## Syllabus

### Course description

<table>
<thead>
<tr>
<th>Course title</th>
<th>Phytopathology and Plant Protection</th>
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</thead>
<tbody>
<tr>
<td>Course code</td>
<td>40176</td>
</tr>
<tr>
<td>Scientific sector</td>
<td>AGR/12 Plant Pathology</td>
</tr>
<tr>
<td>Degree</td>
<td>Bachelor in Agricultural and Agro-Environmental Sciences</td>
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<tr>
<td>Semester</td>
<td>1st</td>
</tr>
<tr>
<td>Year</td>
<td>III</td>
</tr>
<tr>
<td>Academic year</td>
<td>2020/2021</td>
</tr>
<tr>
<td>Credits</td>
<td>8</td>
</tr>
<tr>
<td>Modular</td>
<td>No</td>
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<table>
<thead>
<tr>
<th>Total lecturing hours</th>
<th>32 hrs Phytopathology + 20 hrs Plant Protection</th>
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<tbody>
<tr>
<td>Total lab hours</td>
<td>15 hrs Phytopathology</td>
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<tr>
<td>Total exercise hours</td>
<td>10 hrs Plant Protection</td>
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<tr>
<td>Attendance</td>
<td>Recommended</td>
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<tr>
<td>Prerequisites</td>
<td>Students regularly enrolled in the 3rd year of the Bachelor Study Programme “Agricultural and Agro-Environmental Sciences”</td>
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| Course page           | https://next.unibz.it/de/faculties/sciencetechnology/bachelor-agricultural-agro-environmental-sciences/course-offering/ |

### Specific educational objectives

The course provides fundamental knowledge and skills in the field of phytopathology and plant protection. Students are first introduced into the basic concepts and terminology of plant disease, followed by the abiotic and biotic causes of plant diseases as well as the biology of the major pathogen groups and the etiology of diseases they induce. Further emphasis will be put on the understanding of how phytopathogens interact with their host plants as well as the role of environmental and genetic factors for the development of disease. Students will also acquire theoretical and practical knowledge on different diagnostic techniques for the detection of phytopathogens. Finally, students will be acquainted with basic concepts in epidemiology and different strategies for plant disease management and control. Absolvents of the course should be able to evaluate different methods of disease control and select appropriate disease management options.
<table>
<thead>
<tr>
<th>Part 1</th>
<th>PHYTOPATHOLOGY</th>
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<tbody>
<tr>
<td><strong>Lecturer</strong></td>
<td>Prof. Dr. Sanja Baric, Building K – Room 4.04, Tel. 0471-017 118, <a href="mailto:sanja.baric@unibz.it">sanja.baric@unibz.it</a></td>
</tr>
<tr>
<td><strong>Scientific sector of the lecturer</strong></td>
<td>AGR/12 - PHYTOPATHOLOGY</td>
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<tr>
<td><strong>Teaching language</strong></td>
<td>ENGLISH</td>
</tr>
<tr>
<td><strong>Office hours</strong></td>
<td>According to timetable and by appointment</td>
</tr>
<tr>
<td><strong>Teaching assistant (if any )</strong></td>
<td>Dr. Selena Tomada</td>
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</table>
| **List of topics covered** | The course will cover the following topics:  
1. Concept of disease in plants; types of plant diseases  
2. Economic impact of plant diseases  
3. Parasitism and disease development; stages in the development of disease: disease cycles  
4. Environmental factors that cause plant diseases  
5. Plant pathogenic viruses and viroids  
6. Plant pathogenic prokaryotes: bacteria and mollicutes  
7. Plant pathogenic fungi and fungal-like organisms: Ascomycetes; Basidiomycetes; Oomycetes  
8. Plant pathogenic nematodes and other parasitic organisms  
9. Genetics of plant disease: genetic variability; genetics of virulence in plant pathogens and resistance in host plants  
10. Mechanisms of pathogen attack and defense of plants against pathogens  
11. Environmental effects on the development of infectious plant diseases  
12. Epidemiology of plant diseases and population dynamics of pathogens  
13. Diagnosis techniques for plant pathogens |
| **Teaching format** | This is a lecture-lab course with PowerPoint presentations and interactive elements, such as discussions and descriptive case examples. In the practical part, selected contents covered in the lectures, will be examined in greater depth. Short project papers on a topic of choice will be prepared by the students and presented to the class. |
| **Learning outcomes** | Knowledge and understanding:  
Students will gain fundamental knowledge on the biology of economically important plant pathogens and the etiology of diseases, and understand how plant pathogens and their host plants interact in the environment.  
Applying knowledge and understanding  
Students will be able to recognise and identify disease symptoms and signs, and formulate hypotheses about the causes of diseases. |
Making judgements
Students will gain the ability to make informed judgments about the appropriate diagnostic technique and develop a strategy for disease control.

Communication skills
Students will improve their writing abilities by preparing a short project paper. Communication and presentation skills will be enhanced during interactive classes and student presentations.

Learning skills
Students will learn to retrieve scientific literature and to autonomously extend the knowledge acquired during the course by reading and compiling technical and scientific documents.

Part 2
PLANT PROTECTION

Lecturer
Prof. Dr. Sanja Baric, Building K – Room 4.04, Tel. 0471-017 118, sanja.baric@unibz.it

Scientific sector of the lecturer
AGR/12 - PHYTOPATHOLOGY

Teaching language
ENGLISH

Office hours
According to timetable and by appointment

Teaching assistant (if any)
Dr. Walther Waldner

Office hours

List of topics covered
1. Historical development of plant protection
2. Basic concepts of the control of plant diseases; quarantines and inspections
3. Physical control of pests and plant diseases
4. Biological control of pests and plant diseases
5. Biotechnological control of pests and plant diseases
6. Control of pests and plant diseases by chemical substances; methods of application; types of chemicals and mechanisms of action; legislative regulations
7. Integrated control of pests and plant diseases

Teaching format
This is a lecture-lab course with PowerPoint presentations and interactive elements, such as discussions and descriptive case examples. In the practical part, selected contents covered in the lectures, will be examined in greater depth.

Learning outcomes
Knowledge and Understanding
The students will know and understand fundamental terms, concepts and strategies for the control of pests and plant diseases, as well as the legislative regulations.
### Making judgements
The students will have the ability to evaluate critically the advantages and disadvantages of various plant protection strategies.

### Communication skills
Students will improve their communication skills during discussions in the lectures and exercises.

### Learning skills
The students will learn where to find sources about the causes of diseases and pest damage, antagonists, maximum residue levels, approved active ingredients and pesticides and how to use them.

| **Assessment** | The assessment consists of two parts:  
• Written exam with review questions (70%);  
• Project work consisting of written lab reports, in which the results of the experiments are interpreted, and a presentation on a given topic elaborated, all performed in groups (30%) |
| **Assessment language** | English |
| **Evaluation criteria and criteria for awarding marks** | The final mark is the weighted average between the two parts (70% written exam; 30% project work).  
Criteria for the evaluation of the written exam: correctness and clarity of answers; ability to summarize, evaluate, and establish relationships between topics.  
Criteria for the evaluation of the project work: correctness of the contents, ability to summarise in own words, quality and clarity of presentation, and the ability to establish a context with other related topics. |
Power Point presentations will be made available in the
<table>
<thead>
<tr>
<th><strong>Supplementary readings</strong></th>
<th>Additional material will be provided by the lecturer.</th>
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<tbody>
<tr>
<td>Reserve Collection database of the University.</td>
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