# . - Technology for Food Safety

## Proff. Pier Sandro Cocconcelli-Tito Caffi

**Principles of Food Protection**

Prof. Tito Caffi

### **Course Aims AND INTENDED LEARNING OUTCOMES**

The protection of the “green resources” is considered one of the pillars of food safety from the EU. In order to reach this goal, 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.

**Knowledge and analysis ability**

The primary goal of the course is to provide the students with a general understanding of the implications of certain plant-protection issues on the management of crops and agri-food products at the farm and supply-chain level, within the national and international regulatory context.

**Know-how and its application**

The students will be provided with the knowledge for understanding, developing and applying the IPM principles in agri-food production chain. At the end of the course students are supposed to know the main classification of diseases and disorders and to be able to communicate with a proper technical language and terminology.

**Autonomy in self-assessment**

The students are expected to understand how to apply specific knowledge and also general concept about IPM in order to select and properly justify the most adapt management strategies.

**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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|  | ECTS |
| Definition of disease, classification of diseases, damage caused by diseases, primary (direct and indirect) and secondary damage. Crop protection. Plant protection products and problems related to their use. | 1 |
| Principles of crop protection in conventional, integrated and organic farming systems. Evolution of integrated crop protection towards sustainable agriculture.  Methods for integrated production and integrated farming. The sustainable use of plant protection products in the current Italian and European regulatory framework. | 1 |
| Harmful organisms of relevance from a plant protection perspective. The international regulatory framework under the IPPC (International Plant Protection Convention). Analysis of risks arising from the introduction of harmful organisms (Pest Risk Analysis) and the attendant plant protection regulations. Role of national plant protection organisations, of the EPPO (European Plant Protection Organisation) and of the EFSA (European Food Safety Agency). Illustration of some case studies. | 1 |
| PRACTICAL CLASSES/TUTORIALS. Food protection and food safety: working groups and role playing on IPM concepts, approaches and communication will be settled up. | 2 |

***Reading list***

There is no course textbook; a reading list and supplementary materials will be supplied during the course.

***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 on field, provided by the Teaching Assistant.

***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).

Personal and group assignments could be proposed during the course and they will be evaluated by the Instructor and the Teaching Assistant and they will be use to round the final scores of the exam.

***NOTES AND PREREQUISITES***

Lesson frequency is not mandatory, but strongly encouraged. 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).

In case the current Covid-19 health emergency does not allow frontal teaching, remote teaching will be carried out through synchronous or asynchronous procedures that will be promptly notified to students.

***OFFICE HOURS FOR STUDENTS***

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

# Principles of Food Hygiene

## Prof. Pier Sandro Cocconcelli

### **Course Aims AND INTENDED LEARNING OUTCOMES**

The objectives of the course are: (i) to illustrated the European and international approaches to food risk analysis, (ii) to provide the basic and technical knowledge on food hygiene and (iii) to address safety and quality management and their impact on agro-food enterprises.

The students are expected, at the end of the course, to have acquired basic knowledge on the impact of food safety management on the enterprises of the agro-food sector, at national and global level. Moreover, and students are supposed to possess the relevant information on how to interact with major food safety and hygiene stakeholders and with technical personnel responsible for food safety and hygiene.

### **Course Content**

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| --- | --- |
|  | ECTS |
| The Food Safety concept. The European risk analysis approach: risk assessment and risk management. The steps of risk assessment. The risk management in the food chains: the concept of ALARA, and ALOP. The RASFF (*Rapid Alert System for Food and Feed*) Biological and chemical hazards. Food born infections and intoxication. The EFSA Report on zooneses and outbreaks. The burden of foodborne diseases in developed and developing countries. | 1 |
| Basic of food processing hygiene criteria: the Good Manufacturing and Hygiene Practices (GMP-GHP). The HACCP: concept and application. The international standards and the Codex Alimentarius. Examples of HACCP plans. The Food Safety Management Systems. PRP, oPRP and CCP. | 1 |
| Vulnerability and Threats Assessments (VACCP anf TACCP). The HARPC approach in USA. The Food Safety Modernisation Act in the USA. | 0.5 |
| Information to consumers, the food labelling. Health and nutritional claims made on food. GMO foods: the safety assessment and the impact on labelling.  Certification in food processing: the most important certification schemes for food safety, traceability and organic products. | 1 |
| The state of food security and nutrion. Food Loss and wastes index. Direct and indirect drivers of FWL. | 0.5 |
| PRACTICAL CLASSES/TUTORIALS. The Rapid Alert System for Food and Feed. Case studies on the topics addressed during the lectures will be addressed. | 1 |

***READING LIST***

The bibliographic material, web sites, E-books and pdf documents on food hygiene will be provided during the course and uploaded on Blackboard.

***TEACHING METHOD***

The course will consist of lectures presenting the theoretical and conceptual aspects of the subject, coupled with case studies and simulation games.

***ASSESSMENT METHOD AND CRITERIA***

The assessment is based on cases study discussions and on an oral examination. The active participation at the case studies and the quality of the final report is assessed. Oral examination evaluates the knowledge of food hygiene and critical reasoning. The final result also takes into account the reports of the practical activities, case studies and simulation games, documenting the work done.

***NOTES AND PREREQUISITES***

In case the current Covid-19 health emergency does not allow frontal teaching, remote teaching will be carried out through synchronous or asynchronous procedures that will be promptly notified to students.

***OFFICE HOURS FOR STUDENTS***

Professor Pier Sandro Cocconcelli is available to meet with students after class at C.R.B or mail by at pier.cocconcelli@unicatt.it.