

General Information	
Academic subject	Principles of Plant Physiology (I.C. Principles of plant physiology, genetics and biochemistry)
Degree course	Bachelor programme: Food Science and Technology
ECTS credits	3 ECTS
Compulsory attendance	No
Teaching language	Italian

Subject teacher	Name Surname	Mail address	SSD
	<b>Alessandra Di Franco</b>	<a href="mailto:alessandrarosari.difranco@uniba.it">alessandrarosari.difranco@uniba.it</a>	BIO/04

ECTS credits details	
Basic teaching activities	2 ECTS Lectures    1 ECTS Laboratory classes

Class schedule	
Period	II semester
Course year	First
Type of class	Lecture - workshops

Time management	
Hours	75
In-class study hours	30
Out-of-class study hours	45

Academic calendar	
Class begins	March 1 <sup>st</sup> , 2021
Class ends	June 11 <sup>th</sup> , 2021

Syllabus	
Prerequisites/requirements	general biology.
Expected learning outcomes	<p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Adequate basic knowledge to understand main topics of plant physiology</li> </ul> <p><i>Applying knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Ability to identify and distinguish cause-effect reactions within the various physiological phenomena</li> </ul> <p><i>Making informed judgements and choices</i></p> <ul style="list-style-type: none"> <li>○ Ability to interpret and discuss the outcomes of the different plant physiological responses</li> <li>○ Ability to acquire the necessary information on plant-environment interactions and to evaluate their implications in a productive context</li> </ul> <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Ability to describe in oral and written form and with specific technical language the topics of plant physiology acquired during the course</li> </ul> <p><i>Capacities to continue learning</i></p> <ul style="list-style-type: none"> <li>○ Ability to update and strength own knowledge on plant physiology with new communication and information technologies</li> </ul> <p>The expected learning outcomes, in terms of both knowledge and skills, are provided in Annex A of the Academic Regulations of the Degree in Food Science and Technology (expressed through the European Descriptors of the qualification)</p>

<p>Contents</p>	<p>Plant cell: general organization, structural and functional traits of cell wall, vacuole, mitochondria and plastids. Specific role of cell membranes in the absorption and movement of water and solutes within plant cells and tissues.</p> <p>Plant histology: general information on the functional characteristics and localization of the different plant tissues; insights on main functional characteristics of xylem and phloem.</p> <p>Plant anatomy: structural anatomical organization of root, stem and leaf.</p> <p>Seed: general information on seed origin and development. Structural organization of the seed. Location and types of stock substances. Factors that regulate germination and seedling development.</p> <p>Water cycle in the plant. Absorption and movement of water and solutes through the root. Radical pressure. Xylem-mediated transport of water and solutes from roots to the shoots. Transpiration. Environmental factors that regulate transpiration. Structure, functionality and regulation of stomata. Phloem-mediated transport of sugars and metabolites from leaves and shoots to roots. Leaf pressure. Plant hormones and plant physiological responses.</p> <p>Phytochrome and photomorphogenesis</p>
<p>Course program</p>	
<p>Reference books</p>	<ul style="list-style-type: none"> <li>• Notes of the lectures distributed during the course</li> <li>• Taiz L. Zeiger E. Plant Physiology. Fourth Edition. Sinauer Associates Inc.</li> </ul> <p>Study schemes:</p> <ul style="list-style-type: none"> <li>• presentations and other teaching material provided during lectures</li> </ul> <p>Additional readings:</p> <ul style="list-style-type: none"> <li>• Neil A. Campbell, Jane B. Reece Biology. Sixth Edition. Pearson Education Inc. publishing as Benjamin Cumming</li> <li>• Mauseth J.D. Plant Anatomy. Benjamin Cummings Publ. Co.Inc. Menlo Park California</li> </ul> <p>For foreign students (LLP-Erasmus, Tempus, etc.):</p> <ul style="list-style-type: none"> <li>• Taiz L. Zeiger E. Plant Physiology. Fourth Edition. Sinauer Associates Inc.</li> </ul>
<p>Notes</p>	
<p>Teaching methods</p>	<p>Topics will be illustrated by means of Power Point presentations, movies and classroom exercises</p> <p>Students may download copies of all presentations and teaching material used for lectures and practical activities</p>

	<p>from the ATutor digital platform available at <a href="http://tempus-it.agrif.bg.ac.rs/login.php">http://tempus-it.agrif.bg.ac.rs/login.php</a>. Through the ATutor digital platform, students can also have access to the evaluation tests to check their progresses in learning and knowledge prior to exams. On the same site, students can benefit of the “Forum” function in order to interact among them and with the teacher.</p>
<p>Evaluation methods</p>	<p>The exam consists of an oral dissertation on the topics developed during the theoretical and theoretical-practical classroom lectures, as reported in the Academic Regulations for the Bachelor Degree in Food Science and Technology (article 9) and in the study plan (Annex A). Students attending at the lectures may have a middle-term preliminary exam, consisting of a written test, relative to the first part of the program, which will concur to the final evaluation and will be considered valid for a year.</p> <p>The evaluation of the preparation of the student occurs on the basis of established criteria, as detailed in Annex B of the Academic Regulations for the Bachelor Degree in Food Science and Technology.</p> <p>Non-Italian students may be examined in English language, according to the aforesaid procedures.</p>
<p>Evaluation criteria</p>	<p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Understand and critically answer questions on main topics of plant physiology and basic plant-environment interactions</li> </ul> <p><i>Applying knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Ability to correctly describe cause-effect relationships in different physiological responses and frame them in a wider contest of metabolic and environmental interactions</li> </ul> <p><i>Making informed judgements and choices</i></p> <ul style="list-style-type: none"> <li>○ Interpret and critically describe the outcomes of plant physiological responses. Demonstrate autonomy in the critical evaluation and interpretation of experimental data and ability of comparison with existing data.</li> </ul> <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>● ○ Communication with appropriate language, correct use of scientific terms and ability to establish links between the different topics in plant physiology covered in the course</li> </ul> <p><i>Capacities to continue learning</i></p> <ul style="list-style-type: none"> <li>● ○ Ability to understand and critically discuss the fundamental aspects of plant physiology. Ability to use current studies and consultation tools for scientific literature in English</li> </ul>
<p>Receiving times</p>	<p>Visiting hours: Monday-Friday 11.30-13.30  Additional information on specific topics may be requested at the following e-mail address: <a href="mailto:alessandrarosari.difranco@uniba.it">alessandrarosari.difranco@uniba.it</a></p>