## **Integrated Vineyard Protection**

## Proff. Tito Caffi

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

Public concern about health and environmental risks associated with the application of pesticides has been an issue for many years. In order to address this concern, the EU is promoting the use of effective, alternative and sustainable pest control methods with a particular emphasis about Integrated Pest Management (IPM) that is now mandatory in all European agricultural system. The grape-growing sector does not make an exception.

**Knowledge and analysis ability**

The primary goal of the course is to provide the future Bachelor graduates with the skills, knowledge and capacities to maintain and improve vineyard’s and grapevine production’s quality, sustainability and market performance.

**Know-how and its application**

The students will be provided with the knowledge for managing the main grapevine diseases, learning the basis of their diagnosis, acquiring the skills for understanding, developing and applying an integrated and sustainable vineyard protection strategy. At the end of the course, the students will be able to know and understand the major biotics and abiotics causes of disease for grapevine production.

**Autonomy in self-assessment**

The students are expected to understand how to apply specific knowledge and also general concept about crop protection in order to select and properly justify the most adapt intervention requested by the specific conditions of the vineyard environment.

**Communications skills**

They will also be able to appropriately communicate with the scientific and technical language in order to describe and transfer both in oral and written form the acquired concepts.

**Learning capacities**

Regardless of previous background, at the end of the course the students will have to hold learning capacities suitable to either lead them to higher study courses or to successfully tackle a job appointment.

***COURSE CONTENT***

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|  | ECTSCREDITS |
| Definition of disease management in the vineyard, with the classification of key diseases (endemic and epidemic) and occasional diseases, will be faced. Integrated disease management will be deeply analysed according to the main principles of IPM with particular emphasis on disease forecasting, monitoring and application of management practices (from non-chemical to bio-control agents and fungicides application).  | 2 |
| A detailed description of the key diseases (downy and powdery mildews, grey mould, esca disease, black rot, yellows and main viruses) will be provided with symptoms, biology, diagnosis, life cycle, epidemiology and losses. | 2 |
| Basic knowledge will be provided about fungicides, their physical mode of action, application methods and anti-resistance strategies. Natural products and biocontrol agents will be also considered.  | 1 |
| PRACTICAL CLASSES/TUTORIALS. Lab and field activities regarding disease monitoring. A personal project about IPM application and its sustainability evaluation will be organized and evaluated by the Teaching Assistant. | 1 |
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***READING LIST***

Compendium of Grape Diseases, Disorders, and Pests, 2nd Edition. 2016, Wayne F. Wilcox, Walter D. Gubler and Jerry K. Uyemoto, ISBN : 978-0-89054-481-5, DOI: 10.1094/9780890544815, pp 232

Additional reading materials will be provided during the course via Blackboard.

***TEACHING METHOD***

The teaching method is be composed by the following aspects:

1. Lectures, provided by the Instructor in indoor class;
2. Case studies, working groups and interactive exercises, provided during classes in order to follow the students learning process;
3. Working groups and experiential teaching in the field, provided by the Teaching Assistant and concerning sustainable vineyard management.

***ASSESSMENT METHOD AND CRITERIA***

Written exam. It will be delivered at the end of the course and/or on official exam dates. The students will have 45 minutes to answer 30 questions (different type of questions: multiple choice, put in the right order, link concepts, ect.) plus one open question (minimum and maximum number of words). Scores will be provided on a scale of 30/30 (“cum laude” for really praiseworthy students).

#### *NOTES AND PREREQUISITES*

Lesson frequency is not mandatory, but strongly encouraged. There are no pre-requisites for the course, but a basic preparation in Plant pathology and Entomology is assumed to be a common students’ background. Students must register via Blackboard to the course and check it regularly for further information or updates. The teaching material will be provided only via Blackboard (just before classes).

The Instructor will meet students after classes at the Department of Sustainable Crop Production (3rd floor, room 275), upon arrangement by email.