

Syllabus

Course description

Course title	Insects as pests, feed and food
Course code	44724
Scientific sector	AGR/11
Degree	Food Sciences for Innovation and Authenticity
Semester	I
Year	Free-choice
Academic year	2022/23
Credits	3
Modular	No

Total lecturing hours	18
Total exercise hours	12
Attendance	Recommended
Prerequisites	
Course page	

Specific educational objectives	<p>Insects are the most successful and diverse animals in the world. They are an important factor in food production: On one hand insects constitute important pests in production and storage of food, on the other hand they represent an increasingly important food source for animals and humans. The aim of the course is to provide a fundamental background of the function and role of insects in food production.</p> <p>After successful completion of the course, students will be able to recognize and diagnose the most harmful agricultural and storage pests and understand the most common monitoring and control techniques. Moreover, students will know essentials about insects as alternative protein sources for livestock and the role of insects representing a novel protein source for animal feed and human consumption.</p>
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Lecturer	Hannes Schuler, K-0.09 email: hannes.schuler@unibz.it
Scientific sector of the lecturer	AGR/11
Teaching language	English
Office hours	Before and after the lecture and after appointment by mail
Office hours	9
List of topics covered	The lecture will focus on four different aspects: 1) Insects as pests of primary production

	<ol style="list-style-type: none"> 2) Insects as pests of stored products: <ul style="list-style-type: none"> -In the warehouse -At home 3) Insects for animal and livestock consumption 4) Insects for human consumption <ul style="list-style-type: none"> -Insect derived food -Insects as food <p>The first part of the course will focus on the theoretical introduction of insects which can cause damage to agricultural and stored products, their biology and their impact on wheat, fruits and vegetables. Moreover, we will discuss how to detect, diagnose and control pest insects in the field, warehouse and pantry.</p> <p>The second part of the course will cover aspects of insects in human and livestock consumption. This includes basic knowledge on the structure of insects and their nutritional values as well as a comprehensive discussion on the potential of edible insects as future sources for food and feed.</p> <p>The theoretical lectures are complemented by laboratory sessions where students will perform experiments with the most important storage pests and edible insects.</p>
Teaching format	Frontal lectures, exercises, projects

Learning outcomes	<p>Knowledge and understanding: The course will be an introduction to pest insects and edible insects. After successful completion of the course students know the most important storage pests and how to diagnose them. Moreover, they will have a basic knowledge about edible insects, their nutrition and the potential use as an alternative source for human consumption and livestock feed.</p> <p>Applying knowledge and understanding: Students will be able to identify the most important insect pests in the storage and grasp the broadly applicable use of insects as alternative protein resource.</p> <p>Making judgements: Students will be able to diagnose the most common insect pests and their damage. They also will be able to identify the most important edible insect species.</p> <p>Communication skills: Students will improve their communication skills during discussions in class and by presenting a scientific topic.</p>
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	<p>Learning skills: The students will learn how to diagnose pest damages and be able to understand the role of edible insects for the future of global food sustainability and security. They will deepen their newly acquired knowledge by giving a short scientific seminar about a topic of their choice.</p>
Assessment	The final assessment is based on a scientific presentation (30%) and an oral exam (70%).
Assessment language	English
Evaluation criteria and criteria for awarding marks	<p>Seminar: Scientific content and presentation performance Oral exam: Clarity of the response, ability to evaluate and summarize the most important aspects and establish relationships between the topics.</p> <p>In order to pass the exam, both components have to be evaluated positively.</p>
Required readings	Handouts and supporting material will be provided by the lecturer.
Supplementary readings	<ul style="list-style-type: none"> • Helmu van Emden Handbook of Agricultural Entomology, ISBN:9781118469347 • David Hagstrum Fundamentals of Stored-Product Entomology. ISBN: 978-1-891127-50-2. • David Hagstrum Atlas of Stored-Product Insects and Mites. ISBN: 978-1-891127-75-5. • Van Huis & Tomberlin Insects as food and feed: from production to consumption. ISBN: 978-90-8686-296-2. • Halloran, Flore et al. Edible insects in Sustainable food systems. ISBN 978-3-319-74011-9. • FAO Edible Insects, Future prospects for food and feed security. ISSN 0258-6150.