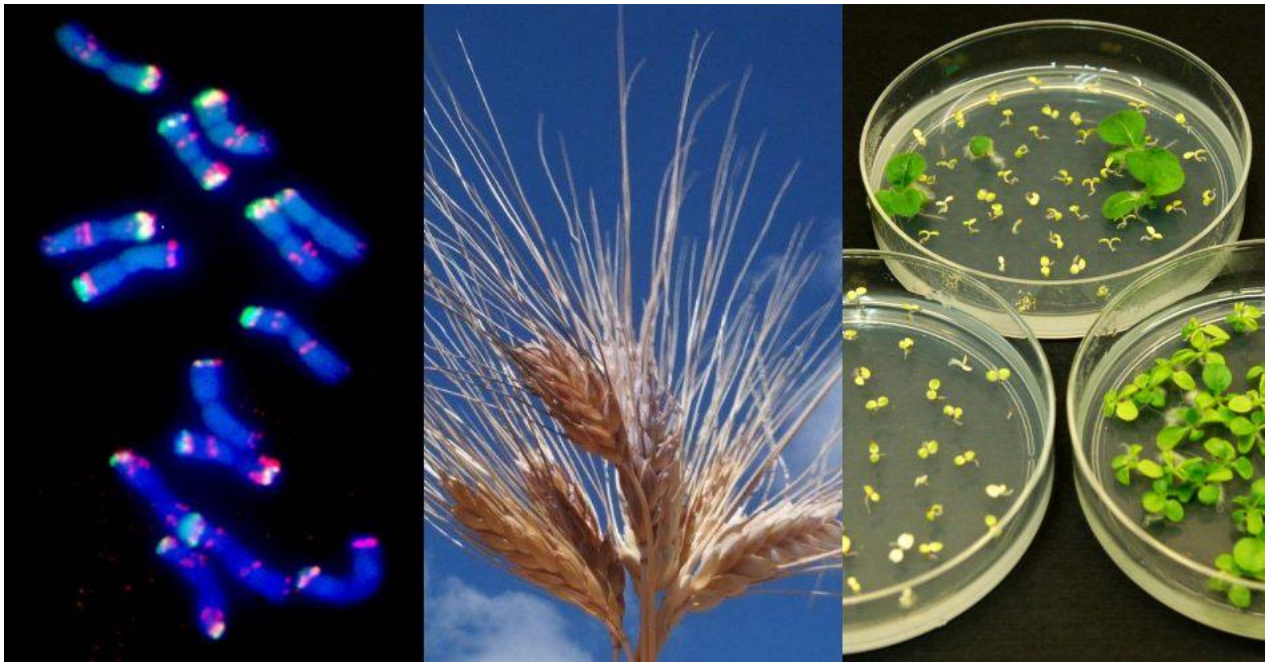
UNIVERSITÀ DEGLI STUDI
DI PERUGIA

A.D. 1308
unipg

DEPARTMENT
OF AGRICULTURAL, FOOD
AND ENVIRONMENTAL SCIENCES

Master of Science degree in
AGRICULTURAL and ENVIRONMENTAL BIOTECHNOLOGY
(AEB)

Duration 2 Years **120 ECTS**



President of the Course Committee

Prof. **Chiaraluce MORETTI**
tel. **+39 075 585 6467**
e-mail **chiaraluce.moretti@unipg.it**

Course quality delegate

Prof. **Gabriele RONDONI**
tel **+39 075 585 6036**
e-mail **gabriele.rondoni@unipg.it**

Objective

This course is offered in English and forms a specialist with a solid, multidisciplinary scientific preparation and professional competence, able to master and use conventional and advanced biotechnologies in project development and technological applications, in the agricultural and environmental sectors.

WEB page: http://dsa3.unipg.it/en/aeb

Study-units and ECTS credits		Learning Outcome
Plant developmental biology	**6**	Graduates will master methodological and scientific aspects of biotechnologies, as well as professional skills, to use conventional and advanced biotechnologies, to develop and implement research projects and technological application with the following objectives: • studying, conserving and using agricultural plant, animal and microbial genetic resources; • characterizing food products for quality control by molecular techniques; • selecting plants, animals and microorganisms to improve yield and quality of agricultural and agro-industrial products, and to obtain products for pharmaceutical, industrial, environmental, medical and veterinary applications; • applying genetic transformation techniques in plants, animals and microorganisms; • managing agro-ecosystems using of genetically characterized plants, animals and microorganisms; • performing risk analysis for the presence of genetically modified organisms (GMO) and derived products in foods, feeds and in the environment, according to a correct application of the precautionary principle; • quality control of seed and nursery plant propagation materials. The study plan includes class lectures, seminars, lab practice, visits, traineeships at research institutions and industry. The student can customize the curriculum with elective activities and Erasmus+ stages. Students have the possibility of obtaining a dual-degree qualification thanks to the agreement signed with MATE University in Gödöllő, Hungary.
Statistic and bioinformatics	**10**	
Biometrical genetics	**12**	
Evolution and plant biodiversity	**6**	
Applied microbiology	**12**	
Advanced breeding	**11**	
Agricultural chemistry	**6**	
Economic aspects of biotechnology	**5**	**Abilities and job profile**
Biotechnologies for plant health	**12**	The graduates will be able to operate with a high level of responsibility, autonomously or in collaboration with other professionals, in research centres, laboratories, seed and nursery industries, educational institutions (schools, universities) in the following fields: • environmental protection and conservation of valuable areas or recovery of degraded areas; • research for the production of substances of agricultural, industrial and pharmaceutical interest from plants, animals and microbes; • plant and animal breeding, both conventional, biotech or molecularly assisted; • risk assessment and environmental monitoring associated with the use and release of genetically modified organisms; • quality certification of plant, animal and industrial transformation products; In Italy, the graduate in AEB will be able to operate as a professional: Biotechnologist (*ISTAT category: Biotecnologi*, 2.3.1.1.4) or Agronomist (*ISTAT category: Agronomi e forestali*, 2.3.1.3.0) after admission to the respective official register of professionals.
Field crops, seed production and biotechnology	**5**	
Biotechnology applied to plant nursery production	**5**	
Electives	**8**	
Internship	**6**	
Final dissertation	**16**	