General Information	
Academic subject	Agricultural biochemistry and plant nutrition
Degree course	Agricultural Sciences and Technologies
Curriculum	GSR
ECTS credits	6 ECTS
Compulsory attendance	No
Language	Italian

Subject teacher	Name Surname	e-mail address	SSD
	Roberto Terzano	roberto.terzano@uniba.it	AGR/13

ECTS credits details			
Basic teaching activities	5 ECTS		

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

Time management	
Hours	150
In-class study hours	54
Out-of-class study hours	96

Academic calendar	
Class begins	5th March, 2018
Class ends	22nd June, 2018

Syllabus	
Prerequisites/requirements	Basic knowledge of general and organic chemistry, plant biology and soil chemistry. Requirements: Chemistry.
Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in A4a, A4b, A4c tables of the SUA-CdS)	*Knowledge and understanding* o Understanding and learning about essential elements and processes at the basis of plant life o Understanding the importance of metabolisms and energy transformations in plants and the environment. o Understanding the role of primary sources (atmosphere, water and soil) for plant nutrition and life. *Applied knowledge and understanding* o Applying the knowledge to the choice of the best cultivation strategies and soil fertilization practices. *Making informed judgements and choices* o Independent understanding and elaboration of complex problems and solutions within issues related to agricultural productions. *Communicating knowledge and understanding* o Communicating skills to appropriately discuss with production technicians and product managers on sound scientific basis as well as with representatives of public and private institutions

	o Ability to coordinate different technical areas in agricultural productions. o Reporting and disseminating knowledge and the results of projects and activities developed independently or within working groups. *Capacities to continue learning* o Independency in acquiring and developing new knowledge and technical skills. o Ability to learn how to face and solve problems related to the profession of agronomist and to develop skills at the basis of agricultural productions and plant protection. o Getting the basic methodological and theoretical skills necessary to continue the formation with master studies in Agricultural and Food Sciences.
Contents	• **Biomolecules:** carbohydrates, aminoacids, proteins, lipids, nucleic acids. • **Enzymes:** classification, principles, kinetics. • **Biological membranes:** composition, structure, properties, transporters. • **Bioenergetics:** high energy molecules, principles and mechanisms of energy fluxes in cells. • **Primary metabolisms:** photosynthesis, respiration. • **Water and water balance in plants:** the importance of water and its transport in soil and plant. • **Mineral nutrition of plants:** essential elements and mechanisms of acquisition and assimilation. • **Translocation of nutrients in xylem and phloem.**
Course program	
Bibliography	• Pinton R., Cocucci M., Nannipieri P., Trevisan M. "Fondamenti di Biochimica Agraria", Pàtron Editore, Ed. 2016 • Taiz L., Zeiger E. "Plant Physiology", Sinauer Associates Inc., U.S.A., Fifth Edition. • D. L. Nelson, M. M. Cox "Introduzione alla biochimica di Lehninger", Zanichelli Editore, 2003.
Notes	
Teaching methods	Lectures will be presented using the blackboard and through Power Point presentations.
Assessment methods (indicate at least the type written, oral, other)	The exam consists of an oral test with questions related to the programme.
Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are.	o Knowledge about essential elements and processes at the basis of plant life o Knowledge of metabolisms and energy transformations in plants and the environment. o Knowledge of the role of primary sources (atmosphere, water and soil) for plant nutrition and life, and of the mechanisms through which plants acquire and assimilate nutrients. o Ability to use the basic knowledge to solve problems related to soil fertility and plant production. o Ability to express acquired knowledge through a sound scientific language.
Further information	Visiting hours: every day on appointment to be defined by e-mail.