Syllabus

Course Description

Course Title	Sustainable Management and Environmental Impact of Livestock Production Systems
Course Code	40451
Course Title Additional	
Scientific-Disciplinary Sector	
Language	German
Degree Course	Bachelor in Food and Enogastronomy Sciences
Other Degree Courses (Loaned)	
Lecturers	dr. Thomas Zanon, Thomas.Zanon@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/42463
Teaching Assistant	
Semester	First semester
Course Year/s	1st
CP	8
Teaching Hours	48
Lab Hours	32
Individual Study Hours	120
Planned Office Hours	24
Contents Summary	Introduction to Livestock Farming and its Environmental Impacts: - Livestock production in Europe (Structures of animal production in mountain areas) - Competition for space and sustainability - Livestock production systems (Calves, dairy cattle and beef cattle, Sows and fattening pigs, Laying hens and fattening poultry, Sheep and goats) - Environmental impacts of livestock: challenges and solutions for envrionmental friendly production systems

	Sustainable Livestock Farming and Breeding Measures for Quality Products: - Domestication of modern livestock species - Basic concepts of animal breeding and its relevance for food quality - Fundamentals of population and molecular genetics (basics, population parameters, breeding value, selection, selection methods, inbreeding, breeding methods) - Organisation of animal breeding incl. breeding programmes and breeding strategies
Course Topics	Introduction to Livestock Farming and its Environmental Impacts: - Livestock production in Europe (Structures of animal production in mountain areas) - Competition for space and sustainability - Livestock production systems (Calves, dairy cattle and beef cattle, Sows and fattening pigs, Laying hens and fattening poultry, Sheep and goats) - Environmental impacts of livestock: challenges and solutions for envrionmental friendly production systems Sustainable Livestock Farming and Breeding Measures for Quality Products: - Domestication of modern livestock species - Basic concepts of animal breeding and its relevance for food quality - Fundamentals of population and molecular genetics (basics, population parameters, breeding value, selection, selection methods, inbreeding, breeding methods) - Organisation of animal breeding incl. breeding programmes and breeding strategies
Keywords	Animal Science, Breeding, Husbandry, Welfare
Recommended Prerequisites	
Propaedeutic Courses	None
Teaching Format	Lectures and exercises
Mandatory Attendance	No
Specific Educational Objectives and Learning Outcomes	Knowledge and understanding: The knowledge and understanding skills mentioned above are

acquired through participation in lectures, practical exercises, seminars, and through guided personal study and individual study as provided by the activated educational activities.

The verification of the achievement of learning outcomes is mainly carried out through exams and any interim tests. The tests may be written and/or oral, and may also consist of reports and oral presentations of projects or seminars.

Ability to apply knowledge and understanding:

Students will be able to practically apply the knowledge they have acquired, developing the ability to solve complex problems in the food and gastronomic sector. Thanks to a wide range of practical activities, such as laboratories, internships, workshops, and seminars, they will be able to use chemical, physical, sensory, and microbiological analysis methods to evaluate the quality and safety of food and production processes.

The educational activities are designed to strengthen the autonomy of judgment and the ability to make decisions in complex contexts, as well as to develop communication skills and the ability to work in multidisciplinary and international teams. At the end of the program, graduates will be able to independently apply their knowledge in professional contexts, promoting innovative and sustainable solutions for the challenges of the agri-food and gastronomic system.

The achievement of the ability to apply knowledge is accomplished through critical reflection on the texts proposed for individual study, stimulated by classroom activities, the study of research and application cases presented by the professors, the performance of practical laboratory exercises, fieldwork, bibliographic research, the completion of individual and/or group projects included in the core and elective courses of the curriculum, as well as during internships and the preparation of the final exam. The assessments, carried out through written and/or oral exams, reports, and exercises, involve the completion of specific tasks in which the student demonstrates mastery of tools, methodologies, and critical autonomy. During internships, the assessment is

conducted through the presentation of a report by the student to the supervising professor.

Making judgements:

Evaluate and critically analyze the quality, safety, and sustainability of production processes and food products, considering scientific, technological, economic, and cultural aspects. Students will be able to make informed decisions based on scientific data and the analysis of production contexts to ensure the excellence of the final product.

Communication skills:

Communicate effectively and appropriately with both technical and non-technical interlocutors, including professionals in the food and gastronomic sector, public and private institutions, and the general public. This includes the ability to adapt the communication style based on the audience, using the specific technical language of the food and gastronomic sector when necessary.
Present and discuss the results of their analyses and research in both written and oral form, using technological and multimedia tools. Graduates will be able to draft technical reports, research papers, and scientific documents, as well as present their results clearly and structured, for example during conferences, seminars, or business meetings.
Actively participate in discussions and group work in multidisciplinary and international contexts, demonstrating active listening, negotiation, and collaboration skills. Practical experiences and internships will provide students with the abilities to work effectively in teams and contribute to solving complex problems in the sector.
Use the three languages of instruction of the course (Italian, German, and English) fluently and confidently, both for written and oral communication. Thanks to the trilingual approach of the Free University of Bozen-Bolzano, graduates will be able to face international work contexts, participate in global networks, and contribute to the development of international cooperation projects to address the challenges of the food and gastronomic sector.

	Learning skills:
	At the end of the degree program, graduates will have developed strong learning skills, essential for successfully continuing academic studies and entering the workforce. In particular, they will be able to: Learn autonomously and continuously, keeping up to date with scientific and technological advancements in the food and gastronomic sector. Graduates will have acquired study methods and research tools that will allow them to independently update their skills, critically interpreting new knowledge. Effectively manage the learning of complex concepts by integrating the various scientific and technical disciplines covered in the degree program, such as chemistry, biology, food technologies, economics, and law. They will be able to identify the most relevant sources, understand and apply new methodologies, and adapt to sector developments. Develop collaborative learning strategies, thanks to the experience gained through group work, internships, and laboratory activities. Graduates will be able to share their knowledge and learn from others, demonstrating adaptability and teamwork skills. Continue their studies independently in Master's degree programs (such as the LM-70 class, Food Science and Technology, currently offered at the same university) or in other related fields, using the skills and methods acquired during the bachelor's degree to tackle new learning challenges, even in high-level academic and professional contexts.
Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	Written
Evaluation Criteria	Reproduction and critical interpretation of the content learned
Required Readings	none
Supplementary Readings	
Further Information	
Sustainable Development Goals (SDGs)	No poverty, Zero hunger, Life on land, Decent work and economic growth, Responsible consumption and production, Quality

	education

Course Module

Course Constituent Title	Introduction to Livestock Farming and its Environmental Impacts
Course Code	40451A
Scientific-Disciplinary Sector	BIO/05
Language	German
Lecturers	dr. Thomas Zanon, Thomas.Zanon@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/42463
Teaching Assistant	
Semester	
CP	3
Responsible Lecturer	
Teaching Hours	18
Lab Hours	12
Individual Study Hours	45
Planned Office Hours	9
Contents Summary	Introduction to Livestock Farming and its Environmental Impacts: - Livestock production in Europe (Structures of animal production in mountain areas) - Competition for space and sustainability - Livestock production systems (Calves, dairy cattle and beef cattle, Sows and fattening pigs, Laying hens and fattening poultry, Sheep and goats) - Environmental impacts of livestock: challenges and solutions for envrionmental friendly production systems
Course Topics	
Teaching Format	Lectures and Excursions
Required Readings	None
Supplementary Readings	

Course Module

Course Constituent Title	Sustainable Livestock Farming and Breeding Measures for Quality Products
Course Code	40451B
Scientific-Disciplinary Sector	AGR/19
Language	German
Lecturers	dr. Thomas Zanon, Thomas.Zanon@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/42463
Teaching Assistant	
Semester	
CP	5
Responsible Lecturer	
Teaching Hours	30
Lab Hours	20
Individual Study Hours	75
Planned Office Hours	15
Contents Summary	Sustainable Livestock Farming and Breeding Measures for Quality Products: - Domestication of modern livestock species - Basic concepts of animal breeding and its relevance for food quality - Fundamentals of population and molecular genetics (basics, population parameters, breeding value, selection, selection methods, inbreeding, breeding methods) - Organisation of animal breeding incl. breeding programmes and breeding strategies
Course Topics	
Teaching Format	lectures, exercises
Required Readings	none
Supplementary Readings	