

<b>General Information</b>	<b>BACELOR DEGREE IN BIOTECHONOLOGIES</b>
Title of the subject	Agricultural Genetics
Degree Course (class)	INDUSTRIAL AND AGRI-FOOD BIOTECHNOLOGIES (L-2)
ECTS credits	8
Obbligo di frequenza	yes
Language	Italian
Academic year	2020/2021

<b>Subject Teacher</b>	
Name and surname	<b>Cinzia Montemurro</b>
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numero di telefono	080 5443003
Place and time of reception	Tuesday-thursday (11.30-12.30): DiSSPA, sez. Genetics and Plant breeding.

<b>Study plan schedule</b>	SSD	activity	
	AGR07		
	Year of study plan	Semester	
	3°	1°	

<b>Time management</b>	lessons	Laboratories	Esercitazioni	Total
CFU	6	2		8
Total hours	150	50		200
In calss study hours	48	24		72
Out of class study hours	102	26		128

<b>Syllabus</b>	
Prerequisites	Students must have a good basic knowledge of general and agricultural genetics, as well as of plant biological systems. Conoscenze di chimica generale, inorganica e organica, di biologia e di genetica generale.
<b>Risultati di apprendimento attesi (declinare rispetto ai Descrittori di Dublino)</b>	
Knowledge and understanding	Students will acquire the theoretical and practical basis of new breeding strategies and particularly their application to indigenous genotypes adapted to low-input cultivation systems
Applying knowledge	The course aims to provide the knowledge necessary to apply advanced technologies for the design of new cultivars adapted to low-inputs management systems and with improved nutritional characteristics.
Making informed judgments and choices	Students will acquire the ability to critically interpret the advantages and disadvantages of the different illustrated methodologies.

Communicating knowledge	Students will acquire the ability to write and present experimental results in a clear and synthetic way.
Capacities to continue learning	Students will learn about modern plant breeding strategies and genetic biotechnology, how to qualify the different fields of application and apply them in the international productive context.
<b>Study program</b>	
Content	<p>Plant biotechnology and agriculture. Development, productivity and sustainability of modern agriculture.</p> <p>Systems, boundaries and genetic control and reproduction of crops</p> <p>Molecular markers in crop breeding</p> <p>Biodiversity and plant genetics</p> <p>Genetic resource utilization and conservation</p> <p>Challenges of modern plant breeding. Origin of plant domestication and breeding. Effects on genetic variability: genetic erosion.</p> <p>Plant genomics</p> <p>Quantitative traits and selection</p> <p>Genetic structure of plants and elements of population genetics</p> <p>Laboratory training DNA extraction and fingerprinting by molecular markers.</p>
Bibliography and textbooks	<ul style="list-style-type: none"> <li>• Lecture notes</li> <li>• Russel P.J., Wolfe S.L., Hertz P.E., Starr C., McMillan B. 2016. Genetica Agraria. EdiSES S.r.l. Ed.</li> <li>• Barcaccia G., Falcinelli M. 2005. Genetica e Genomica. vol II Miglioramento genetico. Liguori Ed.</li> <li>• Barcaccia G., Falcinelli M. 2006. Genetica e Genomica. vol III Genomica e biotecnologie genetiche. Liguori Ed.</li> </ul>
Notes to textbooks	
Teaching methods	Lectures with multimedia support, laboratory practices.

<p>Assessment methods (oral, written, ongoing assessment)</p>	<p>The exam consists of an oral test on the topics developed during the hours of theoretical and practical lessons in the classroom.</p>
<p>Evaluation criteria (describe criteria for each of the above expected outcomes) Praiseworthy (30, 30 and praise); accurate (27-29); satisfactory (23-26); sufficient (18-22); insufficient (&lt;18).</p>	<ul style="list-style-type: none"> <li>• Knowledge and understanding Students must demonstrate full mastery in identifying and applying the most appropriate genetic improvement methods and genetic biotechnologies, among those examined, to respond to different biotechnological questions.</li> <li>• Applying knowledge and understanding Students must demonstrate their ability to operate in the laboratory respecting the main safety standards.</li> <li>• Making informed judgements and choices Students must demonstrate their ability to critically evaluate the limiting factors of each analyzed experimental procedures.</li> <li>• Communicating knowledge and understanding Students must demonstrate clarity and completeness in the oral presentation of the program contents and in the drafting of power point presentations.</li> <li>• Capacities to continue learning Students must demonstrate their ability to link with the contents of other courses</li> </ul>