



**UNIVERSITÀ
DI FOGGIA**



HR EXCELLENCE IN RESEARCH

APPENDIX B

Name of the Ph.D Course	MANAGEMENT OF INNOVATION IN THE AGRICULTURAL AND FOOD SYSTEM OF THE MEDITERRANEAN REGION
Cycle	37
Estimated date of the beginning of course	01/10/2021
Duration of course	3 YEARS
Department	SCIENCE OF AGRICULTURE, FOOD NATURAL RESOURCES AND ENGINEERING
Coordinator of the course	Prof. Giancarlo Colelli – P.O. AGR/09 – University of Foggia
Number of places	5 4 with a grant 1 position with scholarship funded by Apulia Region – Avviso 1/POC/2021 “Dottorati di ricerca in Puglia XXXVII ciclo”, published on BURP n. 66 del 13/05/20212. The aforementioned grants are conditioned by the signing of the Unilateral Obligation Act with subsequent obligations
Ph.D in cooperation with companies / industrial Ph.D (art. 11 of the Regulation):	YES
Curricula	YES 1. Enhancing quality and increasing value of the production of the Mediterranean Area 2. Process innovation and technology transfer

Admission requirements

Specialist or Master's degrees	Biology Agricultural Biotechnology Industrial Biotechnology Business Studies Economic Studies Agricultural Science and Technology Environmental Science and Technology Food Science and Technology Chemical Engineering Automation Engineering Management Engineering Computer Engineering
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	<p>Nutritional Science</p> <p>Medical, Veterinary and Pharmaceutical Biotechnology</p> <p>Zootechnics and Animal Technology</p> <p>Veterinary Medicine</p> <p>Chemistry</p> <p>Medicine</p> <p>Environmental engineering</p> <p>OR</p> <p>The corresponding Specialized Degrees or the corresponding Degrees obtained according to the law prior to the D.M. 509/99 or equivalent equivalent qualifications.</p>
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Selection procedure

**Selection
procedure**

- ✓ Qualifications
- ✓ Interview
- ✓ Knowledge of languages
- ✓ Research project

For graduates abroad, is the admission method different from that of candidates who have graduated in Italy? NO

Admission tests

The timetable for the admission tests will be available exclusively through publication on the university website, www.unifg.it and on the University Telematic Register. This announcement has the value of notification to all legal effects and will take place at least 20 days before the dates established for the tests.

Course description and objectives

The present CdD aims to increase the knowledge on the production of the agri-food systems of the Mediterranean Region as a training objective, following the whole supply chain from production to processing, to technological transfer, with a view to innovation and overall quality. The proposal is in line with the continuation of a training course related to the Agricultural and Food Sciences, which with regard to some aspects of automation, can also be extended to Engineering.

In line with the 2 curricula, the specific training objectives, which stem from the Horizon2020 priorities, are as follows:

- improving the quality of the Mediterranean Area productions;
- Improving the production stability of the Mediterranean Area under stress conditions, through the proper management of resources and productive process;
- Valorization of animal and plant products of the Mediterranean Area, through the characterization of their nutritional quality;
- Maintaining the post-harvest quality of fruits and vegetables;



- Developing of new formulations, processing and innovative packaging techniques, which enable a wider diffusion of the Mediterranean products;
- The development of innovative formulations and processing and packaging techniques, allowing a greater diffusion of Mediterranean products;
- The study of the feasibility of transferring new technologies to the industry.

Possible research activities

	<i>Scientific sector</i>	<i>Research topic</i>
<i>Enhancing quality and increasing value of the production in the Mediterranean Area</i>	<i>AGR/19</i>	<i>Management strategies to improve and optimize animal products</i> <i>Innovative technique for safety and traceability of animal products</i> <i>New biomarkers for animal welfare</i>
<i>Enhancing quality and increasing value of the production in the Mediterranean Area</i>	<i>AGR/04</i>	<i>Pre-harvest techniques to improve nutritional/nutraceutical properties, safety and shelf-life of fresh and fresh-cut vegetables: biofortification, application of biostimulants and of specific light wavelengths.</i> <i>Evaluation of innovative and sustainable techniques to improve efficiency of irrigation water and fertilizers in vegetable crops: decision support systems for irrigation and nitrogen fertiliser management (DSS Ecofert), non-microbial and microbial biostimulants.</i> <i>Recovery and quality characterisation of the Apulian vegetable biodiversity and its valorization as fresh and processed products.</i>
<i>Enhancing quality and increasing value of the production in the Mediterranean Area</i>	<i>AGR/02</i>	<i>Improving water use and nitrogen inputs for herbaceous productions in the Mediterranean Area</i> <i>Effect of abiotic stress on proteic composition of gluten evaluated with proteomic approach</i>
<i>Enhancing quality and increasing value of the production in the Mediterranean Area</i>	<i>AGR/07</i>	<i>Genetic improvement of durum wheat</i> <i>High-throughput phenotyping for genetic improvement in durum wheat through the application of remote sensing and unmanned aerial vehicles (UAV)</i>
<i>Enhancing quality and increasing value of the production in the</i>	<i>VET/06</i>	<i>Food-borne parasites: advanced diagnostic approaches for their detection and viability evaluation, along the food chain.</i>



<i>Mediterranean Area</i>		
<i>Enhancing quality and increasing value of the production in the Mediterranean Area</i>	<i>VET/04</i>	<i>Foodborne zoonoses</i> <i>Antimicrobial resistance and food safety</i>
Process innovation and technology transfer	<i>AGR/09</i>	<i>Innovative technique for postharvest storage and quality evaluation of horticultural produce</i> <i>Process and product innovation for fresh-cut produce</i> <i>Non destructive evaluation of horticultural products</i> <i>Plant innovation in the agro-food industry using MW, PEF and US technologies</i>
Process innovation and technology transfer	<i>AGR/01</i>	<i>Food Innovation Marketing</i> <i>Management of Environmental Resources</i> <i>Social innovation in rural areas</i> <i>Agro-food policy analysis</i> <i>Economic analysis of food, health and sustainability</i>
Process innovation and technology transfer	<i>AGR/15</i>	<i>Proteomic approach for food of animal and vegetal origin</i> <i>Food innovative process.</i> <i>Emerging Processes: 3D Printing and Robotics in the Food Industry (Industry 4.0)</i>

Job and career opportunities

At the end of the PhD program, the research doctorate will represent a relevant figure able to recognize the research needs and the economic and social dynamics of the agro-food production sectors in the Mediterranean area. As a researcher in this sector, you will be in capable of transferring research results, developing research projects independently, and preparing research projects at regional, national or international level. The research doctorate will be able to cover key roles both in production, in research and development, and in the marketing and exchange of goods and services at international level. In relation to the different areas, this role can be both for public bodies (universities, research centers, public administrations), and for private profit organizations (agri-food companies, food distribution, import-export of goods and services, research and development), and non-profit organizations (planning and sustainable development of geographical areas, non-governmental organizations, etc.).



Curriculum related to the Ph.D programme

Curriculum 1: Valorization of the productions of the Mediterranean Region

Scientific- disciplinary sector	Examination section	CUN-VQR Disciplines	% of each SSD in the scientific project of the course
AGR/19	07/G – ANIMAL SCIENCES AND TECHNOLOGIES	07 – Agricultural and Veterinary Science	% 33.32
AGR/02	07/B – AGRICULTURAL AND FOREST CULTURAL SYSTEMS	07 - Agricultural and Veterinary Science	% 13.33
VET/06	07/H – VETERINARY MEDICINE	07 - Agricultural and Veterinary Science	% 6.67
AGR/04	07/B - AGRICULTURAL AND FOREST CULTURAL SYSTEMS	07 - Agricultural and Veterinary Science	% 13.33
AGR/07	07/E - AGRICULTURAL CHEMISTRY, AGRICULTURAL GENETICS AND PEDOLOGY	07 - Agricultural and Veterinary Science	% 6.67
VET/04	07/H - VETERINARY MEDICINE	07 - Agricultural and Veterinary Science	% 6.67
BIO/09	05/D – PHYSIOLOGY	05 – Biological Sciences	% 6.67
AGR/11	07/D - VEGETAL PATHOLOGY AND ENTOMOLOGY	07 - Agricultural and veterinary sciences	% 6.67
MED/42	06/M - SANITA' PUBBLICA	06 - Scienze mediche	% 6,67
Curriculum in collaboration with:	- No cooperation		



Scientific-disciplinary sector	Examination section	CUN-VQR Disciplines	% of each SSD in the scientific project of the course
TOTAL			100

Curriculum 2: Innovation of transformation and technological transfer processes

Scientific-disciplinary sector	Examination section	CUN-VQR Disciplines	% of each SSD in the scientific project of the course
AGR/09	07/C - AGRICULTURAL, FOREST AND BIOSYSTEMS ENGINEERING	07 - Agricultural and Veterinary Science	% 36.60
AGR/01	07/A – AGRICULTURAL ECONOMICS AND RURAL APPRAISAL	07 - Agricultural and Veterinary Science	% 36.60
AGR/15	07/F – FOOD SCIENCE AND TECHNOLOGY	07 - Agricultural and Veterinary Science	% 18,18
AGR/16	07/I - MICROBIOLOGIA AGRARIA	07 - Scienze agrarie e veterinarie	% 9,10
Curriculum in collaboration with:	- Enterprises		
TOTAL			100



Disciplinary and interdisciplinary teaching

Specific teaching of the programme	Tot CFU: 25	total teaching subjects: 6	total teaching with final exam: 6
Teaching from Master's degrees courses	YES	total teaching subjects: 2	total teaching with final exam: 2
Teaching from First level degrees courses	NO		
Seminars	YES		
Academic training of doctoral students	YES	ABROAD with Partner Institutions ABROAD without Partner Institutions	Average time expected (months): 6

Training activity description

Type	Synthetic description
Language lessons	<i>The training activities are carried out by professors of the University Linguistic Center and are partly in common (6CFU) to all the doctorate courses of the University, while a further 2 CFUs aim to increase the knowledge to a level B1 and / or B2. It is organized in modules of reading and writing, listening and speaking. The learning outcomes will be aimed towards the knowledge of scientific terminology and syntax, and the achievement of good understanding and expression skills.</i>
Computer lessons	<i>In this course, we take a look at the advanced features of office, inclucoexcel and powerpoint aimed at processing and presenting data in scientific reports. The functions of statistical software and programming are also taught. The learning outcomes will be the knowledge of the main programming and data processing software.</i>
Research management, knowledge of the research system and funding agreement	<i>The course (5 CFUs) will be held by AGR01 teachers, engaged in technology transfer activities. The teaching activity will comprise of seminars oriented to the use of virtual libraries, drawing up a research project, professional communication, and financing systems. Learning outcomes will be the knowledge of the main regional, national and European calls and the ability to write a scientific project.</i>
Boosting research results and intellectual properties rights	<i>The course (4CFU) will be held by college teachers and university engaged in activities related to the enhancement of research results and intellectual property. The didactic activity will be organized in seminars with practical examples of patentability and spin-off creation. Learning outcomes will cover knowledge of patent law and spin-offs, and the role of university within the scope of the third mission.</i>