

Syllabus

Course Description

Course Title	Sustainable Animal Husbandry and Grassland Management
Course Code	40218
Course Title Additional	
Scientific-Disciplinary Sector	NN
Language	German
Degree Course	Bachelor in Sustainable Agriculture and Forestry in Mountain Environments
Other Degree Courses (Loaned)	
Lecturers	<p>Dr. Giovanni Peratoner, Giovanni.Peratoner@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/35053</p> <p>dr. Laura Franziska Flach, LauraFranziska.Flach@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/37248</p> <p>Dott. Mag. Isabella Lorenzini, Isabella.Lorenzini@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/55162</p>
Teaching Assistant	
Semester	First semester
Course Year/s	2
CP	10
Teaching Hours	60
Lab Hours	40
Individual Study Hours	150
Planned Office Hours	30
Contents Summary	<p>Animal Nutrition and Husbandry</p> <p>Legal basics of animal husbandry</p>

	<p>Physiological, ethological, and hygienic basics of animal husbandry</p> <p>Composition of food; feed intake, basics of digestive processes</p> <p>Energy balance and feed evaluation including feed evaluation systems</p> <p>Feeding principles of the most important livestock species in organic and conventional farming: pigs, cattle, sheep, goats, horses, poultry</p> <p>Grassland Farming</p> <p>Plant stand analysis and evaluation</p> <p>Forage quality</p> <p>Fertilisation (focus: organic manures including biogas slurry)</p> <p>Meadow management</p> <p>Forage conservation</p> <p>Management of pastures and Almwirtschaft</p> <p>Seed mixtures, sowing and oversowing, effects of irrigation, maintenance, prevention and control of weeds in conventional and organic farming</p> <p>Forage production on arable land (leys, silage maize)</p>
Course Topics	<p>This course is part of the BSc study program in Agricultural, Food and Mountain Environmental Sciences, teaching basic knowledge and skills on the interrelated subjects of livestock and grassland science. It is divided in two modules. They cover the subject areas of animal husbandry and animal nutrition, as well as the principles of forage production and grassland management. The participant acquires basic subject-specific knowledge and skills and gets insights into topics of current societal interest.</p> <p>The course draws attention to the diversity of livestock and grassland types and the interrelationship between production conditions and production systems, including choice of animal species and breed as well as forage plant species and cultivar. The course develops the basics for understanding why animal and forage production should be coupled with each other for making agricultural production sustainable by creating closed nutrient cycles, choosing locally adapted genotypes, and protecting the soil and thus the climate and water, while at the same time preserving the local economy and cultural heritage.</p> <p>You will train future-oriented system thinking, careful observation, and critical thinking.</p>

Keywords	Animal nutrition, animal husbandry, forage production, grassland management, mountain agriculture
Recommended Prerequisites	Learning contents of the courses Plant and Animal Biology, Fundamentals of Plant Production
Propaedeutic Courses	No
Teaching Format	The course consists of lectures, in which active student participation in the form of discussion is encouraged, and of practical exercises (including excursions and laboratory activities). Preparing a seminar paper as well as presenting and discussing it is an integral part of the module "Grassland Farming".
Mandatory Attendance	No
Specific Educational Objectives and Learning Outcomes	<p>Knowledge and understanding</p> <p>The degree course provides advanced knowledge for the training of professionals capable of carrying out management and coordination activities in mountain and forestry agriculture, as well as effectively preparing students for possible further studies. All these skills will be transmitted to the graduates by means of face-to-face lecturing, technical and practical laboratory exercises, field exercises and educational-scientific excursions. The elaboration of the experimental thesis may be carried out both in the faculty's laboratories and in companies and local authorities.</p> <p>"At the end of their studies, the three-year graduate at Sustainable agriculture and forest management in mountain environment possesses basic knowledge of mathematics, physics, chemistry, statistics, and the biology of plant and animal organisms and microorganisms. The expected learning outcomes can therefore be summarised as:</p> <ul style="list-style-type: none"> an understanding of the fundamental aspects of the biology, physiology and ecology of organisms with particular reference to those of agricultural and forestry interest, including their genetic improvement and relationships with beneficial or pathogenic organisms and micro-organisms; being able to read and understand advanced texts relating to the various aspects characterising the agrarian and agro-forestry environment in mountainous areas; being able to communicate and discuss issues relating to the training course in an appropriate manner in the three languages (Italian, English, German). <p>The knowledge and comprehension skills listed above are achieved</p>

through participation in lectures, practical exercises, seminars, and through guided personal and individual study as envisaged by the training activities offered. Some courses in the syllabus may be offered in a dual mode (lectures face-to-face and in video-recorded form and made available on the university intranet platform). The assessment of the achievement of learning outcomes takes place mainly by means of exams and possible in -progress 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

In addition to acquiring a solid scientific-technological foundation, the ability to tackle new problems, both practical and real, is stimulated, with the aim of enabling the student to acquire a working method. The three-year graduate in sustainable agriculture and forest management in a mountain environment, thanks to a technical-scientific training integrated with economic-managerial subjects, must:

knowing how to operate the farm properly;

know how to transfer the acquired skills related to plant and animal production, crop protection and soil fertility into practice;

knowing how to handle the production of agricultural products;

to know how to set up and manage sustainable

agricultural/forestry systems in mountain environmental contexts, based on knowledge of agricultural production systems and their economic and marketing aspects, considering environmental impact, product quality and consumer health;

The ability to apply knowledge is achieved through critical reflection on the texts proposed for individual study stimulated by classroom activities, the study of research and application cases shown by the lecturers, the performance of practical laboratory and field exercises, bibliographical research, individual and/or group projects as part of the fundamental and optional courses included in the teaching plan, as well as during the internship and preparation for the final examination. The tests carried out by means of written and/or oral examinations, reports and exercises include the performance of specific tasks in which the student demonstrates mastery of tools, methodologies and critical autonomy. In the internship activities, the verification takes place through the presentation of a report by the student to the teacher

	<p>of reference.</p> <p>Making judgements At the end of their studies, graduates possess an awareness and autonomy of judgement that enable them to acquire the necessary information, and to assess its implications in a production, environmental and market context, to implement interventions to improve the quality, efficiency and sustainability of agricultural/forestry production processes. In accordance with the knowledge acquired, the graduate is able to make independent judgments on problems relating to the overall management of the agricultural enterprise and relevant to his or her professional activity. Autonomy of judgement is developed and verified through the exercise activities, the organised seminars, the preparation of papers as part of the teaching, as well as during the internship activity and the activity assigned by the lecturer for the preparation of the final examination.</p> <p>Communication skills The graduate has the ability to use the most modern and effective means of communication to disseminate the research carried out and the analyses relating to the problems of agro-forestry and forest management; he/she is able to deal with the production realities in the agro-forestry sector and to interact with figures from the sector and related sectors. Communication skills are particularly developed during exercises, the organised seminars, as well as during training activities that also involve the preparation of reports and written documents and the oral presentation of the same. Since the course is trilingual, graduates are able to communicate correctly, in written and oral form, in Italian and in two other languages (German and English). In tutorial activities and seminars, students are encouraged to speak publicly in order to improve their ability to describe clearly and comprehensibly any doubts and/or requests for clarification on specific topics. The acquisition and evaluation/verification of the achievement of communication skills are also provided for during the internship and the final report, as well as when writing and discussing the final paper.</p>
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	<p>Learning skills</p> <p>The degree course provides the basic cognitive tools indispensable for the continuous updating of knowledge, also with tools that make use of new communication and information technologies.</p> <p>The graduate is able to apply the developed learning methods and tools to update and deepen the studied contents, also in professional contexts and to undertake further studies.</p>
Specific Educational Objectives and Learning Outcomes (additional info.)	<p>Knowledge and understanding:</p> <ul style="list-style-type: none"> - Knowing the basics of animal breeding, animal husbandry, animal nutrition, forage production, and grassland management. <p>Applying knowledge and understanding:</p> <ul style="list-style-type: none"> - Based on knowledge, able to recognise and elaborate solutions for subject-specific problems in livestock and forage production and environmental management. <p>Evaluation and judgement:</p> <ul style="list-style-type: none"> - Based on existing knowledge, able to analyse and evaluate various husbandry systems and the relevance of the production context for livestock and forage breeding, forage production, and utilisation, whilst considering environmental impacts. - Able to deduce necessary adaptive interventions in case of changing animal and plant production conditions and agricultural and environmental policies. - Possession of skills to evaluate and interpret feed rations and plant stands of meadows and pastures. <p>Communication:</p> <ul style="list-style-type: none"> - Able to take a position in discussions on grassland-livestock systems with specialists and non-specialists. <p>Learning strategies:</p> <ul style="list-style-type: none"> - Able to learn independently and critically assess popular and scientific literature in livestock and grassland science.
Assessment	<p>The exam of the "Animal Nutrition and Husbandry" module consists of a written theoretical examination focusing on the subject-specific competencies acquired during the course.</p> <p>The exam of the "Grassland farming" module consists of:</p>

	<ul style="list-style-type: none"> - the presentation and discussion of the student's seminar paper; - an oral theoretical examination, focusing on the subject-specific competencies acquired during the course and on the ability to relate and integrate different topics.
Evaluation Criteria	<p>The written examination accounts for 100% of the grade for the "Animal Nutrition and Husbandry" course and contributes 50% to the overall grade for "Sustainable Animal Husbandry and Grassland Farming".</p> <p>The seminar paper accounts for 25% of the grade for the course "Grassland Farming", while the written examination accounts for 75%. The points achieved in the Grassland Farming examination contribute 50% to the overall grade for "Sustainable Animal Husbandry and Grassland Farming".</p>
Required Readings	<p>Lecture materials and presentation slides will be provided via Microsoft Teams.</p>
Supplementary Readings	<p>Tierproduktion. Jürgen Wolfgang Weiß, Wilhelm Pabst, Susanne Granz, 14/2011. ISBN 978-3-8304-1122-20, Enke Verlag</p> <p>Nutztierhaltung und -hygiene. Grundwissen Bachelor. Steffen Hoy, Matthias Gauly, Joachim Krieter, 2014. ISBN 978-3-8252-2801-9, UTB.</p> <p>Landwirtschaftliche Tierhaltung. 2016. ISBN 978-3835416239, VELA</p> <p>Tierzucht. Alfons Willam, Henner Simianer, 2011. ISBN 978-3-8252-3526-0, UTB.</p> <p>Tierernährung. Leitfaden für Studium, Beratung und Praxis. Manfred Kirchgeßner, 13/2011. ISBN 978-3-7690-0803-6, DLG-Verlag.</p> <p>Dietl, W.; Lehmann, J.; Jorquera, M. (1998): Wiesengräser. Zollikofen: Landwirtschaftliche Lehrmittelzentrale.</p> <p>Buchgraber, K.; Gindl, G. (2004): Zeitgemäße Grünlandbewirtschaftung. Graz, Stuttgart: Leopold Stocker Verlag.</p> <p>Steinwidder, A.; Starz, W. (2015): Gras dich fit! Graz: Leopold Stocker Verlag.</p> <p>Additional scientific literature (also in English) related to the various topics covered and discussed during the lectures.</p>
Further Information	

Sustainable Development Goals (SDGs)	Zero hunger, Quality education, Gender equality, Clean water and sanitation, Partnerships for the goals, Industry, innovation and infrastructure, Responsible consumption and production, Climate action, Life on land, Decent work and economic growth
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Course Module

Course Constituent Title	Animal Nutrition and Husbandry
Course Code	40218A
Scientific-Disciplinary Sector	AGRI-09/C
Language	German
Lecturers	dr. Laura Franziska Flach, LauraFranziska.Flach@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/37248 Dott. Mag. Isabella Lorenzini, Isabella.Lorenzini@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/55162
Teaching Assistant	
Semester	First semester
CP	5
Responsible Lecturer	
Teaching Hours	30
Lab Hours	20
Individual Study Hours	75
Planned Office Hours	15
Contents Summary	Legal basics of animal husbandry Physiological, ethological, and hygienic basics of animal husbandry Composition of food; feed intake, basics of digestive processes Energy balance and feed evaluation including feed evaluation systems Feeding principles of the most important livestock species in organic and conventional farming: pigs, cattle, sheep, goats, horses, poultry
Course Topics	
Teaching Format	The "Animal Nutrition and Husbandry" course consists of lectures,

	in which active student participation in the form of discussion is encouraged, and of excursions.
Required Readings	Lecture materials and presentation slides will be provided.
Supplementary Readings	<p>Tierproduktion. Jürgen Wolfgang Weiß, Wilhelm Pabst, Susanne Granz, 14/2011. ISBN 978-3-8304-1122-20, Enke Verlag</p> <p>Nutztierhaltung und -hygiene. Grundwissen Bachelor. Steffen Hoy, Matthias Gauly, Joachim Krieter, 2014. ISBN 978-3-8252-2801-9, UTB.</p> <p>Landwirtschaftliche Tierhaltung. 2016. ISBN 978-3835416239, VELA</p> <p>Tierzucht. Alfons Willam, Henner Simianer, 2011. ISBN 978-3-8252-3526-0, UTB.</p> <p>Tierernährung. Leitfaden für Studium, Beratung und Praxis. Manfred Kirchgeßner, 13/2011. ISBN 978-3-7690-0803-6, DLG-Verlag.</p>

Course Module

Course Constituent Title	Grassland Farming
Course Code	40218B
Scientific-Disciplinary Sector	AGRI-02/A
Language	German
Lecturers	Dr. Giovanni Peratoner, Giovanni.Peratoner@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/35053
Teaching Assistant	
Semester	First semester
CP	5
Responsible Lecturer	
Teaching Hours	30
Lab Hours	20
Individual Study Hours	75
Planned Office Hours	15

Contents Summary	<p>Plant stand analysis and evaluation</p> <p>Forage quality</p> <p>Fertilisation (focus: organic manures including biogas slurry)</p> <p>Meadow management</p> <p>Forage conservation</p> <p>Management of pastures and Almwirtschaft</p> <p>Seed mixtures, sowing and oversowing, effects of irrigation, maintenance, prevention and control of weeds in conventional and organic farming</p> <p>Forage production on arable land (leys, silage maize)</p>
Course Topics	
Teaching Format	<p>The course consists of lectures, in which active student participation in the form of discussion is encouraged, and of practical exercises (including excursions and laboratory activities). Preparing a seminar paper as well as presenting and discussing it is an integral part of the course.</p>
Required Readings	<p>Lecture materials and presentation slides will be provided via Microsoft Teams.</p>
Supplementary Readings	<p>Dietl, W.; Lehmann, J.; Jorquera, M. (1998): Wiesengräser. Zollikofen: Landwirtschaftliche Lehrmittelzentrale.</p> <p>Buchgraber, K.; Gindl, G. (2004): Zeitgemäße Grünlandbewirtschaftung. Graz, Stuttgart: Leopold Stocker Verlag.</p> <p>Steinwider, A.; Starz, W. (2015): Gras dich fit! Graz: Leopold Stocker Verlag.</p> <p>Additional scientific literature (also in English) related to the various topics covered and discussed during the lectures.</p>