function practice
	LO: Acquisition of knowledge, development of managerial, organizational competencies and skills
31.	Lecture: Work organization process, job planning
	Seminar: Job planning and organization. Practical tasks of job planning.
	LO: Acquisition of knowledge, development of leadership and management competencies and skills
34.	Lecture: Norm creation basics
	Seminar: Norm-making practice, determination of factors influencing efficiency
	LO: Acquisition of knowledge, development of leadership and management competencies and skills
37.	Lecture: Leadership theoriesk
	Seminar: Leadership style practice
	LO*: Mastering knowledge, development of self-knowledge
40.	Lecture: Timemanagement
	Seminar: Timemanagement training
	LO: Mastering knowledge, development of self-knowledge, development of time management and prioritization skills

*LO learning outcomes

Course title:		Hungarian:		**Ellátási lánc menedzsment alapjai**			Code:	**GT_AGVNE027-17**
		English:		**Basics of supply chain management**				
Institute:				Institute of Rural Development and Functional Management				
Prerequisites:				-			Code:	-
		Classes per week				Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)				
		per week	**2**	per week	**1**	**colloquium**	**4**	**English**
Responsible instructor				name:	**Dr. Tímea Gál**		post	**Associate Professor**

Course goals:

The aim of the course to acquaint students with the efficient management of production and service processes, make students capable of analyzing processes, controlling quality, creating value and managing the flow of information and products through the supply chain to make the business successful.

Competences:

Knowledge:

Should know the importance of managing production and service processes and the supply chain.
Should know the steps of strategy building.
Should know the decision analysis support tools.
Should know the methods of quality management.
Should know the importance of process capability and statistical process control.
Should know the designing methods of products and services.
Should know the basics of capacity and facility panning.
Should know the decision tools of facility location.
Should know the current trends in human resource management.
Should know the support tools of work measurement decision analysis.
Should know the basics of project management.

Capabilities:

Should be able to control and improve production and service processes.
Should be able to implement an effective strategy.
Should be able to apply the tools of decision making.
Should be able to manage quality efficiently.
Should be able to satisfy the needs of the customers.
Should be able to plan products, services and processes.
Should be able to solve of problems of facility layout and location, and capacity utilization.
Should be able to cooperate fruitfully with colleagues.
Should be able to manage projects efficiently.

Attitudes:

Should be open-minded to know and apply the newest methods of management.
Should work insistently to reach the aims of the business strategy.
Should willingly take part in difficult decisions.
Should pursue the goal of producing good quality.
Should be sensible hearing the changing demand of customers.
Should be motivated to participate actively in the planning process.
Should call for the high level utilization of facilities.
Should cooperate willingly with colleagues.
Should be ready to participate in projects.

Autonomy, responsibility:

Should feel responsible for participate in controlling and improvement of production and service processes.
Should contribute with self-education to improve the organization.
Should take part in decisions confidently.
Should comply with lows and ethical standards.
Should work on healthy environment and prevention of accidents**.**

Course content , topics:

Introduction to operations management. Strategy. Decision analysis support tools. Quality management. Process capability and statistical process control. Forecasting. Designing products. Designing services. Process design. Capacity and facility planning. Facility location. HR management, Work measurement. Project management.

Learning methods:

Interactive lecture, discussion, consultation, and problem solving.

Assessment

Colloquium

The final grade is the average of the seminar grade and the lecture grade.

At the seminars the active students can get maximum 4 points/seminar. The seminar work will be calculated by the sum of the collected points at the end of the semester. If a student does not attend a seminar s/he cannot get the points for the given seminar. 30% absence is accepted at the seminars.

Compulsory readings:

Russell, R. S. –Taylor, B. W.: Operations and Supply Chain Management, 9th Edition, ISBN: 978-1-119-53759-5 2018. 816 Pages

Recommended readings:

Heizer, J. - Barry R. - Chuck M.: Operations Management: Sustainability and Supply Chain Management (12th Edition), Pearson, ISBN-13: 978-0134130422, ISBN-10: 0134130421, 2016

Syllabus

Week	Topics
1.	LO: Introduction. The structure of value creating processes. Production processes. Service processes. The role of the operations manager. The evolution of operations management. Supply chain management. Globalisation. Productivity and competitiveness. Students should know the basic functions and features of the value creating processes, and should understand the process of the evolution of management.
2.	LO: Strategy. The steps of strategy formulation: primary task, core competencies, order winners and order qualifiers, positioning the firm, and strategy deployment. Hoshin kanri and balance scorecard as methods of strategy deployment. Operations strategy. Students should know the steps of strategy formulation, and should understand the relationships between strategy deployment and business development.
3.	LO: Decision analysis support tools and processes. Optimist and pessimist decision maker. The meaning and usage of coefficient of optimism. Decision making criteria: maximax, maximin, equal likelihood, and Hurwitz. Students should use the decision criteria to mitigate the risk, and should know the difference between pessimistic and optimistic decisions.
4.	LO: Quality and quality management. The TQM and quality management systems. Quality tools. The focus of quality management: the customer. Quality improvement. Lean six sigma. ISO 9000. Students should know the methods of quality measurement and the techniques of quality improvements, and should be able to conform to the changing demand of the customer.
5.	LO: Process capability and statistical process control. The role of process control in the quality management. Attribute data and variable data. Construction and usage of process control charts: p, c, x mean and R diagrams. Tolerances and process capability. Students should know how to control production and service processes using process control charts. They should understand the importance of preventing production and service processes from defects.
6.	LO: Forecasting. The importance of forecasting. The factors of forecasting demand. Time-series methods: moving average, moving average, exponential smoothing, and linear trend. Regression methods: linear regression and correlation. Students should know how the most important forecasting methods, be able to make a forecasts from historical data.
7.	LO: Product design. The product design process, idea generation, feasibility study, form design, functional design, reliability, maintainability, usability, and production design. Design for environment, and design for robustness. Students should know the steps and interrelations of the product design, and should understand the importance of product development to adapt to the continuously changing demand of customers.
8.	LO: Service design. The service economy. The service design process. Tools for service design. Waiting line analysis for service improvement. Operating characteristics of the queueing system, traditional cost relationships in waiting line analysis. Psychology of waiting, queuing models. Students should know the characteristics of services and the tools for service design, and should able to understand the effect of waiting lines on the service provider and can improve the queueing system.
9.	LO: Process design and technology. Outsourcing, process selection wit break even analysis. Process analysis, using process flowcharts, process development. Technology decisions: financial justification and technology primer. Students should know the steps of process design. Should know how to select the best production or service process using adequate methods, and should understand the interrelations between the importance of process plan, process selection and business competitiveness.
10.	LO: Capacity and facilities planning. The basics of facility layouts. Basic layouts: process layouts, product layouts, and fix position layouts. Planning of process layouts, service layouts, product layouts, and hybrid

	layouts. _____ TE: Should know the main types of facility layouts and the means of their designs, and should understand the relationship between the facility layout and the capacity utilization.
11.	LO: Facility location decision support tools. The types of facilities. Site selection. The factors of the global supply chain. Location analysis techniques: location factor rating, center-of-gravity technique, and load-distance technique. _____ Students should know the types of facilities, the factors that influence facility locations and the techniques of facility locations, and should understand the relationship between geographic location of facilities and efficient operation of facilities.
12.	LO: Human resources in the operations management. HR and quality management. The changing nature of HR management. Contemporary trends in HR management. Management of diversities in HR. Job design, job analysis and the learning curve. _____ Students should know the characteristics of modern HR management and the methods of work design and work analysis, and should understand the role of human resources as the primary resource in business operations.
13.	LO: Work measurement decision analysis support Tools. Time studies: stopwatch study, normal time, number of cycles, elemental time files, and predetermined motion times. Work sampling. _____ Students should know the traditional work measurement methods, stopwatch study and work sampling, and should understand that the traditional methods are needed presently mainly in services.
14.	LO: Project management. The elements of a project plan. Global differences in project management. The control of projects: time, cost, performance, and communication. Project planning with Gannt chart and CPM/PERT. Microsoft Project. Project crashing, time-cost analysis. _____ Students should know the characteristics of projects, the procedure of project planning and the methods (Gannt diagram, CPM/PERT, Microsoft Project). They can control the project implementation, and should understand the importance of project management in the areas of production, services and researches.

*LO learning outcomes

<table>
<tr><td rowspan="2">Subject:</td><td>Hungarian:</td><td colspan="3">Vállalatirányítási rendszerek</td><td rowspan="2">Neptun-code</td><td rowspan="2">GT_AGVNE028-17</td></tr>
<tr><td>English:</td><td colspan="3">Corporate Management Systems</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">University and Department</td><td colspan="4">Institute of Methodology and Business Digitalization</td></tr>
<tr><td colspan="3">Preconditions:</td><td colspan="3">-</td><td>Code:</td><td>-</td></tr>
<tr><td colspan="2" rowspan="2">Division</td><td colspan="2">Number of lessons</td><td colspan="2" rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language</td></tr>
<tr><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td></tr>
<tr><td>Daytime</td><td>X</td><td>Weekly</td><td>2</td><td>Weekly</td><td>0</td><td rowspan="2">Exam</td><td rowspan="2">3</td><td rowspan="2">English</td></tr>
<tr><td>Correspondent</td><td></td><td>Semiannually</td><td></td><td>Semiannually</td><td></td></tr>
<tr><td colspan="3">Lecturer</td><td>Name:</td><td colspan="2">Dr. Péter Lengyel</td><td>Rank:</td><td>associate professor</td></tr>
</table>

Purpose of the course:

The aim of the course is to familiarise students with the principles and practical application of modern management systems. The course provides an overview of the role and functioning of ERP systems, enterprise information systems and business process integration. Students will learn the steps of designing, implementing and managing systems, and will be able to select and use a management system tailored to the specific business environment.

Required professional competences which are established and further enhanced on the merits of this subject

Knowledge:
- Knowledge of IT and office technology tools supporting business processes.
- Knowledge of the structure and functioning of business organisations.
- Knowledge of the information systems and IT systems of the business enterprise.

Ability to:
- Using his/her theoretical, conceptual and methodological knowledge, he/she is able to collect and organise the facts and data needed to perform his/her tasks, to identify simple causal links and to draw conclusions and formulate proposals in the routine processes of the organisation.
- Plan, organise and implement simple economic processes and procedures.
- Ability to carry out simple economic calculations and costing.
- Can understand the consequences of economic processes and organisational events, calculate basic economic indicators and draw conclusions from them.

Attitude:
- Critically appraises his/her own work.
- He/she is committed to quality work and observes the relevant professional, legal and ethical rules and standards.
- Strives to develop his/her knowledge and working relationships.

Autonomy and responsibility:
- Takes and bears responsibility for his/her own work and decisions.
- Assumes responsibility and accountability for his/her own work, including responsibility for his/her own work and responsibility for his/her own work. Reports, presentations, reports, evaluations, personal reports, personal management, etc.
- Can assess his/her ability to carry out a task assigned to him/her

Short subject description and main topics:

The Enterprise Management Systems course aims to provide students with an in-depth understanding of the principles and practical applications of modern enterprise management systems. The course covers an overview of ERP systems, corporate information systems, and the integration of business processes. Students will learn about the steps involved in designing, implementing, and managing these systems and will be able to select and use management systems tailored to specific corporate environments.

Topics Covered:

Theoretical Knowledge of Systems and Information: Introduction to the fundamentals of enterprise management systems, the role, and significance of information systems in corporate operations. The structure, functioning, and types of systems.

Introduction to Enterprise Resource Planning (ERP) Systems: Basics, functions, and benefits of ERP systems.

Management of integrated corporate processes and collaboration between different modules.
Artificial Intelligence in Enterprise Management: Application of artificial intelligence and machine learning in corporate decision-making and process optimization. The role of AI technologies in automation and data-driven management.
Implementation of Inventory Management Tasks: The theoretical and practical foundations of inventory management, inventory control strategies, and systems. Use of ERP inventory management modules, optimization techniques, and increasing inventory efficiency.
Modeling and Analysis of Business Processes: Identification, modeling, and optimization of business processes. The role of process management and continuous improvement in enterprise management.
Database Management and Data Security: The role of databases in corporate information systems, basics, and techniques of database management. Data security issues and solutions, data protection, and the impact of GDPR on enterprise management.
E-Business and Digital Transformation: Principles and practical applications of e-business. The significance and processes of digital transformation for companies, development, and implementation of digital strategies.
Customer Relationship Management (CRM) Systems: Fundamentals and importance of customer relationship management for companies. The role of CRM systems in managing customer relationships and optimizing sales processes.
Supply Chain Management (SCM): Theory and practice of supply chain management, planning, and optimization of the supply chain. Use of ERP SCM modules and enhancing supply chain efficiency.
Human Resource Management (HRM) Systems: Principles of human resource management and the role of HRM systems in companies. Modules, functions, and applications of HRM systems in optimizing and managing human resources.
Project Management and System Implementation: Steps involved in the implementation of enterprise management systems, application of project management methodologies, and tools. Challenges and solutions in system implementation..

Planned teaching activities and methods:

The lectures, presentations, notes and books are available to students to help them master the theoretical material.
Real company examples and case studies will be used to illustrate the practical application and challenges of ERP systems. Students will analyse and discuss case studies in groups or individually.
Use of virtual simulation games and platforms that allow students to interactively practice the use of ERP systems and decision-making processes.

Evaluation:

The overall course grade will be based on the working on practices and the final computer exams.

Compulsory literature:

Thomas F. Wallance: ERP-information systems. Klaus-Dieter, Gronwald. (2017). Integrated Business Information Systems. doi: 10.1007/978-3-662-53291-

Recommended literature:

1Simha, R., Magal., Jeffrey, Word. (2010). Integrated Business Processes with ERP Systems.

Weekly schedule	
7.	Introduction to Enterprise Management Systems
	LO: Understand the basic concepts and significance of enterprise management systems. Identify different types of enterprise management systems.
9.	Theoretical Knowledge of Systems and Information.
	LO: Master the basics of system theory and information theory. Understand the role of information systems in corporate operations.
11.	Introduction to ERP Systems and Their Functions
	LO: Understand the principles of managing integrated corporate processes. Identify the functions and benefits of ERP systems.
13.	Database Management and Data Security
	LO: Understand the importance of data security and protection, as well as the impact of GDPR. Master the basics and techniques of database management.
15.	Modeling and Analysis of Business Processes
	LO: Understand the role of process management and continuous improvement. Identify and model business processes.
17.	Implementation of Inventory Management Tasks
	LO: Master the theoretical and practical foundations of inventory management. Apply different inventory control strategies.
19.	Artificial Intelligence in Enterprise Management
	LO: Understand the basics of artificial intelligence and machine learning. Identify applications of AI in enterprise management.
21.	E-business and Digital Transformation.
	LO: Know the principles and practical applications of e-business. Understand the significance and processes of digital transformation.
23.	Customer Relationship Management (CRM) Systems
	LO: Identify the functions and benefits of CRM systems. Understand the principles of managing customer relationships.
25.	Supply Chain Management (SCM).
	LO: Master the theoretical and practical foundations of supply chain management. Plan and optimize supply chains.
27.	Human Resource Management (HRM) Systems
	LO: Understand the role and applications of HRM systems. Know the principles of human resource management.
29.	Project Management and System Implementation.
	LO: Identify the steps involved in implementing enterprise management systems. Know the methodologies and tools of project management.
31.	Summary and Case Studies
	LO: Apply theoretical knowledge in practical examples. Understand the importance of analyzing and discussing case studies.

* LO learning outcomes

Subject:	Hungarian:	**Agrárinformatika és digitalizáció**	Neptun code:	**GT_AGVNE029-17**
	English:	**Agricultural Information Technology and digitalization**		

Department:	**Institute of Methodology and Business Digitization**		
Preconditions:		Code:	-

Division		Number of lessons				Requirement	Credit	Language
		Lecture		Seminar				
Full time	**x**	Weekly	**1**	Weekly	**2**	**practice grade**	**4**	**english**
Part-time								

Lecturer	Name:	**Dr. Róbert Szilágyi**	Rank:	**associate professor**

Purpose of the course

Regardless of their previous qualifications, the students must acquire the IT knowledge at a skill level that can be used in their further studies, and may be necessary in the practical work of a specialist with a higher degree. In other words, they can collect knowledge found on the Internet, and by using it, as well as using the Office program package, they will be able to solve their complex tasks. The training is basically application-oriented, with the solution of many practical tasks.

The list of prescribed professional competences and competence elements (knowledge, ability, etc., to the development of which the subject typically and substantially contributes

Knowledge:

He has the most basic information collection, analysis, task and problem solving methods.

Ability:

Prepares and presents simpler professional reports, evaluations, and presentations.

Attitude:

He is receptive to receiving new information, professional knowledge and methodologies.

Autonomy and responsibility:

He performs his job duties independently, prepares his professional reports, reports and smaller presentations independently. If necessary, he uses the help of colleagues and managers.

Short subject description and main topics:

Elements of spreadsheet (functions, diagrams, row layouts and reports, etc.). Elements of database management systems (creating and managing databases, tables, queries, forms and reports). Preparation of statements, introduction to data visualization.

Planned teaching activities and methods

During the lectures, the students can learn the theoretical foundations that are necessary for the solutions of the tasks presented in practice. During the lectures, the students receive the knowledge in the form of a presentation, and during the exercises they get to know the elements and use of spreadsheet and database management systems.

Evaluation

Active participation in the exercises is mandatory! The semester ends with a practical grade. The condition of signing is that the performance of the students, determined on the basis of their activities during the semester, must be at least 61%. Practice makes up 70% of the grade and theory makes up 30% of the grade. During the semester, two practical and two test-type exams will take place. The assignments completed during the exercises must be uploaded to the e-learning system. Intermediate exams score: 2*15 points = 30 points theory: 45+25 points = 70 points practice.

Based on the total score, the grade is created as follows:

0 - 60 insufficient,
61 -70 sufficient,
71 -80 medium,
81 -90 good,
91 - 100 fine.

Compulsory literature:

Foster Provost, Tom Fawcett (2013): Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking 1st Edition, O,Relly ISBN 978-1449361327

The lecture and the practice learning materials.

Recommended literature:

Wes Mckinney (2017): Python for Data Analysis, 2edition: Data Wrangling with Pandas, Numpy, and Ipython, O'Relly, 522p. ISBN 978-1491957660

Weekly schedule	
1.	L: Information system (data, information, knowledge) P: Spreadsheet usage: links, general functions (SUM, COUNT, MIN, MAX, AVERAGE)
	TR: The student knows the different data types and the different basic functions of Excel
3.	P: Spreadsheet usage: Logical operators (IF, AN, OR), Search functions (VLOOKUP, HLOOKUP, INDEX)
	TR: Know and apply the structured links
5.	L: Introduction to data-driven decision support P: Spreadsheet: database functions, matrix functions, if functions.
	TR: Advanced spredsheet functions
7.	P: Spreadsheet Data transform process, data formats (csv, txt), basic visualisations.
	TR: Ability to dataimport, basic visualisations
9.	L: Databasesystem, (general database architecture, database planning, (SQL, noSQL) P: Spreadsheet introduction to PIVOT
	TR: Introduction to PIVOT
11.	P: Spreadsheet exam 1
	TR: Spreadsheet exam
13.	L: Advanced datavisualisation P: Multi table PIVOT
	TR: The process of logical datamodel creation
15.	P: Database introduction (QBE, SQL)
	TR: Relation database model
17.	L: Information system basics P: PIVOT project task
	TR: PIVOT practice
19.	P: Business intelligence PowerBI desktop
	TR: Advanced PIVOT
21.	L: Cloud computing, mobile Internet, datasecurity P: PowerBI desktop practice 1
	TR: Introduction to business intelligence
23.	P: PowerBI desktop practice 2
	TR: Sample datasets
25.	L: Business Intelligence, Data Science P: Komplex exam (dataimport, datatransform, analysis, visualisation)
	TR: Exam
27.	P: BI applications, advanced data analysis
	TR: Project datasets analysis

*TR: Teaching results

Course title:	Hungarian:	**Szak- és közigazgatási alapismeretek**	Code:	**GT_AGVNE030-17**
	English:	**Basics of Technical and Public Administration**		

Institute:	**Institute of World Economy and International Relations**			
Prerequisites:			Code:	-

		Classes per week				Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)				
Full time	**X**	per week	**3**	per week	**0**	**collocvium**	**3**	**English**
Part time								

Responsible instructor	name:	**András Helmeczi, PhD**	post	**senior lecturer**

Course goals:

The course is designed to introduce students to the particularities of legal ascpects of the tasks and system of the state, and helps to understand and apply the basic terminology of administrative law.

Competences:

Knowledge:

- Knows the structure and functioning of economic organisations.
- Familiar with the tasks related to commercial activities and the basic legal regulations applicable to commercial activities.

Capabilities:

- Using his/her theoretical, conceptual and methodological knowledge, he/she collects and organises the facts and data needed to perform his/her tasks; he/she identifies simple causal relationships and draws conclusions and recommendations in the routine processes of the organisation.
- Able to plan and run an individual or small business independently.
- Collaborates effectively with colleagues and managers on project tasks and work assignments.

Attitudes:

- Committed to quality work, complying with relevant professional, legal and ethical rules and standards.
- Intented to develop and adapt its commercial and marketing activities to the changing economic and legal environment.

Autonomy, responsibility:

- Takes responsibility for the own work and decisions.
- Carries out the duties independently, prepares professional reports, reports and small presentations independently. Where necessary, and seeks assistance from colleagues and managers.
- Under general professional supervision, direction and control, consciously plans, organises and regularly supervises the tasks in the job description.

Course content , topics:

The state: types, functions, system, organs. The administrative procedure.

Learning methods:

In the lessons the students get detailed explanations with life-like examples to the most important legal aspects of state administration.

Assessment

Presentation in the agreed legal topic (10-12 slides ppt, appr. 10 minutes).
In case if the presentation is missing or not accepted, final *written test* at the end of the semester, with the following grades:

points	*grade*
0-7	1 (fail)
8-9	2 (satisfactory)
10-11	3 (fair)
12-13	4 (good)
14-15	5 (excellent)

Compulsory readings:
handout (electronically sent to the students)
Recommended readings:

Syllabus

Week	Topics
1.	**Introduction to the course (topics, requirements, attendance, exam)** LO: the knowledge of the most important legal rules and solutions according to the topic
2.	**Historical development of the state.** LO: the knowledge of the most important legal rules and solutions according to the topic
3.	**Types of states.** LO: the knowledge of the most important legal rules and solutions according to the topic
4.	**The Parliament and the president of republic.** LO: the knowledge of the most important legal rules and solutions according to the topic
5.	**The courts and the prosecution of the state.** LO: the knowledge of the most important legal rules and solutions according to the topic
6.	**System of state administration. The government.** LO: the knowledge of the most important legal rules and solutions according to the topic
7.	**Local selfgovernments.** LO: the knowledge of the most important legal rules and solutions according to the topic
8.	**library week** LO:
9.	**Administrative procedure 1: basic principles, validity, representation, competence and assignment.** LO: the knowledge of the most important legal rules and solutions according to the topic
10.	**Administrative procedure 2: first instance procedure, decisions of the authority.** LO: the knowledge of the most important legal rules and solutions according to the topic
11.	**Administrative procedure 3: appeal and enforcement.** LO: the knowledge of the most important legal rules and solutions according to the topic
12.	**Presentations 1.** LO: the knowledge of the most important legal rules and solutions according to the topic
13.	**Presentations 2.** LO: the knowledge of the most important legal rules and solutions according to the topic
14.	**Presentations 3.** LO: the knowledge of the most important legal rules and solutions according to the topic

*LO learning outcomes

Name of the subject:	in Hungarian:	**Támogatási és szabályozási rendszerek**	Code :	**GT_AGVNE031-17**
	in English:	**Support and Regulatory Systems**		

Responsible educational unit:				**Institute of Economics**				
Name of compulsory prerequisite course:							Code:	
Type		Number of lectures				Requirement	Credit	Language of education
		Lecture		Exercise				
Full time	**x**	Weekly	**2**	Weekly	**1**	**Colloquium**	**2**	**English**
Correspondent	**-**	Half year	**-**	Half year	**-**			
Instructor in charge of subject				name:	**Dr. Dániel Fróna**		position :	**assistant professor**

The aim of the course is for

the students to familiarize themselves with the system of agricultural and rural development subsidies, as well as with the currently running operational programs and typical application structures. Within the framework of the subject, students acquire the ability to interpret tender notices and invitations, and also acquire basic knowledge in the field of tender documentation and management. In addition, students gain experience in application processes through practical examples, such as application writing, project management, financing and monitoring. By the end of the course, students will have comprehensive and practical knowledge that will enable them to successfully participate in tender processes and contribute to the success of agricultural and rural development projects.

The list of prescribed professional competences and competence elements to the development of which the subject typically and substantially contributes

Knowledge:

- Students acquire comprehensive theoretical knowledge about the operation of support systems. In addition, they acquire practical skills in the interpretation of tender notices and invitations, as well as in the basic steps of tender writing and management.

Ability:

- Students will be able to interpret tender notices and invitations, as well as to compile the necessary tender documentation. They learn the basic steps of proposal writing and project management, including financial planning and monitoring processes. In addition, they will be able to identify and manage risks and pitfalls inherent in tender processes.

Attitude:

- Students acquire a proactive and goal-oriented attitude, which helps them recognize and take advantage of application opportunities. Their critical thinking and analytical skills develop, thanks to which they will be able to evaluate and optimize the application processes.

Autonomy and responsibility:

Takes responsibility for the analyses, conclusions and decisions.

Brief content and topics of the course

The purpose of the "Application support knowledge" course is for students to learn about the agricultural and rural development support system, including European Union and national support policies. The course reviews the currently running operational programs and presents the different application structures and types. Students learn the interpretation of tender notices and invitations, as well as the basics of tender writing and documentation. The course deals in detail with project management, including financial planning, monitoring and evaluation. With the help of case studies and practical tasks, students gain practical experience in application processes. Finally, the course aims to enable students to successfully participate in and manage agricultural and rural development projects.

Planned learning activities, teaching methods

Through interactive lectures, students are constantly involved in the learning process, which contributes to the development of their skills. Renowned guest speakers from research institutes will also participate in the course and broaden the students' horizons. During the exercises related to the lectures, the students deepen their professional knowledge and give presentations on predetermined topics.

Evaluation

The materials of the lectures, as well as the corresponding written materials, are available to the students. The exam takes place in written form, during which concepts, list and short essay questions, as well as true-false and test questions are assessed. If the student does not pass the "A" exam, he has the opportunity to take the "B" and "C" exams, where his results are evaluated based on oral answers covering the whole year's material.

Mandatory literature:

Harold Kerzner- Project Management Best Practices: Achieving Global Excellence

Recommended literature:

Lecture slides

Weekly topic	
1.	Introduction to application support knowledge
	LO: The students understand the purpose, importance and basic concepts of the subject in the field of agricultural and rural development subsidies.
3.	Support policy of the European Union
	LO: Students get to know the basic principles and goals of EU support policy.
5.	National support systems
	LO: Students gain comprehensive knowledge of the Hungarian national support systems and their operation.
7.	Supporting legislation and regulations
	LO: Students will be able to identify and interpret relevant legislation and regulations.
9.	Concept and objectives of Operational Programs (OP).
	LO: Students understand the concept of operational programs and their strategic goals.
11.	Presentation of currently running operational programs
	LO: The students get to know in detail the currently running operational programs and their main elements.
13.	Overview of tender structures
	LO: Students get a comprehensive picture of the different application structures and their characteristics.
15.	Tender types and their characteristics
	LO: Students get to know the different application types and their characteristics.
17.	Structure and interpretation of calls for tenders
	LO: The students will be able to interpret the basic elements of tenders and invitations.
19.	Analysis of practical examples and case studies
	LO: Students gain practical experience by analyzing case studies and examples.
21.	Tender documentation and requirements
	LO: Students learn about the necessary documents and documentation requirements.
23.	Application process and schedule
	LO: Students learn the steps of writing a proposal and the importance of scheduling.
25.	Project management and tender monitoring
	LO: Students understand the basic principles of project management and the role of tender monitoring.
27.	Summary
	LO: Synthesizing the lecture materials.

*LO: learning outcomes

Course title:	Hungarian:	**Ágazati gazdaságtan I.**	Code:	**GT_AGVNE032-17**
	English:	**Sectoral Economics I.**		

Rural Development Engineer BSc.

Institute:	Faculty of Economics and Business, Institute of Economics Department of Agricultural Economics			
Prerequisites:			Code:	

Classes per week				Requirement	Credit	Language of instruction:
Lecture(s)		Seminar(s)				
per week	**2**	per week	**2**	**K**	**4**	**English**

Responsible instructor	name:	**Dr. Krisztián Kovács, Ph.D.**	post	**assistant professor**

Course goals:

The aim of the course is to acquaint students with the crop production, horticulture sectors:

- integration into the management system,
- the international and domestic economic significance of each sector,
- the structure and characteristics of the sector, as well as its regulation,
- the economic characteristics of the sector,
- the main work processes of production and the particularities of work organization,
- the relationship between production value, production cost and income in the sectors.

Education is limited to the main sectors (winter wheat, maize, sunflower, winter rape, apples, cherries, sweet corn, green peas, tomatoes, peppers) and aims to familiarize students with the basics of these sectors, sectoral key figures and farming characteristics that they need for professional orientation both in production practice and in other areas of agribusiness.

Through the exercises - through complex example tasks (simulating real situations) - students get acquainted with the methodology of preparing sectoral economic calculations (data collection, data processing, evaluation-analysis), the interpretation of the necessary concepts and the mechanism and particularities of economic decision-making.

Competences:

Knowledge:

- Knows the basic spatial concepts, facts, main characteristics and connections of agricultural production and the agricultural economy as a whole, the relevant agricultural economic actors, functions and processes at the national and international level.
- Knows the basic connections of food chain safety.
- Knows the economic and financial contexts and interactions of the processes taking place in rural development and agriculture.
- Knows the statistical methods necessary for the identification of rural development and agricultural problems, the relevant information collection, analysis and problem-solving methods, marketing processes.

Capabilities:

- Able to form an independent professionally established position in the field of rural development and agriculture and to pass it on.
- Able to have a comprehensive overview of the conditions required for professional advancement in the field of rural development, agriculture and environmental protection.
- Ability to plan and implement rural development programs, allocate resources, participate in the development of proposals based on professional decisions, draw conclusions, not only at the operational level.

Attitudes:

- Open to representing the social role of rural development and related disciplines.
- Inclusive views of others on the sectoral, regional, national and European values of rural development.
- Open to the management of (family) farms.

Autonomy, responsibility:

- At the middle level of the production organizational units, it independently exercises the management functions and takes responsibility for its decisions.
- Takes responsibility for the work of himself and the employees he manages.
- Independently able to plan management processes, manage purchasing and sales processes.
- Takes responsibility for the findings and professional decisions made in his / her expert opinion, and for the work processes carried out by him / her or under his / her direction.

Course content, topics:

The course includes, in relation to the main agricultural sectors listed above, the integration of the sectors into the farming system, the international and domestic economic significance of each sector, the structure and characteristics and regulation of the product line, the economic characteristics and peculiarities of the sector, the main production processes and the specifics of its work organization, the relationship between the production value of the sectors, the cost of production and income, and the system of correlations that determine the efficiency and competitiveness of production.

Learning methods:

Requirement for signing the semester: Regular attendance of the practical sessions according to the relevant provisions of the “Study and Examination Regulations”. The presence is constantly monitored. Adequate progress is monitored by completing the required mid-term exams during the semester. The condition for obtaining the signature is during the regular participation in practical classes, in accordance to the relevant provisions of the "Study and Examination Regulations". The theoretical questions and practical tasks included in the exams are formulated from the course topics, in the form of short definitional questions, explanatory questions, and computational tasks

Assessment

During the semester, full-time students write mid-term exam twice, which consists of a theoretical (max 30 points) and a practical (max 20 points) part.

The “offered course grade” allows students who have reached at least 60% of the average of the two mid-term exams during the semester (min 60 points) and have passed the 50-50% threshold from the practical part of exam. Students who have obtained a signature during the semester during the examination period have the opportunity to take a written examination of the entire material of that semester, at which a performance of at least 60% is required for a sufficient grade.

The exam is a written test which will be evaluated according to the following grading schedule:

Points range:

- 0-59 (1 -failed)
- 60-69 (2 - satisfactory)
- 70-79 (3 - average)
- 80-89 (4 - good)
- 90-100 (5 - excellent)

Compulsory readings:

- Ronald A. Schrimper: Economics of agricultural markets, North Carolina State University 2001, Upper Saddle River, New Jersey 07458, ISBN 0-13-775776-x
- The business of farming: a guide to farm business management in the Tropics by Johnson, David T. London: Macmillan, 1990. ISBN 0333499212

Recommended readings:

- R. D. Kay – W. M. Edwards – P. A. Duffy (2007): „Farm Management” McGraw-Hill Inc. (Sixth Edition), 2007. ISBN-10: 0073028290 | ISBN-13: 978-0073028293Farm Business Management: The Fundamentals of Good Practice by Peter L. Nuthall ISBN-13: 978-1780646565, ISBN-10: 1780646569

Syllabus

Week	Topics
1.	Review of requirements system. Description and explanation of the topics and content of the lectures and exercises. Operating mechanisms of agricultural markets. LO*: Operating mechanisms and regularities of agricultural markets.
2.	Operational modelling and analysis in the Agriculture LO*: Knowledge of the basics of sectoral models and analysis and its practical applicability
3.	Economics of the cereals sector (wheat, maize) LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
4.	Economics of the cereals sector (barley, oats, triticale) LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
5.	Economics of oil crops (rapeseed, sunflower) LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
6.	Economics of protein crops (soybean, pea) LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
7.	Economics of industrial plants (potatoes) LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
8.	Economics of industrial plants (sugar beets and cane) LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
9.	Economics of the fruit sector LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
10.	Economics of the vegetable sector LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
11.	Economics of the wine sector LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
12.	Student presentation about a sector LO*: Presentation and defence skills about organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
13.	Exam

*LO learning outcomes

Themes of exercises

Week	Topics
1-2.	Description of requirements system. Repetition of basic operational concepts
3-4.	An overview of the theoretical background of the complex example task to be solved in the exercises. Method of data collection for cost-benefit analysis of crop production sectors.
5-6.	The method of data processing for the cost-benefit analysis of the crop production sectors is to master the application of a suitable calculation model.
7-8.	Methodology of economic analysis and evaluation on the sample of the complex field crop production example task.
9-10.	An overview of the theoretical background of the complex oil or protein production example task to be solved in the exercises. Method of data collection for cost-benefit analysis of livestock sectors.
11-12.	The method of data processing for the cost-benefit analysis of the vegetables sectors, the acquisition of the application of a suitable calculation model.
13-14.	Methodology of farm economic analysis and evaluation on the sample of the complex fruit production example task.

Course title:	Hungarian:	**Ágazati gazdaságtan II.**	Code:	**GT_AGVNE033-17**
	English:	**Sectoral Economics II.**		

Institute:	Institute of Economics			
Prerequisites:	**Sectoral Economics I.**		Code:	GT_AGVNE032-17

Classes per week				Requirement	Credit	Language of instruction:
Lecture(s)		Seminar(s)				
per week	**2**	per week	**2**	**Exam**	**4**	**English**

Responsible instructor	name:	**Dr. Krisztián Kovács, Ph.D.**	post	**assistant professor**

Course goals:

The aim of the course is to acquaint students with the livestock sectors:

- integration into the management system,
- the international and domestic economic significance of each sector,
- the structure and characteristics of the sector, as well as its regulation,
- the economic characteristics of the sector,
- the main work processes of production and the particularities of work organization,
- the relationship between production value, production cost and income in the sectors.

Education is limited to the main sectors (cattle, pigs, poultry etc.) and aims to familiarize students with the basics of these sectors, sectoral key figures and farming characteristics that they need for professional orientation both in production practice and in other areas of agribusiness.

Through the exercises - through complex example tasks (simulating real situations) - students get acquainted with the methodology of preparing sectoral economic calculations (data collection, data processing, evaluation-analysis), the interpretation of the necessary concepts and the mechanism and particularities of economic decision-making.

Competences:

Knowledge:

- Knows the basic spatial concepts, facts, main characteristics and connections of agricultural production and the agricultural economy as a whole, the relevant agricultural economic actors, functions and processes at the national and international level.
- Knows the basic connections of food chain safety.
- Knows the economic and financial contexts and interactions of the processes taking place in rural development and agriculture.
- Knows the statistical methods necessary for the identification of rural development and agricultural problems, the relevant information collection, analysis and problem-solving methods, marketing processes.

Capabilities:

- Able to form an independent professionally established position in the field of rural development and agriculture and to pass it on.
- Able to have a comprehensive overview of the conditions required for professional advancement in the field of rural development, agriculture and environmental protection.
- Ability to plan and implement rural development programs, allocate resources, participate in the development of proposals based on professional decisions, draw conclusions, not only at the operational level.

Attitudes:

- Open to representing the social role of rural development and related disciplines.
- Inclusive views of others on the sectoral, regional, national and European values of rural development.
- Open to the management of (family) farms.

Autonomy, responsibility:

- At the middle level of the production organizational units, it independently exercises the management functions and takes responsibility for its decisions.
- Takes responsibility for the work of himself and the employees he manages.
- Independently able to plan management processes, manage purchasing and sales processes.
- Takes responsibility for the findings and professional decisions made in his / her expert opinion, and for the work processes carried out by him / her or under his / her direction.

Course content, topics:

The course includes, in relation to the main agricultural sectors listed above, the integration of the sectors into the

farming system, the international and domestic economic significance of each sector, the structure and characteristics and regulation of the product line, the economic characteristics and peculiarities of the sector, the main production processes and the specifics of its work organization, the relationship between the production value of the sectors, the cost of production and income, and the system of correlations that determine the efficiency and competitiveness of production.

Learning methods:

Requirement for signing the semester: Regular attendance of the practical sessions according to the relevant provisions of the “Study and Examination Regulations”. The presence is constantly monitored. Adequate progress is monitored by completing the required mid-term exams during the semester. The condition for obtaining the signature is during the regular participation in practical classes, in accordance to the relevant provisions of the "Study and Examination Regulations". The theoretical questions and practical tasks included in the exams are formulated from the course topics, in the form of short definitional questions, explanatory questions, and computational tasks

Assessment

During the semester, full-time students write mid-term exam twice, which consists of a theoretical (max 30 points) and a practical (max 20 points) part.

The “offered course grade” allows students who have reached at least 60% of the average of the two mid-term exams during the semester (min 60 points) and have passed the 50-50% threshold from the practical part of exam. Students who have obtained a signature during the semester during the examination period have the opportunity to take a written examination of the entire material of that semester, at which a performance of at least 60% is required for a sufficient grade.

The exam is a written test which will be evaluated according to the following grading schedule:

Points range:

- 0-59 (1 -failed)
- 60-69 (2 - satisfactory)
- 70-79 (3 - average)
- 80-89 (4 - good)
- 90-100 (5 - excellent)

Compulsory readings:

- Ronald A. Schrimper: Economics of agricultural markets, North Carolina State University 2001, Upper Saddle River, New Jersey 07458, ISBN 0-13-775776-x
- The business of farming: a guide to farm business management in the Tropics by Johnson, David T. London: Macmillan, 1990. ISBN 0333499212

Recommended readings:

- R. D. Kay – W. M. Edwards – P. A. Duffy (2007): „Farm Management” McGraw-Hill Inc. (Sixth Edition), 2007. ISBN-10: 0073028290 | ISBN-13: 978-0073028293Farm Business Management: The Fundamentals of Good Practice by Peter L. Nuthall ISBN-13: 978-1780646565, ISBN-10: 1780646569

Syllabus

Week	Topics
1.	Review of requirements system. Description and explanation of the topics and content of the lectures and exercises. Operating mechanisms of agricultural markets. LO*: Operating mechanisms and regularities of agricultural markets.
2.	Operational modelling and analysis in the Agriculture LO*: Knowledge of the basics of sectoral modells and analysis and its practical applicability
3.	Economics of the dairy sector LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
4.	Economics of beef production LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
5.	Economy of the pig sector LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
6.	Economic issues of poultry meat production LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
7.	Economic issues of egg production LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
8.	Economics of the sheep and goat sector LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
9.	Economics of fisheries and aquaculture LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
10.	Economic issues of honey production LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
11.	Economics of the wild animal production LO*: Organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
12.	Student presentation about a sector LO*: Presentation and defence skills about organization and economics of the sector, business characteristics, cost-income ratios and efficiency.
13.	Exam

*LO learning outcomes

Themes of exercises

Week	Topics
1-2.	Description of requirements system. Repetition of basic operational concepts
3-4.	An overview of the theoretical background of the complex example task to be solved in the exercises. Method of data collection for cost-benefit analysis of crop production sectors.
5-6.	The method of data processing for the cost-benefit analysis of the milk production sectors is to master the application of a suitable calculation model.
7-8.	Methodology of economic analysis and evaluation on the sample of the milk production example task.
9-10.	An overview of the theoretical background of the complex pig meat production example task to be solved in the exercises. Method of data collection for cost-benefit analysis of livestock sectors.
11-12.	The method of data processing for the cost-benefit analysis of the pig meat sector, the acquisition of the application of a suitable calculation model.
13-14.	Methodology of farm economic analysis and evaluation on the sample of the poultry meat livestock production example task.

<table>
<tr><td rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="2">EU Agrár- és környezetpolitika</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE034-17</td></tr>
<tr><td>English:</td><td colspan="2">EU Agricultural and Environmental Policy</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td colspan="2">Institute:</td><td colspan="4">Institute of Rural Development, Regional Economy and Tourism Management</td></tr>
<tr><td colspan="2">Prerequisites:</td><td colspan="2">-</td><td>Code:</td><td></td></tr>
<tr><td colspan="2" rowspan="2">Típus</td><td colspan="2">Classes per week</td><td rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
<tr><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td></tr>
<tr><td>Nappali</td><td>x</td><td>per week</td><td>2</td><td>per week</td><td>1</td><td>exam</td><td>3</td><td>English</td></tr>
<tr><td>Levelező</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Responsible instructor</td><td>name:</td><td colspan="2">Dr. Szenderák János</td><td>post</td><td>assistant lecturer</td></tr>
</table>

Course goals:

The aim of the course is to provide students with information about the EU that will help them build their future. Get to know the role of agricultural policy in integration from the very beginning, gain information about the international agricultural market and its theoretical background. Get acquainted with the spread and principles of environmental policy, which knowledge can be the basis for the formation of environmentally conscious thinking.

Competences:

Knowledge:

- The student is aware of the importance of international agricultural and rural policy, knows and understands the basic concepts, contexts and processes of policies.
- The student knows the facts, main features and contexts of the policies as a whole, the relevant decision-making processes.
- The student knows the basic functions and connections of agricultural policy and policies (subsidies, taxation, etc.).

Capabilities:

- The student is able to formulate policy problems, identify expected trends, develop an independent professional position and defend it during debates.
- The student is able to interpret the formal and informal relationship system of the institutional background of policies and use it in his / her work.
- The student is able to analyze in detail on the basis of knowledge and methods in the field, to explore basic connections, to draw independent conclusions. In addition to professional supervision, the student is able to directly manage the sub-data of the project at the operational level in a research project.

Attitudes:

The student is receptive to the reception of new information, new professional knowledge, open to taking on new, independent and cooperative tasks and responsibilities.

Autonomy, responsibility:

The student is responsible for its analyzes, conclusions and decisions.

Course content , topics:

The aim of the course is to get to know the role of the European Union, not only in the traditional sense, but also in the case of different policies. The student can also place the topics discussed in an international perspective, and acquire the skills to use basic concepts during the training. Having information about the EU to help them build their future. Get to know the role of agricultural policy in integration from the beginning, gain information about the international agricultural market and its theoretical background. Get acquainted with the spread and principles of environmental policy, which knowledge can be the basis for the formation of environmentally conscious thinking.

Learning methods:

Due to the interactive nature of the lectures, students are constantly involved in the lecture, thus developing their skills. Within the framework of the lectures, renowned guest lecturers from a research institute broaden their horizons to the students.

Assessment

Exam questions will be raised from the lectures. The lecture materials together with the accompanying written materials will be available to the students.

The exam is written, where the concepts are taken into account, and in addition to enumeration and short essay questions, true-false, test questions are to be expected.

Compulsory readings:

Hill Berkeley, Understanding the Common Agricultural Policy (2011) ISBN: 9781849775618

Recommended readings:

Moyer Wayne, Agricultural Policy Reform (2017) ISBN13 (EAN): 9781138719996

Syllabus

Week	Topics
1.	EU history, legal system, forms of integration
	LO: Students will know the most important milestones in the formation of the EU, the process of deepening integration.
2.	Institutions operating the European Union
	LO: Get to know the institutions that run the EU.
3.	Economic and Monetary Union
	LO: Get to know the steps and milestones of the economic and monetary union.
4.	General features of the European Union budget and presentation of the current budget
	LO: The conditions for the formation of the EU budget, the main revenue and expenditure factors are presented.
5.	50 years of the Common Agricultural Policy (CAP)
	LO: Students will learn about the development of the CAP and its major milestones.
6.	Common Agricultural Policy (CAP) 2014-2020 and after 2020
	LO: Students will know the current regulation and future prospects of the CAP.
7.	Development and operation of environmental policy. Key documents for sustainable development in the EU
	LO: Students will know the development and more important regulation of environmental policy.
8.	Rural development legislation for the period 2014-2020 and after 2020
	LO: Students will know the current and future aspects of EU rural development policy.
9.	Energy supply, energy policy
	LO: Students will know EU energy policy.
10.	The experience of 10 years of our EU membership in agriculture and rural economy
	LO: Major changes since joining to the EU.
11.	Investment and EU cohesion policy
	LO: Students will know EU development and investment policy.
12.	Regional policy
	LO: Students will learn about the main features of regional policy.
13.	WTO
	LO: Students will know the operation of the WTO, its most important regulations.
14.	Summary
	LO: Synthesis of materials submitted during the semester.

*LO learning outcomes

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Professzionális nyelvi készségek I.</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNENY1-17</td></tr>
<tr><td>English:</td><td colspan="3">Professional language I.</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="5">Centre of Business Communication and Professional Language Studies</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3">B2 English level</td><td>Code:</td><td></td></tr>
<tr><td colspan="2" rowspan="2"></td><td colspan="3">Classes per week</td><td rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
<tr><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td></tr>
<tr><td>Full-time</td><td>X</td><td>per week</td><td></td><td>per week</td><td>4</td><td rowspan="2">practical grade</td><td rowspan="2">1</td><td rowspan="2">English</td></tr>
<tr><td>Part-time</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Dr. Nagyné Bodnár Klára</td><td>post</td><td>Language teacher</td></tr>
</table>

Course goals:

The objective of this practical course is to develop language skills with special focus on professional use of the language.
The first part of the course is designed for students to acquire and practise the skills and vocabulary required for participating in meetings they are likely to attend in the corporate world. The video clips with accompanying exercises will provide ample illustrations of the most common types of meetings.
The second half of the course deals with the language and skills needed for business presentations and presentations in general. Students should benefit from these materials even if their future professions happen to be unrelated or loosely related to business.

Competences:

Besides improving their writing and reading skills, students will also feel more competent in their speaking skills via discussions and presentations.

Course content, topics:

The *course* is based on two DVD video materials:
Successful Meetings and *Successful Presentations* by John Hughes and Andrew Mallet

Learning methods:

Team work, presentations, interaction with peers and the educator

Assessment

Assessment is based on participation in class discussions, individual presentations and two written tests: a Mid-term and an End-term paper

Course material:

John Hughes and Andrew Mallet: Successful Meetings. ISBN 978-0-19-476840-5. Oxford
John Hughes and Andrew Mallet: Successful Presentations. ISBN 978-0-19-476836-8. Oxford

Syllabus

Week	Topics
1.	Orientation LO: Setting goals, and being acquainted with requirements
2.	MEETINGS: Participating in meetings LO: The overview of the basic concepts and terminology
3.	Formal meetings; Informal meetings LO:Different vocab used in formal and informal meetings
4.	Networking; Job interviews LO: Practicing networking, job interviews in groups
5.	Teleconferencing; Negotiating LO: practicing negotiating throuhg case studies
6.	Appraisals, Revision and practice LO:more case studies
7.	Mid-term paper
8.	PRESENTATIONS: Preparing your presentation LO: The overview of the basic concepts and terminology
9.	Structuring your presentation; Introducing your presentation LO: A practical approach to starting your presentation
10.	Delivering your message; Using visual aids LO: Using visuals
11.	Concluding; Handling questions LO: Asking and answering questions
12.	Bringing it alive LO:students'presentations
13.	End-term paper
14.	Evaluation of the course LO: Students receive individual evaluation of their performance from their tutor, and are encouraged to reflect upon this.

*LO learning outcomes

<table>
<tr><td rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Professzionális nyelvi készségek II.</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNENY2-17</td></tr>
<tr><td>English:</td><td colspan="3">Professional language II.</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="5">Centre of Business Communication and Professional Language Studies</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3">B2 English level</td><td>Code:</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week</td><td colspan="2">Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td colspan="2"></td><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td><td></td><td></td></tr>
<tr><td>Full-time</td><td>X</td><td>per week</td><td></td><td>per week</td><td>4</td><td rowspan="2">practical grade</td><td rowspan="2">1</td><td rowspan="2">English</td></tr>
<tr><td>Part-time</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Dr. Nagyné Bodnár Klára</td><td>post</td><td>Language teacher</td></tr>
<tr><td colspan="8">Course goals:
Students will gain a comprehensive and fundamental knowledge of the mechanics of more formal academic writing. Organization, tone, stylistics, theses, proper citation and documentation methods for types of writing such as abstracts, summarizing, lab report writing, and basic application writing skills. Furthermore, they are introduced to the most important areas of agriculture and rural development</td></tr>
<tr><td colspan="8">Competences:
Besides improving their writing and reading skills, students will also feel more competent in their speaking skills via discussions and presentations.</td></tr>
<tr><td colspan="8">Course content, topics:
History of agriculture
Energy in agriculture
Renewable energy sources
Environmental protection
Sustainability in agriculture</td></tr>
<tr><td colspan="8">Learning methods:
Team work, presentations, interaction with peers and the educator</td></tr>
<tr><td colspan="8">Assessment
Assessment is based on participation in class discussions, individual presentations and two written tests: a Mid-term and an End-term paper</td></tr>
<tr><td colspan="8">Compulsory literature:
MCCARTHY, M. & F. O'DELL. Academic Vocabulary in Use. Cambridge UP, Cambridge, 2016. ISBN 9781107591660.
Robin Matheson: English for Agribusiness and Agriculture in Higher Education Studies</td></tr>
</table>

Syllabus

Week	Topics
1.	Orientation LO: Setting goals, and being acquainted with requirements
2.	Overview Introduction to writing in English LO: The overview of the basic concepts and terminology
3.	Explanation of the topic, approach to the audience: Methods, logic
4.	Writing the introduction and paragraphs History of agriculture
5.	Deciding on the content, Use of punctuation marks, Transitional elements History of agriculture
6.	Citation, Paraphrase, Summary and bibliography. Avoiding plagiarism Energy in agriculture
7.	Mid-term paper
8.	Abstract writing Renewable energy sources
9.	Scientific publications: methodology and organizational structure Environmental protection
10.	Scientific publications: Editorial committee needs, stylistics Environmental protection
11.	Policies for sustainability I
12.	Policies for sustainability II
13.	End-term paper, students'presentations
14.	Evaluation of the course LO: Students receive individual evaluation of their performance from their tutor, and are encouraged to reflect upon this.

*LO learning outcomes

<table>
<tr><td colspan="2" rowspan="2">Name of the subject:</td><td>in Hungarian:</td><td colspan="4">Agrárgazdaságtan alapjai</td><td rowspan="2">Code :</td><td rowspan="2">GT_AGVNE037-17</td></tr>
<tr><td>in English:</td><td colspan="4">Basics of agricultural economics</td></tr>
<tr><td colspan="9"></td></tr>
<tr><td colspan="3">Responsible educational unit:</td><td colspan="5">Institute of Economics</td></tr>
<tr><td colspan="3">Name of compulsory prerequisite course:</td><td colspan="3">--</td><td>Code:</td><td colspan="2"></td></tr>
<tr><td colspan="2" rowspan="2">Type</td><td colspan="2" rowspan="2">Number of lectures
Lecture</td><td colspan="2" rowspan="2">Exercise</td><td rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of education</td></tr>
<tr></tr>
<tr><td>Full time</td><td>X</td><td>Weekly</td><td>2</td><td>Weekly</td><td>2</td><td rowspan="2">Colloquium</td><td rowspan="2">5</td><td rowspan="2">English</td></tr>
<tr><td>Correspondent</td><td></td><td>Half year</td><td></td><td>Half year</td><td></td></tr>
<tr><td colspan="3">Instructor in charge of subject</td><td>name:</td><td colspan="2">Dr. Dániel Fróna</td><td>position :</td><td colspan="2">assistant professor</td></tr>
</table>

The aim of the course is to

the student learns about the role of agriculture in the national economy, and can place the discussed topics in an international perspective. The students should acquire the skills to use the basic concepts during the training.

The list of prescribed professional competences and competence elements to the development of which the subject typically and substantially contributes

Knowledge:

- Student is aware that the products produced in the primary sector are part of the food chain, in this regard Student know and understand the basic concepts, relationships and processes of food chain safety.
- Knows the facts, main characteristics and relationships of agricultural production and the agricultural economy as a whole, as well as the relevant agricultural economic processes.
- Knows the basic functions and relationships of agricultural policy and policies (support, taxation, etc.).
- Student is aware of the role played by R+D+I activity.
- Possesses the knowledge necessary to identify the problems of the sectors and the methods of collecting relevant information, analysis and problem solving.

Ability:

- In the field of sectors, he is able to plan and conduct the procedures that prepare and serve production, to distribute resources professionally, to participate in the development of proposals that form the basis of professional decisions, to draw conclusions, not only at the operational level.
- Able to formulate individual professional problems in the sector, to recognize expected trends, to develop an independent professional position and to defend it during discussions.
- Student is able to interpret the behavior of the actors of the agricultural economy, the formal and informal relationship system of the institutional background of the agrarian economy, and use it in his work.
- Capable of detailed analysis based on the knowledge and methods of the specialist field, uncovering fundamental relationships, and drawing independent conclusions. In addition to professional management, he is able to direct the sub-tasks of the project at the operative level in a research project.

Attitude:

- Receptive to receiving new information , new professional knowledge, open to taking on new, independent and collaborative tasks and responsibilities.

Autonomy and responsibility:

Takes responsibility for the analyses, conclusions and decisions.

Brief content and topics of the course

The aim of the course is for the student to learn about the role of agriculture in the national economy, not only in the traditional sense, but also in the approach of agribusiness and multifunctional agriculture. Student can also place the discussed topics in an international perspective, and during the training, acquire the skills to use the basic concepts. Have information about agriculture that will help them learn about the system and build their future. Get to know the role of agriculture in the product path, get information about the process and relationship system of food production. Find out about the situation and operation of the main sectors, as well as about new, modern technologies.

Planned learning activities, teaching methods

Due to the interactive nature of the lectures, the students are constantly involved in the lecture, thereby improving their skills. Within the framework of the lectures, guest lecturers from renowned research institutes broaden their horizons for the students.

In addition to deepening their professional knowledge, the students give presentations on pre-published topics during

the exercises associated with the lecture.
Evaluation Students receive the exam questions at the end of each topic. The lecture materials are made available to the students together with the corresponding written materials. The exam is written, where the concepts are tested, and in addition to list and short essay-type questions, Student should expect true-false and test questions. If the student could not pass the "A" exam. Student can take the "B" and "C" exams, the results of which will be evaluated in an oral answer covering the whole year's material.
Mandatory literature: · Pranav K Desai - Agricultural Economics; John B. Penson - Introduction to Agricultural Economics-Pearson · Andrew Barkley and Paul W. Barkley-Principles of Agricultural Economics **Recommended literature:** · Scientific articles distributed on the seminars

Weekly topic	
1.	Introduction of basic concepts, the role of agriculture in the national economy
	LO: Student get to know the concepts of agribusiness and their characteristics.
3.	The socio-economic structure of the food economy
	LO: Student gain knowledge about the most important relationships on both social and economic levels.
5.	Resources in agriculture I. - Land market, Land tenure policy
	LO: Student gain knowledge about certain sources of agriculture.
7.	Resources in agriculture II. – Agricultural capital market
	LO: Student gain knowledge about certain sources of agriculture.
9.	Resources in agriculture III. – Agricultural labor market
	LO: Student gain knowledge about certain sources of agriculture.
11.	Presentation of the main agricultural sectors - Crop production
	LO: Student get to know the main sectors of agriculture.
13.	Presentation of the main agricultural sectors - Animal husbandry
	LO: Student get to know the main sectors of agriculture.
15.	Agricultural plant organizations
	LO: Student get to know the business structure and economic structure of agriculture.
17.	Cost - Income changes in agricultural production
	LO: Student get to know the main characteristics that affect changes in agricultural prices.
19.	The main characteristics of agricultural foreign trade
	LO: Student get to know the characteristics of agricultural foreign trade after joining the EU.
21.	Global challenges affecting agriculture
	TE: Student get to know what challenges agriculture has to face.
23.	Modern technologies in agriculture - Precision agriculture
	LO: Student will receive knowledge about the most important features of precision agriculture.
25.	Modern technologies in agriculture - Biofuels
	LO: Student get to know the most important areas related to energy.
27.	Summary
	LO: Synthesizing the lecture materials.

* LO learning outcomes

<table>
<tr><td colspan="2" rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Regionális gazdaságtan</td><td rowspan="2">Code:</td><td rowspan="2">GT_AGVNE038-17</td></tr>
<tr><td>English:</td><td colspan="3">Regional Economics</td></tr>
<tr><td colspan="8">Rural development engineering BSC</td></tr>
<tr><td colspan="3">Institute:</td><td colspan="4">Faculty of Economics and Business</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3">-</td><td>Code:</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week</td><td colspan="2">Requirement</td><td>Credit</td><td>Language of instruction:</td></tr>
<tr><td colspan="2"></td><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td><td></td><td></td></tr>
<tr><td></td><td></td><td>per week</td><td>2</td><td>per week</td><td>2</td><td rowspan="2">P</td><td rowspan="2">4</td><td rowspan="2">English</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Prof. Dr. Károly Pető</td><td>post</td><td>professor</td></tr>
</table>

Course goals:

are to provide solid knowledge for the students about the definition of the landscape and region, the special implementation of the general economic laws, the basic phenomenon of special economy in macro and micro level. During the course the student will be aware of the effects of the rearrangements of regional development sources on the territorial processes.

Competences:

Knowledge:

Informed about the domestic and international functions and context of agricultural and rural development policy. He/She knows rural social changes, their connections and the aspects of rural society-agricultural interactions.

Capabilities:

Capable of planning and conducting rural development programs, allocating resources, participating in the development of proposals that form the basis of professional decisions, and drawing conclusions, not only at the operational level.

She/he is able to form an independent, professionally grounded position in the field of rural development and agriculture and to convey it.

Attitudes:

Open to credible communication of the basic achievements and characteristics of spatial sciences to both professional and non-professional target groups.

Autonomy, responsibility:

On the basis of knowledge and methods of rural development, it carries out a detailed independent analysis, the exploration of fundamental relationships, and draws independent conclusions.

In addition to professional management, he is capable of direct management of the sub-tasks of the project at the operative level in a rural development research project.

Course content , topics:

Theoretical models of the regional development, Regional Micro economics, Regional Macro economics, Factors identifying Regional developments

Learning methods:

Cooperative instruction methods, lectures, seminar, project works, individual presentation, home work

Assessment

A mid-term and an end-term will be organised during the semester. The students enrolled to the course will be asked to develop a research about a freely chosen EU member state and to present their findings during the seminars. The successful tests and the presentations are all requirements for the signature of the course, while a final grade will be given for them by the end of the semester based on their activity, achievement on the test and presentation. Students can gain extra points (max 10%) with active class behaviour at seminars. Mid-term and end-term is responsible for 30%-30% of the grade respectively, while 40% can be achieved by the presentation. The final grade will be qualified as: 0–55% failed (1), 56–65% acceptable (2), 66–75% medium (3), 76–85% good (4), 86–100% excellent (5).

Compulsory readings:

Gilian Bristow-Adrian Healy (2020): Handbook of Regional Economic Resilience, Edward Elgar Publishing
Roberta Capello: Regional Economics, Routledge, 2016

Recommended readings:

Edgar M. Hoover- Frank Giarratani: An Introduction to Regional Economics, Web Book of Regional Science. Regional Research Institute, West Virginia University, 2020

Syllabus

Week	Topics
1.	Introduction to the course LO: Students will be informed about the genaral requirements of the course, and the thematics of the semester
2.	The basic definition of the Regional Development, its goals and purpose, phenomenon of landscape and region LO: Students will gain information about the main actors of the Regional DEvelopment, the main factors effecting Development processes, the logic of the regulations the basic defenitions, relevant theories will be introduced.
3.	The subject of Regional Development, main issues of Regional Micro Economics LO: Students will gain information about the main actors of the Regional DEvelopment, the main factors effecting Development processes, the logic of the regulations the basic defenitions, relevant theories will be introduced.
4.	Neoclassical location theories I. LO: Students will gain information about the main actors of the Regional DEvelopment, the main factors effecting Development processes, the logic of the regulations the basic defenitions, relevant theories will be introduced
5.	Neoclassical location theories II. LO: Students will gain information about the main actors of the Regional DEvelopment, the main factors effecting Development processes, the logic of the regulations the basic defenitions, relevant theories will be introduced
6.	Regional Macro Economics, role of factors in Regional Development I. LO:
7.	Regional Macro Economics, role of factors in Regional Development I. II. LO:
8.	Mid-term LO: A mide-term test will be organised at the middle of the semester to check students' knowledge
9.	Social and Territorial Factors determining Regional Development LO: The practical interpretation of the Regional Science will be introduced the the students.
10.	Connection between production factors and Regional Development LO:
11.	Main models of Competition, Innovation LO:
12.	Demand and Supply-oriented Regional Strategy, Clasters LO:The practical interpretation of the Regional Science will be introduced the the students.
13.	Summary of the course LO:
14.	End-term LO: Written test is organised at the end of the semester to test students' knowledge about the subject

*LO learning outcomes

Course title:	Hungarian:	**Vidékfejlesztés**	Code:	**GT_AGVNE039-17**
	English:	**Rural development**		

Institute:	**Institute of Rural Development and Functional Management**			
Prerequisites:	-		Code:	
	Classes per week		Requirement	Credit	Language of instruction:
	Lecture(s)	Seminar(s)			
	per week	per week	Colloquium		**English**
	2	2			
Responsible instructor	name:	**Dr. Károly Pető**	post	**full professor**

Course goals:

The aim of the course is to acquaint students with the most important trends in development on a historical scale; the characteristics of modern development; interpretation of rural development in line with EU standards; aspects of the scientific characterization of the countryside; the condition of the countryside, the characteristics of its change; content requirements for rural development programs; complex assessment of local resources.

Competences:

Knowledge:

Should understand the importance of rural development

Capabilities:

Should be able to control and improve rural development processes

Attitudes:

Should be open-minded to know and apply the newest methods of rural development

Autonomy, responsibility:

Should feel responsible for participate in rural development

Course content , topics:

- Within the framework of the course, students can get acquainted with historical features of development; current characteristics of development; agricultural and rural relations; development policy areas and their characteristics; the formation and development of rural policy; the concept of the countryside, the system of rural resources; characteristics of the countryside; rural development programs.

Learning methods:

- Lectures will be given during the training. Major teaching methods: lecture, illustration, discussion.

Assessment

- The exam is a written test which will be accepted from 60%

Compulsory readings*:*

- Ppt materials of the lectures
- Bálint J.-Nagy G. (ed.) (2007): Rural Development. University textbook, CD prepared within the framework of the program “Development and quality development of practice-oriented training systems in agricultural higher education”. DE ATC AVK, Debrecen. 380. P.

Recommended readings*:*

- J Kerek Z. - Marselek S. (2009) The practice of rural development, opportunities, measures, Szaktudás Kiadóház, Budapest, 2009., 404. p. ISBN 9789639935075, Financing rural development in the European Union. AKII study, 1999. Village-city-region c. magazine. Bp. KTM VÁTI
- Imre Madarász: How to prepare a rural development program? Agroinform Publishing House, Bp., 2000. Space and society c. magazine. Bp. MTA publication.
- Journal monitoring: Village - City - Region, The village, Territorial Statistics

Week	Topics
1.	**Our age and territorial development** LO: the knowledge of the most important rural development rules according to the topic
2.	**Components of quality of life, city vs. country** LO: the knowledge of the most important rural development rules according to the topic
3.	**The concept and development of the countryside and rural development** LO: the knowledge of the most important rural development rules according to the topic
4.	**Countryside, rurality, rural concept** LO: the knowledge of the most important rural development rules according to the topic
5.	**Rural resources** LO: the knowledge of the most important rural development rules according to the topic
6.	**The situation of the countryside** LO: the knowledge of the most important rural development rules according to the topic
7.	**Content requirements for rural development programs** LO: the knowledge of the most important rural development rules according to the topic
8.	**library week**
9.	**The farm world of the Great Plain - a documentary** LO: the knowledge of the most important rural development rules according to the topic
10.	**The role of backyard animal husbandry in rural development** LO: the knowledge of the most important rural development rules according to the topic
11.	**An insight into the tools of European rural policy** LO: the knowledge of the most important rural development rules according to the topic
12.	**Beginner domestic steps in rural development** LO: the knowledge of the most important rural development rules according to the topic
13.	**Opportunity for the functioning of the ecological function of the countryside** LO: the knowledge of the most important rural development rules according to the topic
14.	**Consultation** LO: the knowledge of the most important rural development rules according to the topic

*LO learning outcomes

Course title:	Hungarian:	**Településfejlesztés**	Code:	**GT_AGVNE040-17**
	English:	**Settlement development**		

Institute:				Institute of Rural Development and Functional Management				
Prerequisites:				-			Code:	
		Classes per week				Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)				
		per week		per week		**exam**	**5**	**English**
		2		2				
Responsible instructor				name:	**Dr. Péter Horváth**		post	**assistant professor**

Course goals:

The aim of the course is to acquaint students with the formation of residential communities, spatial structure processes, local societies, the historical development of local and regional charters, the principles and vision of settlement development.

Competences:

Knowledge:

Should understand the importance of settlement development and management

Capabilities:

Should be able to control and improve settlement development and management processes

Attitudes:

Should be open-minded to know and apply the newest methods of settlement development and management

Autonomy, responsibility:

Should feel responsible for participate in settlement development and management

Course content , topics:

- Within the framework of the course, students can get acquainted with the formation of settlements, their classification, and the peculiarities of towns and villages. In the second half of the training, students can gain insight into the practical operation of settlements, deepen their knowledge in the areas of settlement development and operation, settlement planning and settlement marketing.

Learning methods:

- Lectures will be given during the training. Major teaching methods: lecture, illustration, discussion.

Assessment

- The exam is a written test which will be accepted from 60%

Compulsory readings:

- Ppt materials of the lectures
- György Kőszegfalvi, Tamás Loydl (2001): Settlement Development, Eötvös Publishing House, Budapest
- László Mária, Pap Norbert (2007): Introduction to regional and settlement development, Lomart publishing house, Pécs
- Zoltán Kovács (2007): Population and settlement geography, Eötvös Publishing House, Budapest
-

Recommended readings*:*

- János Rechnitzer (2007): Settlement and Development, KSZK ROP 3.1.1. Program Directorate, Budapest
- Journal monitoring: Village - City - Region, The village, Territorial Statistics

Syllabus

Week	Topics
1.	**The concept of settlement, the classification of settlements, the factors influencing the development of settlements** LO: the knowledge of the most important settlement development rules according to the topic
2.	**The settlement hierarchy** LO: the knowledge of the most important settlement development rules according to the topic
3.	**City concept, city types** LO: the knowledge of the most important settlement development rules according to the topic
4.	**The concept and interpretation of urbanization, the history of urbanization** LO: the knowledge of the most important settlement development rules according to the topic
5.	**Characteristics of rural settlements, geographical characteristics of scattered settlements** LO: the knowledge of the most important settlement development rules according to the topic
6.	**Design theory** LO: the knowledge of the most important settlement development rules according to the topic
7.	**The system of goals and means of settlement development** LO: the knowledge of the most important settlement development rules according to the topic
8.	**library week**
9.	**Town planning** LO: the knowledge of the most important settlement development rules according to the topic
10.	**Settlement marketing** LO: the knowledge of the most important settlement development rules according to the topic
11.	**Sustainable development** LO: the knowledge of the most important settlement development rules according to the topic
12.	**International connections of settlement development** LO: the knowledge of the most important settlement development rules according to the topic
13.	**Security policy and migration** LO: the knowledge of the most important settlement development rules according to the topic
14.	**Consultation** LO: the knowledge of the most important settlement development rules according to the topic

*LO learning outcomes

Course title:	Hungarian:	**Vidékszociológia**	Code:	GT_AGVNE041-17
	English:	**Rural sociology**		

Institute:	Institute of Sports Economics and -management		
Prerequisites:	-	Code:	

		Classes per week				Requirement	Credit	Language of instruction:
		Lecture(s)		Seminar(s)				
	X	per week	**2**	per week	**-**	**colloquium**	**3**	**English**
					-			

Responsible instructor	name:	**Dr. Szabados György Norbert**	post	**associate professor**

Course goals:

Students of the course will be familiar with the sociologic approach of rural areas, terms, categories. In the framework of the course, major topics, historic events, issues of related social groups, works of most influential scholars and research topics will be covered so as to prepare students to hold presentations and carry out even private examinations in the field.

Competences:

Knowledge:

Knows the most important relations, theories of the rural development-related natural and economic disciplines, areas, together with their embedded theoretical systems.

Well informed about the relationship between human well-being and agribusiness sector, its cultural relations, rural sociology-related traditions.

Familiar with the relationship between rural economy, society and the agricultural sector, has an awareness about the social need for community development,

Capabilities:

Able to follow and analyze most influential national and international professional literatures of the discipline.

Able to synthetize professional knowledge.

Attitudes:

Open and sensitive about acquiring new and innovative approaches together with their practical implications, able to shift between paradigms

Open to meet ethical rules and norms of the scientific research, open to apply novel methods and approaches to research rural issues

Autonomy, responsibility:

Responsible for directing the process of agricultural management on rural areas.

Has a self-dependence in working out comprehensive and special questions of rural development, able to represent spatial economy views and prospects.

Course content , topics:

(1) Requirements (2) Insight into rural sociology (3) Concepts of sociology I. (4) Concepts of sociology II. (5) Concepts of sociology III. (6) History of rural sociology I. (7) History of rural sociology II. (8) Researches in the field of rural sociology (9) Rural concepts, aspects (10) Representation of ruralty, idyll, media (11) Rural areas, villages, towns I. (12) Rural areas, villages, towns II. (13) The homestead I. (14) The homestead II

Learning methods:

E-learning

Assessment

Colloquium, fulfilled by the preparation of a theoretical presentation and an another, an empirical essay (rural level monography) together with its presentation.

Compulsory readings: ppts and available literature:

Hillyard, S. (2007): The Sociology of Rural Life. Berg Publisher, Oxford. , availability: https://oapen.org/search?identifier=390771

Cloke, P. – Marsden, T. –Mooney, P. (2006): The Handbook of Rural Studies. Sage Publications, London.

Recommended readings:

-• selected issues of Rural Sociology journal: https://onlinelibrary.wiley.com/journal/15490831

Syllabus

Week	Topics
1.	Introduction to requirements. LO: Learning most important contents of the presentation.
2.	Insight into rural sociology. LO: Learning most important contents of the presentation.
3.	The concepts of sociology I. LO: Learning most important contents of the presentation.
4.	The concepts of sociology II. LO: Learning most important contents of the presentation.
5.	The concepts of sociology III. LO: Learning most important contents of the presentation.
6.	The history of rural sociology I. LO: Learning most important contents of the presentation.
7.	The history of rural sociology II. LO: Learning most important contents of the presentation.
8.	Researches in the field of rural sociology LO: Learning most important contents of the presentation.
9.	Rural concepts, aspects LO: Learning most important contents of the presentation.
10.	Representation of ruralty, idyll, media LO: Learning most important contents of the presentation.
11.	Rural areas, villages, towns I LO: Learning most important contents of the presentation
12.	Rural areas, villages, towns II LO: Learning most important contents of the presentation
13.	The homestead I. LO: Learning most important contents of the presentation
14.	The homestead II. LO: Learning most important contents of the presentation

*LO learning outcomes

Course title:	Hungarian:	**Vidék- és civilbiztonsági ismeretek**	Code:	**GT_AGVNE042-17**
	English:	**Basics of Rural and civil security**		

Institute:	Institute of Rural Development and Functional Management		
Prerequisites:	-	Code:	

Classes per week				Requirement	Credit	Language of instruction:
Lecture(s)		Seminar(s)				
per week		per week		**exam**	**3**	**English**
2		0				

Responsible instructor	name:	**Dr. Péter Horváth**	post	**assistant professor**

Course goals:

The main goal of this course is to get students to know the risks to the settlements, the possible human and natural factors that threaten the countryside and the agricultural activities, the use of possible crime prevention procedures, cooperation opportunities.

Competences:

Knowledge:

Should understand the importance of rural and civil security

Capabilities:

Should be able to control and improve rural and civil security processes

Attitudes:

Should be open-minded to know and apply the newest methods of rural and civil security

Autonomy, responsibility:

Should feel responsible for participate in rural and civil security

Course content , topics:

- Within the framework of the course, students can get acquainted with the complex system of rural and civil security, the basic concepts, as well as the challenges threatening the security environment and security. The course deepens knowledge on issues related to disasters, civil protection, water, soil, air, food security, migration and virtual hazards.

Learning methods:

- Lectures will be given during the training. Major teaching methods: lecture, illustration, discussion.

Assessment

The exam is a written test which will be accepted from 60%

Compulsory readings*:*

- Ppt materials of the lectures;
- Hornyacsek J .: (2009): Basics of Civil Defense 1. Budapest, Zrínyi Miklós National Defense University Publishing House, 188 p., 5-30. p., ISBN: 978-963-7060-66-3
- J. Hornyacsek: (2011): Settlement protection capacities in the light of disaster challenges, disaster response tasks of settlements, basic areas of local defense capability necessary for their implementation, the process of their development. “For Our Safety” Educational and Consulting Scientific Association Budapest, 195.p. 25-32. p. ISBN: 978-963-08-2606-8

Recommended readings*:*

- Ürmösi K .: (2013): The concept of safety, security. Military Science Review. Vol. 6. No. 4. 147-156. p., ISSN: 2060-0437
- Szász J .: (2000): Types of disasters, in: Edited by Dr. Júlia Hornyacsek: Book of Preparers, BM OKF, Budapest.

Syllabus

Week	Topics
1.	**Introduction to the course (topics, requirements, attendance, exam)** LO: the knowledge of the most important security rules and solutions according to the topic
2.	**Interpretation of security** LO: the knowledge of the most important security rules and solutions according to the topic
3.	**Security environment, security challenges – global** LO: the knowledge of the most important security rules and solutions according to the topic
4.	**Security environment, security challenges – regional** LO: the knowledge of the most important security rules and solutions according to the topic
5.	**Security environment, security challenges – internal** LO: the knowledge of the most important security rules and solutions according to the topic
6.	**Security environment, security threats – military** LO: the knowledge of the most important security rules and solutions according to the topic
7.	**Disasters of civilization** LO: the knowledge of the most important security rules and solutions according to the topic
8.	**library week**
9.	**Natural disaster risk** LO: the knowledge of the most important security rules and solutions according to the topic
10.	**Rules for the civil protection classification of settlements** LO: the knowledge of the most important security rules and solutions according to the topic
11.	**Water and soil safety, Air and food safety** LO: the knowledge of the most important security rules and solutions according to the topic
12.	**Dangers of virtual world users** LO: the knowledge of the most important security rules and solutions according to the topic
13.	**Security policy and migration**LO: the knowledge of the most important legal rules and solutions according to the topic
14.	**Consultation** LO: the knowledge of the most important security rules and solutions according to the topic

*LO learning outcomes

<table>
<tr><td rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Vidékfejlesztési projektek menedzsmentje</td><td>Code:</td><td>GT_AGVNE043-17</td></tr>
<tr><td>English:</td><td colspan="3">Management of rural development projects</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="4">Institute of Rural Development and Functional Management</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3">-</td><td>Code:</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2">Classes per week</td><td rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
<tr><td colspan="2"></td><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td></tr>
<tr><td></td><td></td><td>per week</td><td></td><td>per week</td><td></td><td></td><td></td><td rowspan="2">English</td></tr>
<tr><td></td><td></td><td>1</td><td></td><td>2</td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>name:</td><td colspan="2">Prof. Dr. Károly Pető</td><td>post</td><td>professor</td></tr>
</table>

Course goals:

to become familiar with the organizational and resource systems of project management, the steps of resource planning, and the risk management of projects. It is important for students to master the processes of independent project evaluation and development, as well as the legal issues related to project management

Competences:

Knowledge:

Understands the basic concepts, facts, main characteristics, and interrelationships of project management, as well as the participants, functions, and processes involved in project management at both national and international levels.

Capabilities:

Capable of independently forming and conveying a professionally sound viewpoint in the field of project management.

Attitudes:

Open to representing the social role of project management and related scientific fields.
Proactive and receptive to innovations in project management.
Open to others' opinions and appreciative of the sectoral, regional, national, and European values of project management.

Autonomy, responsibility:

Conducts detailed independent analysis based on project management knowledge and methods, identifies fundamental interrelationships, and draws independent conclusions.

Course content , topics:

- Within the framework of the course, students will become familiar with the organization of project management, definitions, project preparation and planning, decision-making and problem-solving issues, project risk management, and important legal aspects.

Learning methods:

- During the training, lectures and practical sessions will be held. The topics and content of the lectures provide a sufficient theoretical foundation to meet the practical requirements. After completing the practical sessions, students will be able to independently process and evaluate data. The main teaching methods include lectures, student presentations, and discussions.

Assessment

Factors to be considered in determining the practical grade: team work during class; the completeness and professional content of the prepared project plan; the presentation of the project plan; responses to questions and comments made during the presentation. The condition for signing the course is regular attendance and active participation in the practical sessions according to the Study and Exam Regulations.
Grading:

Insufficient (1) 0-49 points / %
Sufficient (2) 50-59 points / %
Fair (3) 60-69 points / %
Good (4) 70-79 points / %
Excellent (5) 80-100 points / %

Compulsory readings:

- Szűcs I. – NAGY A. Sz. (2015): „A projektmenedzsment gyakorlata”, Debreceni Egyetem, Center-Print Nyomda, Debrecen, 2015. ISBN 978-615-80290-9-4
- T. J. Peters, R.H. Watermann : A siker nyomában. KJK, 1986.
- Csath Magdolna : Stratégiai vezetés - vállalkozás. KJK 1990
- Brealy/Myers : Modern vállalati pénzügyek. McGraw Hill, Budapest, 1992.
- Aggteleky Béla, Bajna Miklós : Projekttervezés. Projektmenedzsment. KÖZDOK, Budapest, 1994.
- Menedzsment műszakiaknak. Szerkesztette dr. Kocsis József. Műszaki Könyvkiadó, 1993.

Recommended readings:

- Görög Mihály : Bevezetés a projektmenedzsmentbe. AULA kiadó, 1993.
- Tátrai Tibor : MS PROJECT. ComputerBooks, Budapest, 1996.
- Személyzeti, emberi erőforrás menedzsment. Szerkesztette : Farkas Ferenc, Karoliny Mártonné, Poór József. KJK, 1994.
- Görög Mihály : Általános projektmenedzsment, AULA, 1996
- E.R.Smith, D.M. Mackie : Szociálpszihológia, Osiris, Budapest, 2002
- Projektmenedzsment útmutató, PMBOK Guide, Akadémia Kiadó, 2006

Weekly Breakdown of Topics	
1.	• Introduction to Requirements System. Project Definitions, Characteristics, and Types. Project Demand
	Learning Outcome: Understands and knows the important definitions.
3.	• The Organization of Project Management
	Learning Outcome: Understands and knows the organizational characteristics of project management.
5.	• Project Resources
	Learning Outcome: Understands and knows the resource system of projects.
7.	• Project Preparation and Planning
	Learning Outcome: Understands and knows the process of project preparation and planning.
9.	• Decision Making and Problem Solving
	Learning Outcome: Understands and knows the system of decision making and problem solving.
11.	• Resource Planning
	Learning Outcome: Understands and knows the steps of resource planning.
13.	• Criteria for Selecting a Project Manager
	Learning Outcome: Understands and knows the criteria for selecting a project manager.
15.	• Library Week
	Learning Outcome: Can research literature related to rural development projects.
17.	• Impact of Different Cultures on Project Management
	Learning Outcome: Understands and knows the effects of different cultures on project management.
19.	• Project Risk Management
	Learning Outcome: Understands and knows project risk assessment.
21.	• Legal Issues in Project Management
	Learning Outcome: Understands and knows the legal issues of project management.
23.	• Case Study of Implemented Project Management I
	Learning Outcome: Understands and knows project analysis.
25.	• Case Study of Implemented Project Management II
	Learning Outcome: Understands and knows project analysis.
27.	• Case Study of Implemented Project Management III
	Learning Outcome: Understands and knows project analysis.

Course title:	Hungarian:	**Szaktanácsadás**	Code:	**GT_AGVNE044-17**
	English:	**Expert Consulting**		

Institute:	Institute of Rural Development and Functional Management			
Prerequisites:	-		Code:	

	Classes per week				Requirement	Credit	Language of instruction:
	Lecture(s)		Seminar(s)				
	per week	**2**	per week	**2**	**E**	**4**	**English**

Responsible instructor	name:	**Prof. Dr. Károly Pető**	post	**professor**

Course goals:

The main goal of the course is to let know with students the most important methods of Professional Business Consultancy, System of Agricultural Consultancy, organizing and other management tasks of consultancy. What kind of communicational channels can we use of consultancy and how to organize successful consultant work in progress.

Competences:

Knowledge:

He knows the professional vocabulary of rural development, its specificities, the forms, methods and means of effective communication.

Capabilities:

It is capable of the efficient use of written and oral communication tools, it recognizes the advantages and disadvantages of using it, if necessary, it is able to use them consciously and professionally.

Attitudes:

Proactive and receptive to novelties in rural development issues.

Proactive and receptive to novelties in rural development issues.

Autonomy, responsibility:

On the basis of knowledge and methods of rural development, it carries out a detailed independent analysis, the exploration of fundamental relationships, and draws independent conclusions.

Course content , topics:

Basics of Agricultural Consultancy
Definition of Agricultural Consultancy, System and Organizing of Agricultural Consultancy
Management of Agricultural Consultancy
Communicational tools and methods of Agricultural Consultancy
Ethics of Agricultural Consultancy

Learning methods:

Lecture, seminar, presentation, explanation, interactive tasks and multifunctional problem solving tasks

Assessment

The exam is a written test which will be evaluated according to the following grading schedule: 0–59% failed (1), –69% acceptable (2), 70–79% medium (3), 80–89% good (4), 90–100% excellent (5).

Compulsory readings:

Kristin E. Davis, ed., Suresh Chandra Babu, ed., Catherine Ragasa, (2020).: Agricultural extension: Global status and
performance in selected countries, International Food Policy Research Institute
Edward G. Verlander (2012): The Practise of professional Consulting, Peiffer Publishing

Recommended readings:

Cees Leeuwis, A. W. van den Ban: Communication for Rural Innovation: Rethinking Agricultural Extension, 3rd Edition, 2004

Syllabus

Week	Topics
1.	Definition, Formation, Goals of Agricultural Consultancy. Main roles of Agricultural Consultancy in Rural Development
2.	Obligations and Tasks of Agricultural Consultant. Most important characteristics of successful Consultant, Priorities of Improving a Suitable Agricultural Consultant System
3.	Types of Agricultural Consultancy, Conditions of Official Consultant Listing I.
4.	Conditions of Official Consultant Listing II.
5.	Improving of Agricultural Consultancy System
6.	Supporting System of Agricultural Consultancy (2021-2027, 2014-2020)
7.	Decision Making Ways and Suitable Methods
8.	Crisis Forecast, Business Reorganization
9.	Management of Agricultural Consultancy I. (basics of management, self-management)
10.	Management of Agricultural Consultancy I.(management of consultancy, marketing of consultancy
11.	Process, organization, logistical questions of consultancy (Pre-solving and Problem Solving methods)
12.	Methods of Consultancy
13.	Ethics of Consultancy
14.	Communicational Tools and Methods of Consultancy

<table>
<tr><td rowspan="2">Course title:</td><td>Hungarian:</td><td colspan="3">Matematika kritériumtárgy</td><td rowspan="2">Code:</td><td rowspan="2">GT_AMATKRNE-17</td></tr>
<tr><td>English:</td><td colspan="3">Mathematics Criterion course</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">Institute:</td><td colspan="4">Institute of Methodology and Business Digitalization</td></tr>
<tr><td colspan="3">Prerequisites:</td><td colspan="3">-</td><td>Code:</td><td>-</td></tr>
<tr><td rowspan="2">Division</td><td colspan="4">Classes per week</td><td rowspan="2">Requirement</td><td rowspan="2">Credit</td><td rowspan="2">Language of instruction:</td></tr>
<tr><td colspan="2">Lecture(s)</td><td colspan="2">Seminar(s)</td></tr>
<tr><td>Daytime</td><td>x</td><td>per week</td><td>0</td><td>per week</td><td>2</td><td rowspan="2">Practical grade</td><td rowspan="2">1</td><td rowspan="2">English</td></tr>
<tr><td>Correspondent</td><td></td><td>Semiannually</td><td></td><td>Semiannually</td><td></td></tr>
<tr><td colspan="3">Responsible instructor</td><td>Name:</td><td colspan="2">Dr. Sándor Kovács</td><td>post</td><td>associate professor</td></tr>
<tr><td colspan="3">Instructor</td><td>Name:</td><td colspan="2">Dr. Csaba Gábor Kézi</td><td>post</td><td>associate professor</td></tr>
<tr><td colspan="8">Course goals:
This subject attempts to revise the major topics learned in high-school and introduce students to the generic terminology and concepts that will be used in their further studies. The main objective is to motivate students using their knowledge in their every day life. Problem solving approach is stressed throughout the whole course. In order to reach that goal every new concept and definition will be illustrated by numerous real-life examples and concrete appropriate applications. Special emphasis is placed on helping students to solve and interpret their own problems. During the course of practical lessons students should gain experience in problem solving from the various topics of the subject.</td></tr>
<tr><td colspan="8">Competences:
Knowledge:
Students should get acquire the mathematical, statistical methods which are needed to analyse and cope with problems in economics.
Skills:
Student will be qualified for plannig and oragnizing programmes and for allocating resources, making professional proposals, drawing conclusions utilizing developed mathematics.
Attitude:
Student should be more cooperative in solving problems from every field of economics. Students become opened to the innovative and scientific approaches and sensitive to the new features.
Autonomy and responsibility:
Students will be able to plan economic processes and to control purchasing and marketing processes. Students will be able to take responsibility for their decision.</td></tr>
<tr><td colspan="8">Course content , topics:
The semester starts with the theory of sets and algebraic preliminaries like rules of fractions, exponents, Cartesian coordinate system, straight lines. Next we discuss classifications and characteristics of one-variable functions regarding plotting and basic function types including exponential and logarithm functions and algebra of functions. We deal also with some financial mathematics like amount of investment, rate of interest, present value, compound interest and geometric and arithmetic series. A special emphasis will also be placed on solving practical problems using multiple equations and inequalities. Trigonometrics and the fundaments of statistics will also be discussed and covered.</td></tr>
<tr><td colspan="8">Learning methods:
Seminars were made by solving problems and further explanations will be made on the whiteboard. During the seminars the mathematical softwares will be used: Winplot for representing functions in 2D,3D and for nonlinear and polynomial fit. Microsoft excel will be used for other operations and solving multiple linear equation systems. Regarding calculus and analysis Wolfram Alpha will be presented. Online multiple choice questions are available through the elearning system which could help practicing for the exams.</td></tr>
<tr><td colspan="8">Assessment
The attendace on every lecture and practice is compulsory for the students as the different topics are built upon one another. A catalogue is being made during the lectures and seminars. Each student MUST SIGN the form and should not miss more than 3 occasions. Each student should get a practical grade which will be based on the midterm and endterm tests (work problems and multiple choice questions). The practical grade will be written in the Neptun System till the end of the learning period. In order to fulfil the subject every student should receive a signature which has two conditions. There should not be more than 3 uncertified absence from the courses and 20 percent should be</td></tr>
</table>

obtained from the total score of the two tests. Evaluation in the learning period will be made mainly according to the results of the midterm (in the 5th week) and endterm (in the 10th week) tests written on the seminars In case the final score from both tests reaches at least the half of the obtainable total the student gets a passing practical grade between 2 and 5. In case the final score from both tests is between 20 and 50% of the obtainable total the student gets a fail grade. Those students who were not able to obtain a passing grade during the learning period or would like to improve the result, will be given 2 extra chances during the examining period. In case the student has already obtained a grade but would like to better the results, the better result will be valid. This means that there is no place for spoiling the accomplished result even if the second grade is worse than that. In case a student should take an exam, the evaluation will be based ONLY on the performance on the exams.

Compulsory readings:

E. Haeussler – R. Paul – P. Wood (2014): Introductory Mathematical Analysis for Business, Economics, and the Life and Social Sciences, 13th edition, Pearson, UK, ISBN: 978-1-29202-114-0

Recommended readings:

R.J. Harschbarger – J.J. Reynolds (2015): Mathematical application for Management, Life and Social Sciences, Brooks/Cole, USA, Belmont, CA, ISBN: 978-1305108042

S.T. Tan (2016): Applied Mathematics for Managerial, Life and Social Sciences, Cengage Learning, USA, Stamford, ISBN: 978-1-285-46464-0

K. Sydaster – P. Hammond (2016): Essential Mathematics for Economics Analysis, Pearson Education, UK, ISBN: 978-1-292-07465-8

M. Spiegel – J. Schiller – A. Srinivasan (2001): Probability and Statistics, McGraw Hill, USA, ISBN: 0-07-139838-4 159 pages

S. Warner – S. R. Costenoble (2007): Finite Mathematics and applied calculus, Thomson Higher Education, USA, Belmont, CA, ISBN: 0-495-01631-4 1252 pages

Syllabus

Week	Topics
1.	Set theory, algebric preliminaries: fractions, radicals, rational, quadratic, exponential, logarithm expressions, factor polinomials, sequences
2.	Functions and graphing: major function types and plotting
3.	Trigonometric functions, trigonometry, radians and degrees, positive and negative angles, converting degrees to angle, determining angle
4.	Linear equations, lines and pratical problems, quadratic equations and problems
5.	Linear inequilities and graphing
6.	System of linear equation and practical problems
7.	Exponential and logarithm functions
8.	Financial Mathematics (percentages, ordinary annuities, compounding interest)
9.	Basic statistics: mean, median, mode, variance, relative frequency histogram
10.	Basic combinatorics and probabilities.