

## Syllabus

### Course description

<b>Course title</b>	Insects as pests, feed and food
<b>Course code</b>	44724
<b>Scientific sector</b>	AGR/11
<b>Degree</b>	Food Sciences for Innovation and Authenticity
<b>Semester</b>	I
<b>Year</b>	Free-choice
<b>Academic year</b>	2020/21
<b>Credits</b>	3
<b>Modular</b>	No

<b>Total lecturing hours</b>	18
<b>Total exercise hours</b>	12
<b>Attendance</b>	Recommended
<b>Prerequisites</b>	
<b>Course page</b>	

<b>Specific educational objectives</b>	<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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<b>Lecturer</b>	Hannes Schuler, K-1.05 email: hannes.schuler@unibz.it, Phone:0471 017648; <a href="http://hschuler.people.unibz.it/">http://hschuler.people.unibz.it/</a>
<b>Scientific sector of the lecturer</b>	AGR/11
<b>Teaching language</b>	English
<b>Office hours</b>	Before and after the lecture and after appointment by mail
<b>Office hours</b>	9
<b>List of topics covered</b>	The lecture will focus on four different aspects: 1) Insects as pests of primary production

	<ol style="list-style-type: none"> <li>2) Insects as pests of stored products: <ul style="list-style-type: none"> <li>-In the warehouse</li> <li>-At home</li> </ul> </li> <li>3) Insects for animal and livestock consumption</li> <li>4) Insects for human consumption <ul style="list-style-type: none"> <li>-Insect derived food</li> <li>-Insects as food</li> </ul> </li> </ol> <p>The first part of the course will focus on the theoretical introduction of insects which can cause damage to stored products, their biology, ecology and their impact on stored wheat, fruits and vegetables. Moreover, we will discuss how to detect, diagnose and control pest insects in the 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 of food and feed.</p> <p>The theoretical lectures are complemented by laboratory sessions where students will learn to identify the most important storage pests and edible insects. This will be concluded by a degustation of various edible insect species.</p>
<b>Teaching format</b>	Frontal lectures, exercises, projects

<b>Learning outcomes</b>	<p><b>Knowledge and understanding:</b> 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><b>Applying knowledge and understanding:</b> 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><b>Making judgements:</b> Students will be able to diagnose the most common insect pests and their damage. They also will be able to recognize the most important edible insect species.</p> <p><b>Communication skills:</b></p>
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	<p>Students will improve their communication skills during discussions in class and by presenting a scientific topic.</p> <p><b>Learning skills:</b> 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>
<b>Assessment</b>	The final assessment is based on a scientific presentation (30%) and an oral exam (70%).
<b>Assessment language</b>	English
<b>Evaluation criteria and criteria for awarding marks</b>	<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>
<b>Required readings</b>	Handouts and supporting material will be provided by the lecturer.
<b>Supplementary readings</b>	<ul style="list-style-type: none"> <li>• Van Huis &amp; Tomberlin Insects as food and feed: from production to consumption. ISBN: 978-90-8686-296-2.</li> <li>• Halloran, Flore et al Edible insects in Sustainable food systems. ISBN 978-3-319-74011-9.</li> <li>• David Hagstrum Fundamentals of Stored-Product Entomology ISBN: 978-1-891127-50-2.</li> <li>• David Hagstrum Atlas of Stored-Product Insects and Mites. ISBN: 978-1-891127-75-5.</li> </ul>