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| **Title and Code** of the subject:  **Molecular background of animal product quality , MTMEL7035A** | **ECTS Credit Points: 3** |
| **Type** of the subject: optional | |
| **Ratio of theory and practice: 100/0** (credit%) | |
| **Type and number of classes per semester**: 14 hour(s) lecture and 0 hour(s) practice per **semester**  Number of teaching hours / week : 1+0 (lecture and practice) | |
| **Type of exam**: exam | |
| **Subject in the curriculum:** semester 3 | |
| Preliminary requirements:- | |

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| **Summary of content - theory**: |
| Course objectives: The main part of the lecture describes the molecular markers responsible for product quality expected by consumers. The effect of different markers on food quality parameters will be discussed. Research studies will be used to show the different effects of genetic markers, genes and SNPs. Students completing the course will have a wide knowledge on the significance of genetic markers responsible for animal product traits and characteristics.  1. Animal breeding and species specialty, animal production  2. Breed means a certain set of quality parameters  3. Meat quality  4. Genetic background of carcass traits  5. Genetic markers of meat tenderness, pH and colour  6. Markers of meat technological quality and organoleptic traits  7. Candidate DNA regions of marbling, carcass fat, fatty acid composition of animal product  8. Genetic markers responsible for milk quality I.  9. Genetic markers determining the quality of wool and egg |
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| **Literature, handbooks in English** |
| 1. Marinus F. W. te Pas et al. (2004): MuscleDevelopment of LivestockAnimals: Physiology, Genetics and MeatQuality. CABI. 1-432. 2. Nollet L. M. L., Toldra F. (2006): Advanced Technologies forMeatProcessing. CRC Press. 1-483. 3. Womack J. (2012): BovineGenomics. Wiley-Blackwell. 1-284. |
| **Competencies gained** *(acc. to the Regulation on training and outcome requirements)* |
| 1. **Knowledge:**   Knows the instruments, machines and methods used for food production control in details.   1. **Skills:**   Knows the instruments, machines and methods used for food production control in details.   1. **Attitude:**   Open and motivated for the practical application of the state of the art and innovative processes, open for paradigm change in food science and food technology.  Recognises the values in the field of food safety and quality, open for the application of methods and tools that can be used for effective solutions.   1. **Autonomy and responsibility:**   Feels responsibility for food quality and safety of produced products with his/her contribution. |

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| **Responsible lecturer: Levente Czegledi PhD, Associate Professor** |
| **Other lecturer(s): Gabriella Gulyas PhD, postdoc** |

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| **Terms of course completion:** |
| 1. attending lectures 2. exam |
| **Form of examination:** |
| oral |
| **Requirement(s) to get signature:** |
| Attendance at lectures is recommended, but not compulsory. |

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| **Exam questions:** |
| 1. Animal breeding and species specialty 2. Characteristics of animal production 3. Breeds and product quality 4. Meat quality parameters 5. Molecular background of carcass traits 6. Genetics behind meat tenderness 7. Genetics behind meat pH 8. Genetics behind meat colour 9. DNA markers of meat technological quality and organoleptic traits 10. Candidate DNA regions of marbling 11. Candidate DNA regions of carcass fat 12. Candidate DNA regions of meat fatty acid profile 13. Genetic markers of milk quality 14. Genetic markers of egg quality 15. Genetic markers of wool quality |