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Instituto Superior de Agronomia
Universidade Técnica de Lisboa

Course name: Plant Pathology

Cycle/designation: 2nd/ Master in Agronomic Engineering

Year/ Compulsory (Optative): 2nd /Optative[1]

Specialization:.[1]Plant protection....

Semester: uneven

Co-ordinator: Joana Duclos

Other lecturer(s): Arlindo Lima, Ana Paula Ramos, Helena Oliveira

Pre-requisite(s): Biology (1nd cycle)

Teaching Methods: Lectures/Lab classes – 5 hours

Course content Organized in Didactic Units (DUs)	Lasting period (weeks/hours)	Lecturers
DU1– Morphology, biology and variability of pathogens (chromista, fungi, bacteria, phytoplasma and virus) Morphology and life cycle. Physiology and genetics of reproduction. Genetic systems ('mating types') and other mechanisms underlying variability. Study of cases.	4/20	Ana Paula Ramos Arlindo Lima Helena Oliveira Joana Duclos
DU2 – Host-Pathogen interactions 1. Pathogenecity and virulence. Genes involved in pathogenesis and virulence by pathogens. Pathogenicity genes of fungi. Pathogenicity genes in plant pathogenic bacteria (cvir genes, *hrp* genes; *avr* genes…). Pathogenicity genes in plant viruses. Virus (functions associated with the coat protein; viral pathogeniciy genes). 2. Plant defense mechanisms. A revision of the types of plant resistance to pathogens. The gene-for-gene relationship; pathogen avirulence genes (*avr*) and resistance genes (R) in plants. Preexisting structural and chemical defenses. Induced defenses. Nonspecific and specific elicitors. Classes of plant R genes R. The hypersensitive response (HR) resistance and the systemic acquired resistance.	8/40	Ana Paula Ramos Arlindo Lima Helena Oliveira Joana Duclos
DU3 - UD3 – UD3 – Epidemiology Patterns of epidemics. Comparison, development and modeling of plant disease epidemics. Computer simulation. New tools in epidemiology. Examples of plant disease forecast systems. Disease-warning systems	2/10	Arlindo Lima Docente convidado
DU1 + DU2 + DU3	14/70	