UNIVERSITÀ DEGLI STUDI
DI PERUGIA

A.D. 1308
unipg

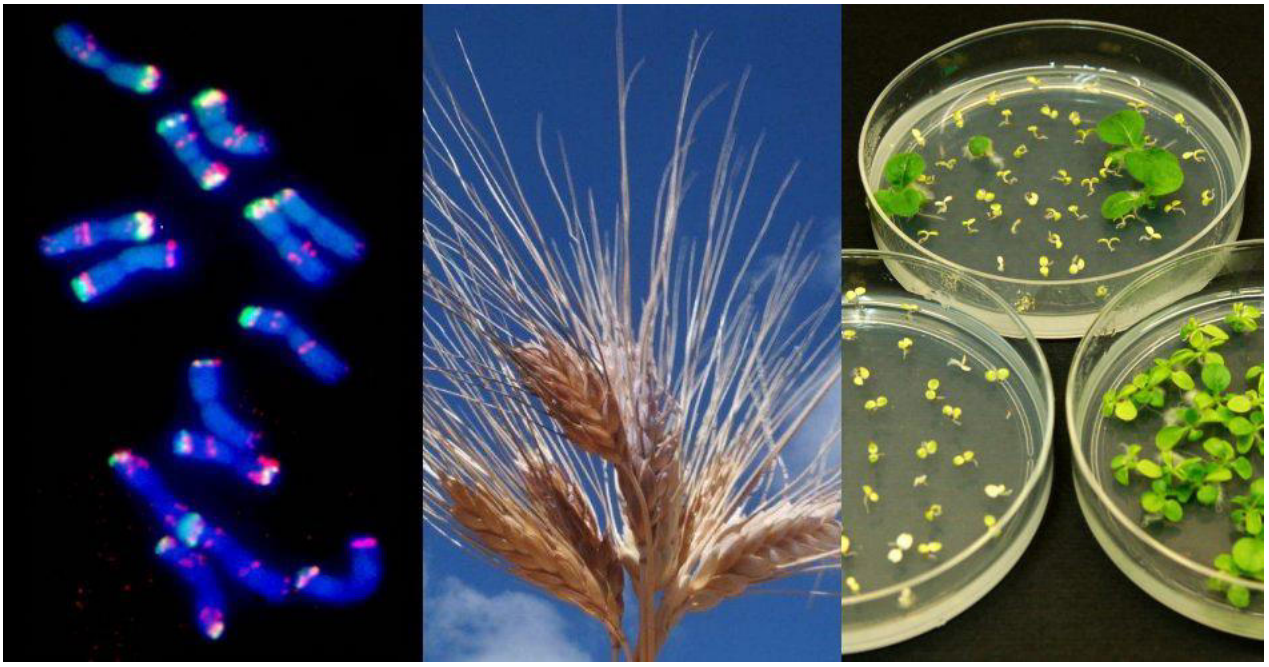
DEPARTMENT
OF AGRICULTURAL, FOOD
AND ENVIRONMENTAL SCIENCES

International Master of Science degree course in

AGRICULTURAL & ENVIRONMENTAL BIOTECHNOLOGY (AEB)

Duration: 2 years

120 ECTS credits



President of the Course Committee

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

Course quality delegate

Prof. **Lorenzo RAGGI**
tel **+39 075 585 6212**
e-mail **lorenzo.raggi@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.
Biometrical genetics and genomics	**13**	
Experimental methods in agriculture	**6**	
Applied microbiology	**12**	
Evolution of plant biodiversity	**6**	
Advanced plant and animal breeding	**11**	
Biotechnologies applied to the plant nursery productions	**6**	
Field crops, seed production and biotechnology	**6**	
Biotechnologies for plant health	**12**	**Abilities and job profile** 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, AEB graduates will be able to operate as professionals: 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.
Agricultural chemistry	**6**	
Economic aspects of biotechnology	**6**	
Electives	**8**	
Internship	**6**	
Final dissertation	**16**	