| General information | |
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| Academic subject | **_Sustainable animal husbandry and precision livestock farming_** |
| Degree course | Animal Science |
| Academic Year | 2021/2022 |
| European Credit Transfer and Accumulation System (ECTS) | 3 |
| Language | Italian |
| Academic calendar (starting and ending date) | II semester |
| Attendance | Mandatory |

| Professor/ Lecturer | |
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| Name and Surname | Andrea Bragaglio |
| E-mail | andrea.bragaglio@uniba.it |
| Telephone | 080 467 9915 |
| Department and address | Veterinary Medicine Campus – Valenzano (BA) |
| Virtual headquarters | Teams platform |
| Tutoring (time and day) | Wednesday 2.00-4.00 pm<br>Thursday 10.00-12.00 |

| Syllabus | |
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| **Learning Objectives** | Understanding of the relationship between livestock systems and the environment, also understood as territory. Identification of the critical issues of livestock systems. Identification and enhancement of agro-zootechnical systems, as sources of ecosystem services. Understanding of the role played by precision livestock farming (PLF) in animal production, in the optimization of productions. |
| **Course prerequisites** | Desirable knowledge of anatomy and physiology of animals. Useful knowledge of nutrition and feeding of farm animals |
| **Contents** | 1. Animal husbandry and food production: distinction between intensive, extensive, pasture-based, conventional and organic systems.<br>2. Animal husbandry as a means of protection or degradation of the territory<br>3. Definition of sustainability and description of the different methods of estimating environmental impact assessment.<br>4. Description of the Life Cycle Assessment (LCA) policy, environmental impact categories and supporting software.<br>5. Hands-on approach to software and classroom demonstrations<br>6. Precision agriculture and precision livestock farming (PLF), main applications.<br>7. Precision livestock farming (PLF) in containing environmental impacts. |
| **Books and bibliography** | Stefanon B., Mele M., Pulina G. Allevamento animale e sostenibilità ambientale. I principi. Franco Angeli Editore, 2018. |
| **Additional materials** | The teaching material also includes articles from national and international scientific journals |

| Work schedule | | | | |
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| Total | Lectures | | Hands on (Laboratory, working groups, seminars, field trips) | Out-of-class study hours/ Self-study hours |
| **Hours** | | | | |

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| 75 | 20 | 25 | | 30 |
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| **ECTS** | | | | |
| 3 | 2 | 1 | | |
| **Teaching strategy** | | Lectures held by the lecturer, for sustainable and precision animal husbandry. The same will take care of holding demonstration exercises on the Life Cycle Assessment method, with the support of the reference software. There will be seminars held by the teacher (for sustainable animal husbandry) or by experts in the field (for precision animal husbandry). In consideration of the directives laid down regarding pandemic events (COVID-19), lectures and exercises may also have remote mode characteristics | | |
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| **Expected learning outcomes** | | Oral test and practical test, carried out at the same time: test to demonstrate that he has acquired the main notions about sustainability, with specific reference to the LCA method, the student must also demonstrate knowledge of the main functions of the reference software. The test will see the student engaged in relating the approach to environmental sustainability with the background related to precision sensors. The student must also demonstrate to have an adequate knowledge of technical-scientific terminology and mastery of language. | | |
| **Knowledge and understanding on:** | | o Intensive, extensive, conventional, biological, niche livestock systems<br>o Systems and relationship with the territory, agricultural and animal production systems<br>o Sustainability of animal production, improved by PLF | | |
| **Applying knowledge and understanding on:** | | o Recognition/assessment of environmental impacts from different species of choice, under different environmental and breeding conditions<br>o Acquired skills about the main categories of environmental impact of reference<br>o LCA skills<br>o Recognition of the different supports of precision farming and PLF | | |
| **Soft skills** | | • *Making informed judgments and choices*<br>  o Student classroom presentation<br>• *Communicating knowledge and understanding*<br>  o Adequate and detailed terminology about "sustainability"<br>  o Adequate and detailed knowledge, including practical knowledge, of the LCA criterion<br>  o Adequate and detailed knowledge about PLF<br>• *Capacities to continue learning*<br>  o The student must acquire autonomy in the study and deepening of the disciplines covered, also thanks to the appropriate use of the network | | |

| **Assessment and feedback** | |
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| Methods of assessment | |
| Evaluation criteria | • *Knowledge and understanding*<br>  o Knowledge of studies related to sustainability and PLF<br>• *Autonomy of judgment*<br>  o Ability to evaluate one's own preparation<br>• *Communicating knowledge and understanding*<br><br>  o Properties of technical-scientific language<br>• *Capacities to continue learning*<br>  o Ability to organize intradisciplinarly and interdisciplinary the concepts |

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| | learned |
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| Criteria for assessment and attribution of the final mark | Depending on the skills and competences demonstrated, the student will be assigned the grade expressed in thirtieths, with the possibility of obtaining praise, "laude", if the same has also demonstrated a small, but significant, added value (originality) to the test. |
| **Additional information** | |
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