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| **Title and code** of the subject: **Agro-environmental management I, MTMKG7005A** | **ECTS Credit Points: 5** |
| **Type** of the subject: compulsory | |
| **Ratio of theory and practice:** (credit%) 60/40 | |
| **Type and number of classes per semester**: hour(s) 42 lecture and 28 hour(s) practice per **semester**  Number of teaching hours / week : 3+2 (lecture and practice) | |
| **Type of exam**: exam | |
| **Subject in the curriculum:** semester 1 | |
| Preliminary requirements:- | |

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| **Summary of content - theory**: |
| The aim of the course is to introduce the theoretical concepts and applications of agro-environmental management. Completing the subject, students get to know the main steps of development of environmental management, the connection between environmental management and agriculture, international and national environmental management programs, the regulation of environmental management, the practice of sustainable agriculture, and the applied procedures. After accomplishing the course, students will keep and follow the regulations of environmental protection, and apply the principles of agricultural production.  1: Recent social and economic processes as the original factors forming the condition of environment. Direct factors controlling the quality of environment, emissions. State of the environment.  2: Characterization of the relationships between agriculture and environment: Environmental aspects of crop production.  3: Evaluation and environmental aspects of nutrition management.  4: Characterization of the relationships between agriculture and environment: Environmental aspects of animal husbandry.  5: Environmentally aspects of livestock farm establishment.  6: Natura 2000 Program. Agriculture in protected and vulnerable natural regions.  7: Renewable energy sources in the agriculture.  8: The agro-environmental aspects of climate change.  9: Proper agricultural practice.  10: Organic farming.  11: Legal and administrative regulation in connection to agro-environmental management in the EU and Hungary.  12: Agro-environmental management and rural development programs.  13: Agro-environmental management target programs.  14: Professional trip. |
| **Summary of content - practice**: |
| Skills to be learnt: thinking in system approach and connect different aspects.     1. Introduction into Agro-environmental management 2. Land Parcel Identification 3. Soil and soil degradation – causes and effects 4. Environmental effects of tillage systems 5. Crop Residue Management 6. Nutrient supply forms, fertilizers in plant production and environmental impacts I 7. Nutrient supply forms, green manure, compost, manure, slurry in plant production and environmental impacts 8. Environmental aspects of Pest control 9. Integrated Pest Control 10. Greening in EU 11. Organic farming 12. Organic livestock husbandry 13. Environmental aspects of poultry husbandry 14. Presentation |
| **Literature, handbooks in English** |
| Birol, E. – Koundouri, P. (2008): Choice Experiments Informing Environmental Policy. Elgar, Edward Publishing, Inc. 368.p. ISBN: 978 1 84542 725 2.  Jack, B. (2009): Agriculture and EU Environmental Law. Ashgate Publication. 300.p. ISBN-13: 978-0754645405.  Juhász, Cs.-Zsembeli, J. (2014). Environment and land use. Elektronikus tananyag (tankönyv). A tananyag *„Az angol nyelvű Agrármérnöki MSc szak nemzetközi versenyképességének fejlesztése*” című, TÁMOP-4.1.2./1-11/1-2011-0009) számú projekt keretében készült. ISBN 978-963-473-654-7.  <http://www.tankonyvtar.hu/hu/tartalom/tamop412A/2011_0009_Juhasz_Csaba-Environment_and_Land_Use/adatok.html>  <https://moodle.agr.unideb.hu/tamop/course/view.php?id=19>  Merrington, G. – Winder, L. – Redman, M. (2005): Agricultural Pollution. Environmantal Problems and Practical Solutions. Spon Press. 216.p. ISBN-13: 9780419213901.  Ritter, W. F. – Shirmohammadi, A. (2001): Agricultural nonpoint source pollution. CRC Press LLC. 342.p. ISBN-13: 978-1566702225  Warren, J.-Lawson, C.-Belcher, K. (2008): The Agri-Environment. Cambridge University Press, UK, 224.p. ISBN-13 978-0-521-61488-7. |
| **Competencies gained** *(acc. to the Regulation on training and outcome requirements)* |
| 1. **Knowledge:**  * Know and understand the specifications of agriculture and related industrial production, characteristics of environmental impacts locally and on a national level. * Know and understand the different background legislations related to agriculture and environment and able to realize existing relationships. * General and specific agricultural, environmental knowledge related to its field. * Knows in detail the current requirements of environmental management, its leading theories, causal relationships, the limits of their application. * Know and understand the different legal environments of a given field of activity and the existing relationships.  1. **Skills:**  * Cooperation in agricultural and environmental management and administrative tasks * Able to carry out her/his professional activity within existing legislation conditions * Continuous monitoring and application of environmental standards. * Able to use his/her professional knowledge according to the different professional requirements of the given workplace. * Able to make professionally based decision related to agribusiness, national and international level. * Interdisciplinary approach to professional problems. * Able to implement professional activity within the legal framework. * Able to perform basic and managerial tasks in agricultural and environmental management. * Ability to design, develop, implement and control natural, biological-based environmental technologies. * Ability to adapt, design, and advise on agri-environmental targeting programs at local and regional levels.  1. **Attitude:**  * Committed to environmental protection, nature conservation and sustainable agriculture. * Continuous self-improvement. * Open minded to the knowledge and practical application of modern and innovative methods in the field of environmental management.  1. **Autonomy and responsibility:**  * Equal partner in the professional cooperation * Considerable self-dependence in the field of improving comprehensive and specialized professional issues, representing and explaining professional views in the field of agro-environmental management. * Make decisions with professional responsibility. * Able to implement environment-oriented farming, application and development of modern agricultural technologies. |

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| **Responsible lecturer: Dr. Juhász Csaba, associate professor** |
| **Other lecturer(s): Dr. Szőllősi Nikolett, assistant professor** |

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| **Terms of course completion:** |
| 1. Completing exercises 2. Giving presentation |
| **Form of examination:** |
| Colloquium |
| **Requirement(s) to get signature:** |
| Completing exercises, Giving presentation |

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| **Exam questions:** |
| 1. What are the basis of land parcel identification? 2. What are the main soil degradation processes? 3. Describe the agro-environmental impacts of conventional tillage system! 4. Which environmental friendly tillage system do you know? Explain agro-environmental oriented part of them in comparison to conventional tillage system! 5. What is Crop Residue Management? Make a list about main benefits of it! 6. Which agro-environmental effects do you know about Pest Control? 7. Describe biological pest control in practice! 8. Describe Integrated Pest Control and its environmental effects! 9. What is Greening in EU? Describe the main part of it! 10. Describe and Characterize Organic Farming! 11. Describe and Characterize Organic Livestock Production! 12. Characterize the relationships between agriculture and environment: Environmental aspects of crop production 13. Characterize the relationships between agriculture and environment: Environmental aspects of animal husbandry 14. Describe the environmental aspects of nutrition management! 15. Describe agriculture in protected and vulnerable natural regions (Natura 2000)! 16. Describe renewable energy sources in the agriculture! 17. Describe agro-environmental aspects of climate change! 18. Describe legal and administrative regulation in connection to agro-environmental management in the EU and Hungary! |