REQUIREMENTS
22/2021 academic year I. semester

Name and code of the subject: **Farm Business Management and Project Management, MTMKG7018A**
Name and title of the person responsible for the subject: Dr Nikolett Szőllősi, assistant professor
Additional instructors involved in teaching the subject:
Name and level of the program: Agricultural Water Management Engineering MSc
Subject type: optional
Teaching timetable of the subject, type of examination: 1+2 G
Credit value of the subject: 3

Purpose of teaching the subject: Farm business management combines study in agricultural production and science with a variety of business disciplines, preparing students for entrepreneurial, management and leadership roles in the agricultural sector.
Introduction of the basic's methodology and most important functions of project management (project design, organization, implementation monitoring and evaluation). After mastering the subject, the students will be able to prepare and undertake projects and acquire the basic skills necessary for developing projects.

Content of the subject (14 weeks):

1. Farm management, Farm business and enterprises, income costs and profitability
2. Production economic principles and concepts, financial analyses, investment analysis and decision making
3. Marketing, value adding, Human Resource Management, Risk Management
4. The Business Plan, key economic concepts
5. Economics and the market
6. Structure and dynamics of EU farms, CAP Reform 2014-2020
7. European farmers' intentions to invest in 2014-2020, CAP 2014-2020 Policy Instruments and Precision Agriculture
8. Project Management, Project Life Cycle, PM Principles, Project types, Project characteristics
9. Project Team, Personal Skills in Project Management
10. Project Plan, Step by Step (Scope Management, Time Management, Cost Management)
11. Dealing with Risks and Uncertainties,
12. Project Execution, communication activities, documentation
13. Project reports, conclusion, dissemination
14. Programs, call for tenders related to agricultural and environmental sector in EU

Type of mid-term examination:

Method of assessment (semester examination mark - report, practical grade, colloquium, examination): Colloquium

Teaching aids:

Recommended literature:

1. S van Zyl, PG Strauss & JB Stevens 2012. Training material for extension advisors in irrigation water management Volume 2: Technical Learner Guide Part 7: Irrigation economics. Water Research Comission. ISBN 978-1-4312-0342-0. p. 155.
2. Andrew Woodend 2010. Definitions of Terms used in Farm Business Management. Department for the Environment, Food and Rural Affairs, Crown Copyright. p. 47.
3. Gary R. Heekens, PMP: Project Magagement. McGraw-Hill. 0-07-137952-5. DOI: 10.1036/0071394494. p. 249.

REQUIREMENTS
22/2021 academic year I. semester

Name and code of the subject: **Remote sensing MTMKG7025A**
Name and title of the person responsible for the subject: Dr. habil. Nagy Attila, associate professor
Additional instructors involved in teaching the subject:
Name and level of the program: Agricultural Water Management Engineering MSc
Subject type: optional
Teaching timetable of the subject, type of examination: 0+3 G
Credit value of the subject: 3

Purpose of teaching the subject: Though there are no theory lectures, the aim of the course is to present the basics and practical application of remote sensing. Throughout the course, students will learn about the physical background of remote sensing, the tools of remote sensing and methods of data processing and their practical applications. The course practice is orientated to the aspects of remote sensing of agricultural, environmental management applications. The subject covers the topics of multispectral, hyperspectral remote sensing, thermography and laser scanning.

Content of the subject (14 weeks):

During the exercises, the students will be able to process the data from the remote sensations using GIS software. The students learn several RS based land-use change and monitoring, vegetation analysis, abiotic stress effects on orchards, arable crops, drought management, forestry applications, drainage conditions, ground conditions and inland water risk analysis. The analytical methods are acquired through sample tasks in a GIS software environment.

1. Physical basics of remote sensing. Interpretation of the physical characteristics of the electromagnetic wave through the measurement and analysis of the reflection properties of soil and vegetation.
2. Grouping remote sensing devices and data. Description of more commonly used satellites, evaluation of aerial remote sensing methods for analyzing multispectral and hyperspectral remote sensing methods
3. Georeferencing remote sensing data
4. Analysis of relevant vegetation indices. Quantitative evaluation methods
5. Interpretation and Application of supervised and unsupervised classifications, Post Processing, Error Matrix, and Kappa Index Calculation Methods.
6. Assessing effects of abiotic stress, regional drought and biomass monitoring based on multispectral data
7. Project task: Multispectral and airborne hyperspectral data analysis of agricultural land, by supervised classification, post-processing
8. Project task: Hyperspectral examination of spatial distribution of vegetation by supervised class classification, post-processing
9. Run-off modeling based on radar and laser scanning data
10. Forest monitoring and species variety composition analysis based on hyperspectral data
11. Spectral assessment of the physical density and moisture of the soils

12. Spectral evaluation of canopy water supply
13. Thermography in the assessment of water supply in agriculture
14. Analysing on orchards by non destructive instruments

Type of mid-term examination:

Method of assessment (semester examination mark - report, practical grade, colloquium, examination): practical course mark in written exam

Teaching aids:

Recommended literature:

4. Campbell, J. B., Wynne, R. H. (2011): Introduction to Remote Sensing. The Guilford Press. 5th Edition. 667 p. ISBN: 978-1609181765.
5. Jones, H. G., Vaughan, R. A. (2010): Remote Sensing of Vegetation: Principles, Techniques, and Applications. Oxford University Press. 1st edition. 400 p. ISBN: 978-0199207794.
6. Weng, Q. (2009): Remote Sensing and GIS Integration: Theories, Methods, and Applications. McGraw-Hill Professional. 1st edition. 416 p. ISBN: 978-0071606530.

REQUIREMENTS
Academic year 2021/2022, semester 1

Name and code of the subject: Water chemistry MTMVG7004A
Name and title of the person responsible for the subject: Dr. Elza Kovács, associate professor
Additional instructors involved in teaching the subject: Dr. Péter Tamás Nagy, associate professor
Name and level of the program: Agricultural water management engineering MSc
Subject type: compulsory
Teaching timetable of the subject, type of examination: 2+1, C
Credit value of the subject: 4

Purpose of teaching the subject: Completing the subject, students will know the chemical parameters of water, and the (bio)chemical reactions potentially taking place under environmental circumstances. They will understand the effect of the changing physical and/or chemical and/or biological environment on the overall water quality, and the cross-relations of the reactions leading to new equilibria. As part of the practice, their skills on sampling, sample preparation, use of quick tests and some analytical equipment, as well as documentation and evaluation of the results will be improved.

Content of the subject (14 weeks):

1. Introduction, water consuming/lab safety
2. Water usage/lab equipment, devices
3. Chemical calculations/making solutions,
4. Chemical calculations/balances and volume measuring devices
5. Water structure/measuring possibilities of main properties of water
6. Main physical and chemical parameters of water/ main measuring methods and parameters
7. General introduction to Water analysis/ Determination of TSS and TDS
8. Water reactions I./ Determination of water hardness
9. Water reactions II./ Determination of water EC
10. Water pollutions/Water sampling and pretreatment
11. Principle of titrimetry/Determination chloride in water samples
12. Water analysis/determination of pH, N forms (nitrate, nitrite, ammonium)
13. Water analysis/determination of P, K and sulphate
14. Water analysis/determination of different metals (Cu, Zn, Mn, Fe)

Type of mid-term examination: Completing assignments / exercises listed in Exercise book: Practical exercises for the course of Water chemistry; Being active in group works; Completing lab works; Taking part in field visits

Method of assessment (semester examination mark - report, practical grade, colloquium, examination): Oral exam about a choosen topic is taken in the examination period of the semester focusing on the knowledge gained. Submitting reports in due time, taking part actively in the practices and field trips and completing home work individually are compulsory.

Teaching aids: ppt presentations, online websites

Recommended literature:
Benjamin, Mark M. (2014): Water Chemistry, Second Edition 2nd Edition, Waveland Press. Inc.,907p ISBN: 978-1478623083
Hauser, Barbara (2002): Drinking Water Chemistry. A Laboratory Manual. Lewis Puslishers, 2014p. ISBN 9781566704861

Exercise book: Waterchemistry
https://www.britannica.com/science/anomalous-water
https://cdn.ymaws.com/www.mainerwa.org/resource/resmgr/2019_conference/2019ppts/basic_water_chemisty_allabs_.pdf

REQUIREMENTS
22/2021 academic year I. semester

Name and code of the subject: Soil Physics, MTMVG7005A
Name and title of the person responsible for the subject: Dr. Tamás Magyar senior lecturer, Dr. Budayné Bódi Erika, assistant lecturer
Additional instructors involved in teaching the subject: -
Name and level of the program: Agricultural Water Management Engineering MSc
Subject type: compulsory
Teaching timetable of the subject, type of examination: 2+1 K
Credit value of the subject: 3

Purpose of teaching the subject: The aim of the lectures is to provide students with a basic understanding of theoretical and applied soil physics. In the frame of the course students are given an overall and up-to-date knowledge on soil physics involved in water management, soil cultivation and amelioration. Cognition of the most important physical processes in the soil-water- air system and learning the mitigation options of the adverse effects on the soil water regime according to the following themes:

Content of the subject (14 weeks):

15. Soil, as natural resource, functions and composition the soils. Soil forming factors and processes
16. Particle sizes. Physical and physico-chemical properties of particles with different sizes
17. Soil texture. Textural classes of soil particles
18. Soil properties related to soil texture
19. The structure of solid phase in soils. Genesis of soil structure (physical, chemical processes), characterization of soil structure (soil physical and morphological techniques),
20. Total and differential porosity of soils. Functions of pores with different sizes.
21. Soil water principles: Water forms in the soils. Energy concept of soil water (soil water potential, components of water potential).
22. Water movement in soil, saturated flow
23. Transport of soil water under unsaturated conditions
24. Practical aspects of water retention and movement in soils. Soil water management categories.
25. Soil Aeration. Mechanism of soil gas exchange. Air movement in the soils.
26. Pedotransfer rules and functions for estimation of soil properties difficult to measure.
27. Soil compaction and soil structure deterioration
28. Soil physical aspects of amelioration, cultivation and irrigation.

Type of mid-term examination:

Method of assessment (semester examination mark - report, practical grade, colloquium, examination): Colloquium

Teaching aids: Presentation materials.

Recommended literature:

7. Várallyay Gy. (2013): Soil Scientific Basis of Agricultural Water Management. http://www.tankonyvtar.hu/hu/tartalom/tamop412A/2011_0009_Varallyay_Gyorgy-Soil_Scientific_Basis_of_Agricultural_Water_Management/ch16.html
8. Manoj K. Shukla (2013) Soil Physics: An Introduction. CRC Press. ISBN 9781439888421
   Recommended textbooks:
9. Glinski, J., Horabik, J. Lipiec, J. (Eds.) (2011): Encyclopedia of Agrophysics. Springer. ISBN 978-90-481-3585-1 Hillel, D. (1980) Fundamentals of Soil Physics ACADEMIC PRESS, INC. Elsevier Inc ISBN: 978-0-08-091870-9

REQUIREMENTS
2021/22 academic year 1 semester

Name and code of the subject: Pond culture and fisheries management MTMVG7007A
Name and title of the person responsible for the subject: Laszlo Stündl PhD
Additional instructors involved in teaching the subject:
Name and level of the program: Agricultural water management engineering MSc
Subject type: compulsory
Teaching timetable of the subject, type of examination: 2+2 P
Credit value of the subject: 4

Purpose of teaching the subject: Course objective : to provide information on the theory of fish genetics and breeding including the broodstock management, induced and natural reproduction, fry and larvae management. The knowledge acquired will enable to participate / cooperate in practical breeding programmes.

Content of the subject (14 weeks):

29. Current status and tendencies in pond fish culture
30. Pond construction, engineering and water management
31. Applied hydrobiology – plankton management
32. Fish biology propagation and larvae management
33. Feeding and nutrition
34. Pond management and harvesting
35. Multifunctional and integrated aquaculture
36. Aquatic and fisheries resources
37. Key fish species
38. Fish biology: growth, recruitment and management
39. Fish population ecology and dynamics
40. Stock assessment and management
41. Inland fishing methods and equipment
42. Inland fisheries engineering and construction

Type of mid-term examination: Taking part on the 70% of the practices are compulsory.

Method of assessment (semester examination mark - report, practical grade, colloquium, examination): practical grade

Teaching aids: Lecture slides & handouts (texts)

Recommended literature:

10. FAO (2016): The State of World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all. Rome. 200 pp.
11. Boyd, C.E., Lim, C., Queiroz, J., Salie, K., de Wet L., McNevin, A. (2012): Best Management Practices for Responsible Aquaculture. Aquaculture Collaborative Research Support Program [ACRSP]
12. Burke, D., Goetze, B., Clair D., Egna H. (1996): Pond Dynamics/Aquaculture. Collaborative Research Support Program. Office of International Research and Development Oregon State University, USA

13. Allan, G., Heasman H., Ferrar P. (2006): Aquaculture Nutrition: Report on the Aquaculture Nutrition Master Class held at Asian Institute of Technology, Bangkok Thailand 7-19 August 2006 ISBN 0 7347 1771 7

REQUIREMENTS
2021/2022. academic year I. semester

Name and code of the subject: Irrigated crop production, MTMVG7008A
Name and title of the person responsible for the subject: Dr. József Csajbók associate professor
Additional instructors involved in teaching the subject:
Name and level of the program: Agricultural Water Management Engineering, MSc
Subject type: compulsory
Teaching timetable of the subject, type of examination: 2+1 C
Credit value of the subject: 3

Purpose of teaching the subject:
The main goals are to give effective academic and practical knowledge connected to irrigated crop production: Interaction between water management and crop production in agriculture. Knowledge about water balance and water requirement of plants. Learning about the significance of environment friendly and economic irrigation. Effects of the irrigation on soil and plant and environment. Principles of irrigation, main functions of irrigation and crop production. Irrigation regime of main crops.

Content of the subject (14 weeks):
1. Interaction between water management and crop production in agriculture.
2. Water balance of plants, water demand of plants.
3. Bases of water regulation in crop production.
4. Learning of significance of environment friendly and economic irrigation.
5. Effect of irrigation on soil and plants.
6. Production requirements of irrigation. Aims of irrigated crop production.
7. Necessary of irrigation, efficiency of water use.
8. Principles of fertilization in irrigated fields.
9. Evaluation of irrigation patterns.
10. Main functions of irrigation and crop production.
11. Correlations between irrigation and yield stability.
12. Irrigation regime of main crops I. (green peas, alfalfa, red clover)
13. Irrigation regime of main crops II. (corn, sweet corn, corn seed)
14. Irrigation regime of main crops III. (rice, potato, sugar beet)

Type of mid-term examination:
- Before examination students need to get signature of the course instructor.
- Special requests will be accepet in the first 2 weeks of the semester only.

Method of assessment (semester examination mark - report, practical grade, colloquium, examination): colloquium

Teaching aids: lecture material

Recommended literature:
Burton, M. (2010): Irrigation Management: Principles and Practices, CAB Intl. ISBN: 9781845935160
Brebbia, C.A, Marinova, M, Bjornlund, H (2010) : Sustainable Irrigation Management, Technologies and Policies III, Wit Pr/Computational Mechanics, Billerica, USA, ISBN: 9781845644468

REQUIREMENTS
22/2021 academic year I. semester

Name and code of the subject: Remote sensing and GIS in hydrology, MTMVG7014A
Name and title of the person responsible for the subject: János Tamás professor
Additional instructors involved in teaching the subject: Dr. Attila Nagy
Name and level of the program: Agricultural Water Management Engineering MSc
Subject type: compulsory
Teaching timetable of the subject, type of examination: 2+2 G
Credit value of the subject: 4

Purpose of teaching the subject: The goal of this subject is to make it possibile for the students to do image analyses and to learn the basics of remote sensing and hydrological data collection. Within this subject the students get acquainted with the modern spatial resolution support methods as well. They can build up and manage several geo-database systems and learn the theoretical and practical essentials of water management models.

Content of the subject (14 weeks):

43. Spatial objects
44. GIS models
45. GNSS methods
46. Input data collection methods
47. Structure of geo-database for surface waters
48. Structure of geo-database for groundwater
49. Spatial decision support in water management
50. Spatial uncertainty and risk analysis in water management
51. Physically background of remote sensing
52. Space borne and airborne remote sensing
53. Image analysis and land use
54. Image analysis and water quality management
55. Hydrological modelling
56. Hungarian and international hydrology databases and data mining

Skills to be learnt:

1. Sample collection and preparation
2. EM spectra VI
3. EM spectra NIR
4. Avantes spectrometer
5. Alta spectrometer
6. Uncalibrated measuring
7. Calibration measuring
8. Spectral curves
9. Soil spectrum
10. Vegetation spectrum
11. Satellite spectrum
12. Unsupervised classification
13. Supervised classification

14. Technical reporting and presentation

Type of mid-term examination:

Method of assessment (semester examination mark - report, practical grade, colloquium, examination): written exam

Teaching aids:

Recommended literature:

1. Li, Z., Zhu, Q., Gold, C. (2005): Digital terrain modeling: Principles and Methodology. CRC Press. 318 p. (ISBN: 0-415-32462-9)
2. Khorram, S., van der Wiele, C. F., Koch, F. H., Nelson, S. A. C., Potts, M. D. (2016): Principles of Applied Remote Sensing. Springer. 307 p. (ISBN: 978-331-922-593)
3. Maquire, D. J. (2005): GIS, Spatial Analysis and Modeling. ESRI Press. 479 p. (ISBN: 978-158-948-130-5)

REQUIREMENTS
22/2021 academic year I. semester

Name and code of the subject: **Precision agriculture, MTMVG7016A**
Name and title of the person responsible for the subject: Dr Péter Riczu, assistant professor
Additional instructors involved in teaching the subject:
Name and level of the program: Agricultural Water Management Engineering MSc
Subject type: compulsory
Teaching timetable of the subject, type of examination: 1+2 G
Credit value of the subject: 3

Purpose of teaching the subject: The main aim of this course is to acquire theoretical and practical skills of precision agriculture. Students learn the precision technologies of data collection, data integration, and spatial decision support methods, including precision arable agriculture, precision horticulture and precision livestock farming. Students will be qualified for the application of the precision agriculture principles in environmental management and/or agriculture.

Content of the subject (14 weeks):

57. Historical and theoretical background of precision agriculture. Parts and integration of precision agriculture into the practice.
58. Reasons of spatial variability in agriculture
59. Global Positioning System and its complementary systems
60. The role of GIS in precision agriculture
61. Usability of remote sensing data in precision agriculture
62. Databases, data infrastructure and map servers
63. Sensors, monitors, additional instruments
64. Precision plant protection
65. Precision nutrient management
66. Precision water management
67. Precision horticultural
68. Precision animal husbandry
69. Yield monitoring, site specific information after harvest
70. Economical aspects of precision agriculture

Students use spatial data from different data acquisition devices and map spatial and temporal heterogeneity of the soil and vegetation by GIS software and evaluate the maps. Created maps can provide help in decision support in precision agriculture. An important part of the practice is that students become familiar with the most relevant members of Hungarian precision agricultural corporations and their locations throughout the world. Students can visit the service and the precision agriculture tools, which can be provided for the farmers.

15. Jobcomputer – tractor mounted sensors – big data
16. Database management
17. Spatial heterogeneity in self-created digital maps I.
18. Spatial heterogeneity in self-created digital maps II
19. Spatial heterogeneity in self-created digital maps III.

20. Geo-statistically examination for more effective decision support
21. Processing of airborne survey (LiDAR and spectral remote sensing) data for precision agriculture I.
22. Processing of airborne survey (LiDAR and spectral remote sensing) data for precision agriculture II.
23. Processing of airborne survey (LiDAR and spectral remote sensing) data for precision agriculture III.
24. Processing of satellite remote sensing data for precision agriculture I.
25. Processing of satellite remote sensing data for precision agriculture II.
26. Processing of satellite remote sensing data for precision agriculture III.
27. Field exercise/farm visit I.
28. Field exercise/farm visit II.

Type of mid-term examination:

Method of assessment (semester examination mark - report, practical grade, colloquium, examination): Written exam

Teaching aids:

Recommended literature:

Brase, T. (2005): Precision agriculture. Delmar Cengage Learning. 1st edition. 288 p.
Kennedy, H. (2009) Introduction to 3D Data: Modelling with ArcGIS 3D Analyst and Google Earth. Wiley. 360 p.
Qin, Z. (2015): Precision Agriculture Technology for Crop Farming. Taylor & Francis. 374 p.
Srinivasan, A. (2006): Handbook of precision agriculture: Principles and applications. CRC Press. 683 p. (ISBN: 978-156-022-954-4)
Tamás, J. (2011): Precision Agriculture. University of Debrecen. Centre for Agricultural and Applied Economic Sciences. Debrecen. 126 p.
(http://www.tankonyvtar.hu/hu/tartalom/tamop425/0032_precizios_mezogazdasag/adatok.html

REQUIREMENTS
22/2021 academic year I. semester

Name and code of the subject: **Water economics, MTMVG7019A**
Name and title of the person responsible for the subject: Dr Nikolett Szőllősi, assistant professor
Additional instructors involved in teaching the subject:
Name and level of the program: Agricultural Water Management Engineering MSc
Subject type: compulsory
Teaching timetable of the subject, type of examination: 2+1 K
Credit value of the subject: 3

Purpose of teaching the subject: Students get a knowledge about irrigation from a micro and macro-economic point of view. Water supply directly increase yield, in addition, it also has indirect effect on profitability, which provides additional economic benefits - students are introduced to this and other aspects, as well.

Content of the subject (14 weeks):

1. Farm management, Farm businesses and enterprises, income costs and profitability
2. Production, economic principles and concepts, financial analyses, investment analysis and decision making
3. Marketing, value adding, human resource management, risk management
4. The business plan
5. The multiple dimensions of water management (Micro-level, Regional, Interregional)
6. Handling drought and inland waters
7. The benefits and costs of irrigation
8. The theory of the production function (Physical production functions, Spil'man function, Marginal rate of substitution, Profit maximization) water-plant relationships
9. Irrigation systems and characteristics, costs
10. Decision support system
11. Irrigation economics
12. Protecting orchard from frost and freeze, hail protection net system in orchard, (Iivestment costs, annual costs)
13. Economic and environmental characteristics of bottled water production
14. Agricultural Water Management for Sustainable Rural Development

Type of mid-term examination:

Method of assessment (semester examination mark - report, practical grade, colloquium, examination): Colloquium

Teaching aids:

Recommended literature:

14. Viktor Szabó 2016. Economics of hail protection net installation in super intensive apple orchards. Agrártudományi Közlemények, vol. 68. p. 27-35.
15. S van Zyl, PG Strauss & JB Stevens 2012. Training material for extension advisors in irrigation water management Volume 2: Technical Learner Guide Part 7: Irrigation economics. Water Research Comission. ISBN 978-1-4312-0342-0. p. 155.
16. International Commission on Irrigation and Drainage (ICID) 2016. Agricultural Water Management for Sustainable Rural Development. p. 84.
17. Karina Schoengold and David Zilberman 2007. The economics of water, irrigation, and development. (In: Handbook of Agricultural Economics, Volume 3 Edited by Robert Evenson and Prabhu Pingali) DOI: 10.1016/S1574-0072(06)03058-1. p. 2939-2984.
18. Alan Pilling Kleinman 1969. The production function and the imputation of the economic value of irrigation water. Retrospective Theses and Dissertations. Paper 4122. Digital Repository @ Iowa State University. p. 133.

REQUIREMENTS
2021/22 academic year II. semester

Name and code of the subject: Management and utilization of aquatic habitats
MTMVG7012A
Name and title of the person responsible for the subject: László Kövér, Ph.D. senior lecturer
Additional instructors involved in teaching the subject: -
Name and level of the program: Agricultural Water Management Engeenering, MA
Subject type: compulsory
Teaching timetable of the subject, type of examination: 1+2, written exam
Credit value of the subject: 3

Purpose of teaching the subject:
The general aim of the course is to transfer the basic knowledge necessary for management of wetlands directly or indirectly affected by the water management practice of agriculture, which helps the agricultural water management engineer's work in accordance with the regulation of the nature conservation authority and the conservation biological principles.

Content of the subject (14 weeks):

1. 1 Introduction of nature conservation.
2. Natural conservation assessment, treatment.
3. The status and situation of wetlands in Hungarian and in international approaches.
4. The Hungarian and international law background of conservation of wetlands.
5. The conceptual bases of habitat management, his legal and economic background.
6. The types of river controls, their history and consequences of the interventions.
7. Revitalization of streaming waters.
8. Types of still waters, their protection and management.
9. Conservation and management of fountains, moorlands, marshes and small astatic and eustatic waters.
10. Conservation and management of reeds.
11. Conservational approaches of fish management in wild waters and fishponds.
12. Situation, conservation and management of soda pans.
13. Hunting and other recreational management of wetlands.
14. Case study on wetland management.

Type of mid-term examination: no

Method of assessment (semester examination mark - report, practical grade, colloquium, examination): - Regular visits to lectures. Successful completion of the lectures, the practical examinations and the fulfilment of individual tasks.

Teaching aids:

Recommended literature:

19. Ian F. Spellerberg (1996): Conservation Biology. Longman. ISBN 0-582-22865-4

20. C. M. Finlayson et al. (edit) (2018): The Wetland Book, Springer, ISBN 978-90-481-3493-9.
21. Paul Keddy (2000): Wetland Ecology: Principles and Conservation ISBN 978-0521739672
22. Lauchlan H. Fraser &Paul Keddy (2005): The World's Largest Wetlands: Ecology and Conservation.
23. Boros, Z. Ecsedi and J. Oláh (2013): Ecology and management of soda pans in the Carpathian Basin. Kiadó HTE, Balmazújváros. ISBN 978-963-08-9471-5