

Code: 1690 Plant Physiology**Degree:** 1st cycle - Biology**Curricular Year:** 2nd**Credits:** 8 ECTS**Language:** Portuguese/English**Prerequisites:** Biochemistry**Responsible:** Ricardo Manuel Seixas Boavida Ferreira**Other lecturer(s):** João Manuel Dias dos Santos Pereira, Amarilis Paula Alberti de Varennes e Mendonça, Sara Barros Queiroz Amâncio, Maria da Glória Calado Inglês Esquível, Tiago Santos e Filipe Costa e Silva**Web Site:** <http://www.isa.utl.pt/home/node/3955>**Semester Course:** 2nd
Compulsory**1. Contact hours:****Lectures 42 Practicals/Laboratory 42 Others 28 Total 112****2. Objectives:**

Study of plant functioning. It explains how plants are able to grow from light and inorganic molecules (C, N, P etc), by synthesising organic molecules and building up tissues and organs. It also explains how they reproduce and adapt to the environment.

3. Programme:

Introduction: Plants and the environment.

Water and solutes absorption and transport. Plant water relations. Phloemic translocation – the process and regulation, source-sink relationships.

Photosynthesis: Phytochemical reactions, carbon fixation and metabolism. Noncyclic, cyclic and acyclic photophosphorylation. Rubisco.

C3 plants, C4 plants and CAM plants. Photorespiration.

Export of photoassimilates at the organ and whole plant levels.

Internal and environmental limitations to photosynthesis and growth.

Plant respiration. The glyoxylate cycle. Alternative electron pathways of plant mitochondria.

Energetics of photosynthesis and respiration.

Nitrogen and sulfur metabolism.

Plant development

4. Bibliography:**Main Bibliography**FUNDAMENTOS DE FISILOGIA VEGETAL J. Azcón-Bieto e Manuel Talón (eds.). McGraw-Hill Interamerican. 2000
PLANT PHYSIOLOGY L. Taiz e E. Zeiger. Sinauer Associates, Inc., Publishers. 4th edition. 2006 (or 2002 3rd ed).**Other Bibliography**

Copies of the slides presented during the lectures;

Support texts provided by the lecturers;

Papers to be provided by the lecturers.

5. Assessment:

It is compulsory to attend practicals (minimum attendance 90% of the classes), to present reports from each practical class and to present a seminar (groups of 3 to 4 students) in a topic to be agreed with the Professor. This evaluation will count as 50% for the final mark; the final exam will count as 50%.

6. Estimated Workload:

224	Hours
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7. Last Update:

25/2/2011
