Code: 1569 **Grapevine Protection**
Degree: 2nd cycle – Viticulture and Oenology
Curricular Year: 1st **Semester Course: 2nd**
Credits: 6 ECTS **Compulsory**
Language: Portuguese/English
Responsible: António Maria Marques Mexia
Other lecturer(s): Maria Helena Mendes da Costa Ferreira Correia de Oliveira, Maria José Antão Pais de Almeida Cerejeira and Ana Maria da Silva Monteiro
Web Site: http://www.isa.utl.pt/home/node/3907

1. **Contact hours:**
Lecture/Practicals 70 **Others** 14 **Total** 84

2. **Objectives:**

The course intends to provide strong skills on the management of the agro-ecosystem vineyard, by minimizing the impacts of the major crop pests (pathogens, pests and weeds), increasing biodiversity, and reducing the risks associated with the pesticide use on human , animal health and environment, promoting both the ecological quality of the agro-ecosystem vineyard and the crop economical return and sustainability.

3. **Programme:**

1. Introduction vineyards' agroecosystem characterisation

2. Main pest problems and their strategies
2.1 Fungi, bacteria, phytoplasms, virus and nematodes
2.2 Arthropods
2.3 Weeds

3. Interaction between pests – hosts and the environment
3.1 Diseases, their symptoms, disease cycles and host response
3.2 pest status, damages.losses, and life cycles
3.3 weed biology

4 Integrated pest management
4.1 risk assessment
4.2 economic thresholds / decision making
4.3 Selection of control measures
4.3.1 cultural, biological, chemical
4.3.2 pesticides (general characteristics, formulations, toxicology, ecotoxicology, persistance, residues

5 Grapevine diseases
5.1 downy mildew
5.2 powdery mildew
5.3 Grey mold / bunch rots
5.4 Trunk diseases / Grapevine declines
5.5 Root rots
5.6 Bacteria and phytoplams diseases
5.7 Virus diseases

6 Pests and beneficial arthropods
6.1 Berry moth
6.2 Leafhoppers
6.3 spidermites
6.4 Major beneficial

7. Gravepine IPM (case studies)
(project/seminar to be presented by the students)

4. Bibliography:

Main Bibliography

Amaro, P. 2003. A protecção integrada. ISAPress, Lisboa, 446 pp.

Amaro, P. (ed.). 2004. Manual técnico de protecção integrada da vinha na região Norte. ISAPress, Lisboa, 148 pp.

Bailly, R. (ed.). 1980. Guide pratique de défense des cultures. ACTA, Paris, 420 pp..

Cavaco, M., Calouro, F. & Clímaco, P. (coord.) 2005. Produção integrada da cultura da vinha. DGPC, Oeiras, 146 pp.

Galet, P. 1995. Précis de pathologie viticole. Montpellier, 264 pp.

Moreira, I., Vasconcelos, T., Caixinhas, L. & Espríto-Santo, D. 2000. Ervas daninhas das vinhas e pomares. DGPC, Oeiras, 209 pp.

Rodrigues, J.R.2005. Os ácaros fitoseídeos na limitação natural do aranhiço-vermelho em fruteiras e vinha. IPVC, Viana do Castelo, 179 pp.

Watson, J. (ed.). 1999. Growing grapes in eastern Washinmgton. Good Fruit Grower, Yakima, Washington, 102 pp.

5. Assessment:

Frequency: presence in 75% of the classes.
Continuous assessment and grading: Lecture exams 50%; project (25%), seminar (20%); active participation in classes (5%).
Final Exam: in alternative to continuous assessment (students must have frequency to apply).
Final grade: students with a minimal grade of 10 (in 20) will be approved; it is obligatory to obtain a minimal grade of 10 (in 20) in the Lecture exams.

6. Estimated Workload:	168	Hours
7. Last Update:	15/7/2010	