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| **Title and Code** of the subject:  **Quality control of biological bases MTMEL7026A** | **ECTS Credit Points: 3** |
| **Type** of the subject: compulsory / optional | |
| **Ratio of theory and practice: 100/0** (credit%) | |
| **Type and number of classes per semester:** 28 hour(s) lecture and 0 hour(s) practice per **semester**  Number of teaching hours / week : 2+0 (lecture and practice) | |
| **Type of exam**: exam / practical course mark | |
| **Subject in the curriculum:** semester I. | |
| Preliminary requirements:- | |

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| **Summary of content - theory**: |
| Course objectives:  Students recognize the importance of the biological resources of crop production, the system of qualification, the genotype and sowing seed production of scientific methods and practical aspects. They will be able to learn the curriculum through the arable crop varieties / hybrid portfolio of multi-disciplinary approach to the classification of the genotypes habitat and species-specific adaptation and the practical issues of the seed used to treat high levels.  Students are able to recognise the importance of different breeding systems in case of different utilization types. They will know what kind of testing methods are used by the different species, and they will know the most important features in case of the different type of animals.   1. The concept of biological resources, significance and role of crop production 2. The specific multidisciplinary role of the genotype and the sowing seed in the crop production 3. The varieties testing’s process, system, elementary and special functions of the sowing seed production 4. The varieties and habitat-specific technologies significance of the biological resources of qualification 5. Importance of the traditional and GM plants and significance of their production advantages, disadvantages 6. The role of genotype in cereal oil, leeguminous and other other plants’s crop production. 7. The role of the sowing seed in cereal oil, leeguminous and other other plants’s crop production. 8. Breeding methods during the production of the breeding animals 9. Demonstration of the importance of purebred breeding and hybrid production in the world by species 10. Order of control of breeds 11. Methods of performance testing in pig breeding 12. Performance testing methods for cattle breeding 13. Performance testing methods in small ruminant breeding 14. Performance testing methods for poultry farming |
| **Summary of content - practice**: |
| Skills to be learnt:     1. The concept of biological resources, significance and role of crop production 2. The specific multidisciplinary role of the genotype and the sowing seed in the crop production 3. The varieties testing’s process, system, elementary and special functions of the sowing seed production 4. The varieties and habitat-specific technologies significance of the biological resources of qualification 5. Importance of the traditional and GM plants and significance of their production advantages, disadvantages 6. The role of genotype in cereal oil, leeguminous and other other plants’s crop production. 7. The role of the sowing seed in cereal oil, leeguminous and other other plants’s crop production. 8. Breeding methods during the production of the breeding animals 9. Demonstration of the importance of purebred breeding and hybrid production by species in the world 10. Order of control of breeds 11. Methods of performance testing in pig breeding 12. Performance testing methods for cattle breeding 13. Performance testing methods in small ruminant breeding 14. Performance testing methods for poultry farming |
| **Literature, handbooks in English** |
| 1. Acquaah, G. (2001): Principles of crop production. Theory, Techniques and Technology. Pearson Prentice Hall. ISBN 0-13-114556-8 |
| **Competencies gained** *(acc. to the Regulation on training and outcome requirements)* |
| 1. **Knowledge:**  * After the course students acquire detailed knowledge of the biological resources of plant growing, the importance of their role in the cultivation process, as well as animal breeding systems, and the qualifying methods of breeding animals. The acquired knowledge can be applied in practice in a creative way. They know the importance of the biological resources of the food chain and can apply the results of the relevant R & D & I process, the quality of the food production.  1. **Skills:**  * After the course the student is able to creatively design and develop engineering projects, based on theoretical and practical synthesis, in their everyday work. During the food production of crop and animal products, the student is able to detect and assess food safety risks and is able to manage those risks. The student is able to develop new projects.  1. **Attitude:**  * Open, motivated and receptive to innovative processes, understands and practically applies the technologies in plant production, and animal production. The student is committed to quality work. Adopts and applies scientific research and ethical rules and norms applicable to practical production.  1. **Autonomy and responsibility:**  * The student has considerable autonomy in the given field and has a sense of responsibility for producing safe and high-quality food. They feel responsible for the immediate and wider social groups of high-quality food production and he/she is able to make decisions and take responsibilities. |

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| **Responsible lecturer: Prof Dr Peter Pepó, Prof Dr István Komlósi** |
| **Other lecturer(s): Dr Éva Babett Ábrahám, Dr Éva Szabó** |

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| **Terms of course completion:** |
| 1. Completing assignments / exercises 2. Submitting essay 3. Giving presentation |
| **Form of examination:** |
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| **Requirement(s) to get signature:** |
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| **Exam questions:** |
| 1. The importance of production in providing raw materials for food and other areas. 2. The concept and significance of multifunctional crop production; sustainability in crop production. 3. The role of the Hungarian agricultural economy in the national economy. 4. The EU agricultural regulatory system, its role in the Hungarian agricultural economy. 5. The concept and elements of precision crop production and its role in the future. 6. The concept and elements of organic plant production and its role in the future. 7. The three-dimensional system of crop production. 8. The role of the biological bases in crop production, the genotype and the seed. 9. The role of genotype in the growth of the yield. The system of variety classification (performance test, DUS). 10. The importance of biotechnology and GM crops in crop production. 11. Generations of GM plants, advantages and disadvantages of the GM plants, the importance of CRISPR technology. 12. The role of genotype in site- and variety-specific technologies. 13. The determining factors of the winter wheat quality. 14. The determining factors of the sunflower quality. 15. The importance of animalbreeding as food production 16. The concept and significance of the different breeding systems 17. The role of intensive animal farming systems in Hungary and in the world 18. The role of extensive and organic farming systems in Hungary and in the world 19. The role of different genotypes in different farming systems 20. Importance of biotechnology in animal production 21. The determining factors of meat quality. 22. The determining factors of milk quality. 23. The determining factors of egg quality. 24. The determining factors of fish quality. |