Code: - COURSE NAME Plant Pathology
Degree: 'Master in Agricultural Engineering Curricular Year: 1º (Stream:)
Annual Course [ ] Semester Course: 1st [ ] 2nd [X] Trimester Course: 1st [ ] 2nd [ ] 3rd [ ]
Credits: 6.0 ECTS Level: Compulsory [ ] Optional [X]
Language: Portuguese/English
Prerequisites:
Lecturer(s): Helena Oliveira, Arlindo Lima
Web Site: http://www.isa.utl.pt/home/node/2167

1. Contact hours:

Lectures	Praticals	Lecture/Practicals 70	Laboratory	Others 14	Total 84

2. Objectives:

The course aims to provide students with theoretical knowledge, and practical/laboratorial expertise on the following subjects: i) disease causing agents, their characteristics and variation; ii) genetic and molecular basis of plant-pathogen interactions; and iii) plant disease epidemiology. It is also intended to provide students with skills to develop an integrative perspective on specific issues of Plant Pathology.

3. Programme:

The course consists of different theoretical and practical elements on the following topics:

I. Morphology and biology of plant pathogens (pseudofungi, fungi, bacteria, phytoplasmas, virus and nematodes). Mechanisms of variability. Classical and molecular techniques used for the characterization and analysis of variation of pathogens.

II. Plant-Pathogen Interactions:
- Genetics of virulence in pathogens and of resistance in host plants. The gene-for-gene concept. Pathogenicity and avirulence (*avr*) genes. Resistance (R) genes of plants.
- Host defense mechanisms. Preexisting and induced defenses. R genes and host recognition, signal transduction pathways. Hypersensitive response (HR). Systemic acquired resistance (SAR).

III. Plant disease epidemiology
Measurement of plant disease. Modeling disease progression. Forecasting diease epidemics. Case-studies.

4. Bibliography:

Main Bibliography

Agrios G. 2005. *Plant Pathology*. 5th Ed., Elsevier, Academic Press, San Diego.
Trigiano, R. N., Windham, M.T. and Windham, A.S.(Eds). 2007. *Plant Pathology: Concepts and Laboratory Exercises*, 2nd Ed, CRC Press LLC, Boca Raton, FL.
Scientific Articles.

Other Bibliography

Francl L. J., Neher D.A. (Eds) 1997. Exercises in Plant Disease Epidemiology. APS Press.
Ronald P. C. 2007. *Plant-Pathogen Interactions. Methods and Protocols*. Humana Press, New Jersey.

5. Assessment:

- Frequency: Participation in at least 85% of classes.
- Continuous assessment:
a) Laboratory reports (10%) b) seminar presented by the student (15%), c) mini-article written by the student (35%), d) individual test on theoretical subjects minimum mark (8.5/20) (40%).
Final grade=10% a + 15% b+ 35% c + 40% d.
As an alternative, students may choose to be evaluated by a written final exam encompassing all subjects, theoretical, practical and seminar (minimum mark 10/20).

6. Estimated Workload: 168 Hours

7. Last Update: 11/2/2013