

UNIVERSITA' POLITECNICA DELLE MARCHE



Annex A

PH.D. COURSE OF AGRICULTURE, FOOD AND ENVIRONMENTAL SCIENCES

Coordinator Prof. Bruno Mezzetti

Scientific Areas:	AGR/01, AGR/03, AGR/05, AGR/07, AGR/09, AGR/10, AGR/11, AGR/12, AGR/14, AGR/15, AGR/16, BIO/03, BIO/10
Method of selection	Examination based on qualifications: maximum score 40/100 Interview: maximum score 60/100
Interview schedule	Ordinary session: 16th July 2020, at 9.30 a.m. Telematic mode
Examination topics:	The interview consists of n. 2 identical questions for all candidates, regarding the past activities carried out by the candidate and the proposal of a research activity to be developed within the framework of the themes of the doctorate.

ORDINARY SESSION

N. 8 ordinary positions	In detail: n. 5 with scholarship financed by the University n. 1 with scholarship financed by INPS * n. 2 without scholarship
N. 1 position only for students with a degree obtained abroad	With scholarship financed by the University

* reserved for orphans and sons/daughters whose parent has/had a retirement pension provided by INPS

Project title: "Use of precision farming systems for a reduction of the ecological impact of in viticulture" - Tutor Prof. Davide Neri

PH.D. COURSE OF MANAGEMENT AND LAW

with the following curricula:

- 1) BUSINESS ECONOMICS AND MANAGEMENT
- 2) ECONOMIC LAW

Coordinator Prof.ssa Caterina Lucarelli

Scientific areas	SECS-P/07, SECS-P/08, SECS-P/11, SECS-P/10, SECS-S/06, IUS/01, IUS/07, IUS/10, IUS/12
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Method of selection	Examination based on qualifications: maximum score 30/100 Interview: maximum score 70/100
Interview schedule	Ordinary session: 15th July 2020, at 12.00 a.m. Telematic mode
Examination topics:	Curriculum "Business Economics and Management": General issues regarding the wide area of Business Management, such as, for instance, accounting, management control, organization studies, corporate strategy, marketing, corporate finance, financial intermediaries. Candidate's motivations: research project. Curriculum "Economic law": Business and contracts. Arbitration and jurisdiction. Arbitration in international relationships. Dejurisdictionalization. Competition law and market regulation. The role of independent authorities. The protection of weak parties and market efficiency. Public procurement. New trends in tax law. Intergenerational transmission of wealth. The candidate's motivation: research project.

ORDINARY SESSION

N. 8 ordinary positions	In detail: n. 5 with scholarship financed by the University n. 1 with scholarship financed funded through the Development Projects by excellence department Management n. 2 without scholarship
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	The following documents are required when submitting the application, in addition to other qualification documents, in accordance with the art. 4 of the Call for Applications: - A copy of the Master Thesis - A synthetic Research work to be discussed during the interview The interview is designed to test knowledge of the English and the Italian language. Basic knowledge of Italian Language is required. Candidates without a basic knowledge of Italian are considered ineligible.
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PH.D. COURSE OF ECONOMICS

Coordinator Prof. Marco Cucculelli

Scientific areas	SECS-P/01, SECS-P/02, SECS-P/03, SECS-P/06, SECS-P/05, SECS-P/12, SECS-S/01, SECS-S/03, SPS/09
Method of selection	Examination based on qualifications: maximum score 30/100 Interview: maximum score 70/100
Interview schedule	Ordinary session: 15th July, 2020, at 9.00 a.m. Telematic mode
Examination topics:	Microeconomics – Macroeconomics – Mathematics - Econometrics - Statistics – Finance

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ORDINARY SESSION

N. 8 ordinary positions	In detail: n. 6 with scholarship financed by the University n. 2 without scholarship
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	The following documents are required when submitting the application, in addition to other qualification documents, in accordance with the art.4 of the Call for Applications: - A copy of the Master Thesis - Cover letter (max. 2 documents) - A Research work (max. 3 pages)
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PH.D. COURSE OF CIVIL, ENVIRONMENTAL AND BUILDING ENGINEERING AND ARCHITECTURE

with the following curricula:

- 1) CIVIL, ENVIRONMENTAL AND BUILDING ENGINEERING AND ARCHITECTURE
- 2) INTEGRATED FACILITY ENGINEERING AND RESILIENT ENVIRONMENTAL
- 3) VITRUVIAN STUDIES

Coordinator Prof. Francesco Fatone

Scientific areas:	ICAR/01, ICAR/02, ICAR/03, ICAR/04, ICAR/06, ICAR/07, ICAR/08, ICAR/09, ICAR/10, ICAR/11, ICAR/14, ICAR/17, ICAR/18, ING-IND/25, GEO/05, L-ANT/07, IUS/07
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Method of selection	Examination based on qualifications: maximum score 30/100 Interview: maximum score 70/100
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Interview schedule	Ordinary session: 22nd July, 2020, at 9.30 a.m. Telematic mode
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Examination topics:	Curricula "Civil, Environmental and Building Engineering and Architecture" and "Integrated Facility Engineering and Resilient Environmental" Technical architecture, building production, structural mechanics, building technology, steel structures, sciences of concrete building, building in seismic areas, road materials and pavements, road maintenance and safety, hydraulics, hydraulics engineering, fluid mechanics, environmental hydraulics, maritime hydraulics, maritime engineering, geotechnics, foundations and soil consolidation, geotechnical works, environmental geotechnics, applied geology, chemical plants, environmental-sanitary engineering, history of architecture, drawing, mapping, architectural composition, restoration, topography, safety in workplaces and building sites. Curriculum "Vitruvian Studies" Archeology, history of architecture, drawing, mapping, architectural composition, restoration.
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ORDINARY SESSION

N. 9 Ordinary positions	In detail: n. 5 with scholarship financed by the University for the curricula "Civil, Environmental and Building Engineering and Architecture" and "Vitruvian Studies"
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	<p>n. 1 with scholarship financed by the University for co-financing through the Development Projects by excellence department DICEA for the curriculum "Integrated Facility Engineering and Resilient Environmental"</p> <p>n. 1 with scholarship financed through the Development Projects by excellence department DICEA for the curriculum "Integrated Facility Engineering and Resilient Environmental"</p> <p>n. 2 without scholarship</p>
N. 1 positions only for students with a degree obtained abroad	With scholarship financed by the University

PH.D. COURSE OF INFORMATION ENGINEERING

with the following curricula:

- 1) **BIOMEDICAL, ELECTRONICS AND TELECOMMUNICATION ENGINEERING**
- 2) **INFORMATICS, MANAGEMENT AND AUTOMATICS ENGINEERING**

Coordinator Prof. Franco Chiaraluce

Scientific areas:	ING-INF/01, ING-INF/02, ING-INF/03, ING-INF/04, ING-INF/05, ING-INF/06, ING-IND/31, ING-INF/07, MAT/09, SECS-P/06, FIS/01, MED/09, ING-IND/35, ING-IND/33, CHIM/07
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Method of selection	Examination based on qualifications: maximum score 30/100 Interview: maximum score 70/100
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Interview schedule	Ordinary session: 15th July 2020, at 9.00 a.m. Telematic mode
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Examination topics:	<p>Curriculum "Biomedical, Electronics and Telecommunication Engineering": General issues on the following interdisciplinary topics: Electromagnetic Fields, Antennas, Microwaves, Photonics, Biological Systems Models, Bioengineering of the Physiological Systems, Biomechanics of Movement, Data Processing and Biological Signal, Electronics, Telecommunications, Electrotechnics, Electrical Measurements, Microelectronics, Technologies for Telecommunications Systems, Circuits and algorithms for Signal Processing, Cryptography and Techniques for Information protection.</p> <p>Curriculum "Informatics, Management and Automatics Engineering": General issues on the following interdisciplinary topics: Automatics, Control and Filtering, Economics-Management Engineering, Interpretation and Simulation of the Behavior of Physiological Systems, Mechatronics, Operational Research, Robotics, Information Systems, Intelligent Systems, Data Analytics, Data Science Network Security.</p>
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ORDINARY SESSION

n. 9 ordinary positions	In detail: n. 6 with scholarship financed by the University n. 1 with scholarship financed by MIUR * n. 2 without scholarship
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N. 1 position only for students with a degree obtained abroad	With scholarship financed by the University
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* funded by MIUR for Ph.D. Programmes on composite materials according to the grant agreement between MIUR, UNIVPM and UNICAM

	A copy of the list of University exams taken and grades achieved is required when submitting the application, in addition to other qualification documents, in accordance with art. 4 of the Call for Applications.
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PH.D. COURSE OF INDUSTRIAL ENGINEERING

with the following curricula:

- 1) MECHANICAL ENGINEERING
- 2) ENERGY ENGINEERING
- 3) MATERIALS ENGINEERING

Coordinator Prof. Giovanni Di Nicola

Scientific areas	ING-IND/06, ING-IND/13, ING-IND/14, ING-IND/15, ING-IND/21, ING-IND/16, ING-IND/17, ING-IND/09, ING-IND/10, ING-IND/11, ING-IND/22, ING-IND/12, FIS-01, MAT/03, MAT/05, ING-IND/08
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Method of selection	Examination based on qualifications: maximum score 30/100 Interview: maximum score 70/100
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Interview schedule	Ordinary session: 17th July, 2020, at 9.00 a.m. Telematic mode
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Examination topics	<p>The candidates will be interviewed about their past and present research activities and about their proposal for a Ph.D. research project, related to the topics of the industrial engineering course, with particular reference to the research fields related to the three curricula, as listed below:</p> <p>Curriculum "Mechanical Engineering": Drawing and Methods of Industrial Engineering, Applied Mechanics, Robotics, Metallurgy, Mechanic and Thermal Measurements, Biomedical Instrumentation, Mechanical Design and Machine Construction, Manufacturing systems and technologies.</p> <p>Curriculum "Energy Engineering": Energetics, environmental engineering physics, Industrial Engineering physics, Fluid mechanics, Industrial plants, Mechanical plants, Logistics, Machines, Energetic systems.</p> <p>Curriculum "Materials Engineering": Biomaterials, Corrosion and materials protection, Construction material science and technology, Plastic and composite technology, Technologies for Waste treatment and pollution control, Experimental material physics.</p>
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ORDINARY SESSION

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N. 13 ordinary positions	In detail: n. 6 with scholarship financed by the University including 3 for co-financing through the Development Projects by excellence department DIISM n. 2 with scholarship financed funded through the Development Projects by excellence department DIISM n. 2 with scholarship financed by MIUR * n. 3 without scholarship
N. 1 position only for students with a degree obtained abroad	With scholarship financed by the University

* funded by MIUR for Ph.D. Programmes on composite materials according to the grant agreement between MIUR, UNIVPM and UNICAM

PH.D. SCHOOL OF MEDICINE AND SURGERY

PH.D. COURSE OF HUMAN HEALTH

Coordinator Prof. Mario Guerrieri

Scientific areas:	BIO/09, BIO/16, BIO/17, MED/04, MED/06, MED/09, MED/12, MED/13, MED/16, MED/18, MED/26, MED/33, MED/34, MED/35, MED/44, MED/15, MED/46
Method of selection	Examination based on qualifications: maximum score 30/100 Interview: maximum score 70/100
Interview schedule	Ordinary session: 16th July, 2020, at 9.00 a.m. Telematic mode
Examination topics:	Physiology, Human Anatomy, Histology, History of Medicine, General Pathology and Clinical Pathology, Medical Oncology, Internal Medicine, Gastroenterology, Endocrinology, Blood Diseases, Rheumatology, General Surgery, Plastic Surgery, Neurology, Neurosurgery, Musculoskeletal System Diseases, Physical Medicine and Rehabilitation, Cutaneous and Sexually Transmitted Diseases, Occupational Medicine

ORDINARY SESSION

N. 8 ordinary positions	In detail: n. 6 with scholarship financed by the University n. 2 without scholarship
N. 1 positions only for students with a degree	With scholarship financed by the University

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obtained abroad	
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	<p>When submitting the application, in accordance with the art. 4 of the Call for Applications, students shall submit, in addition to other qualification documents, the following documents:</p> <ul style="list-style-type: none"> - Max. 5 research works published on Pubmed. Only English publications reviewed on Pubmed will be considered valid. Abstracts or other types of publications will not be examined. - A research work in English, as defined in the model attached to the Call for Applications. The presentation of the research should be in English (annex B). There will be an English test for those who won't present their work in English.
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PH.D. COURSE OF BIOMEDICAL SCIENCES

Coordinator Prof. Carlo Catassi

Scientific areas:	BIO/10, MED/11, MED/01, MED/08, MED/17, MED/28, MED/38, MED/40, MED/41, MED/43, MED/10, BIO/14, MED/07
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Method of Selection	Examination based on qualifications: maximum score 30/100 Interview: maximum score 70/100
Interview schedule	Ordinary session: 17th July 2020, at 09.00 a.m. Telematic mode
Examination topics:	Applied Physics, Biochemistry, Applied Biology, Pharmacology, Medical Statistics, Microbiology and Clinical Microbiology, Pathological Anatomy, Respiratory System Diseases, Cardiovascular Diseases, Infectious Diseases, Pediatrics Surgery and Child Health, Urology, Odontostomatological Diseases, Otolaryngology, Diagnostic Imaging and Radiotherapy, Neuroradiology, General and Specialized Pediatrics, Gynecology and Obstetrics, Anaesthesiology, General and Applied Hygiene, Forensic Medicine, Physiology, General Pathology

ORDINARY SESSION

N. 9 ordinary positions	In detail: n. 6 with scholarship financed by the University including 1 for co-financing through the Development Projects by excellence department DISBSP n. 1 with scholarship financed through the Development Projects by excellence department DISBSP n. 2 without scholarship
N. 1 position only for students with a degree obtained abroad	With scholarship financed by the University

	When submitting the application, in accordance with the art. 4 of the Call for Applications, students shall submit, in addition to other qualification documents, the following documents:
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	<p>- Max. 5 research works published on Pubmed. Only English publications reviewed on Pubmed will be considered valid. Abstracts or other types of publications will not be examined.</p> <p>- A research work in English, as defined in the model attached to the Call for Applications (annex B). The presentation of the research should be in English. There will be an English test for those who won't present their work in English.</p>
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PH.D. COURSE OF LIFE AND ENVIRONMENTAL SCIENCES

with the following curricula:

- 1) MARINE BIOLOGY AND ECOLOGY
- 2) BIOMOLECULAR SCIENCES
- 3) CIVIL AND ENVIRONMENTAL PROTECTION

Coordinator Prof. Paolo Mariani

Scientific areas:	FIS/07, CHIM/01, CHIM/03, CHIM/06, GEO/01, M-GGR/01, BIO/01, BIO/04, BIO/05, BIO/06, BIO/07, BIO/09, BIO/10, BIO/11, BIO/13, BIO/18, BIO/19, MED/07, AGR/16, ING-IND/11, ING-IND/26, GEO/12
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Method of selection	Examination based on qualifications: maximum score 30/100. Max 20/100 for the Research Proposal submitted, and indicated in the " Examination topics". Minimum score for admission to the interview is 15/100. Interview: maximum score 70/100
Interview schedule	Ordinary session: 16th July, 2020, at 09.00 a.m. Telematic mode
Examination topics:	<p>Candidates will be interviewed on subjects related to the Academic Fields and Disciplines List (Settori Scientifico-Disciplinari) of reference for the Doctoral Course and on their previous scientific activities (including the topic of their master thesis). They will be also asked to present their PhD research proposal. Two turns of examinations, a "regular session" and a "special session" will be held for the XXXVI PhD cycle. For the regular session (ordinary session), the research proposal should refer to one of the topics listed below, and identified among the different scientific areas of the PhD program; for the special session (extraordinary session), the research proposal should refer to one of the specific topics describing the new open positions.</p> <p>The research topics identified for the ordinary session of the XXXVI cycle are the following:</p> <p>Curriculum Biomolecular Sciences</p> <ul style="list-style-type: none"> - Biophysical characterization of nanostructures formed by self-assembled DNA derivatives for applications in biotechnology and biomedicine; - Protective role of probiotics to reduce harmful effects of environmental contaminants; - Computer-aided drug design of new inhibitors targeting efflux pumps of Gram-Negative Bacteria: novel approaches to overcome drug resistance; - Impact of transposable elements dynamics on inter and intraspecific evolution of structural genomic variation in amphibians; - Selection and study of microorganisms for probiotic and functional foods;

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	<ul style="list-style-type: none"> - Redefining the roles of micronutrients in oxidative stress-related diseases by exploring new mechanistic avenues; - Structural and functional characterization of a novel eIF4E-binding inhibitor: a new strategy to target the control of the mRNAs translation process in cancer and Fragile X Syndrome. <p>Curriculum Marine Biology and Ecology</p> <ul style="list-style-type: none"> - Marine habitats assessment and design of experimental restoration strategies focused on ecosystem engineers in the mesophotic zone; - Effects of emerging contaminants and multiple stressors in marine organisms; - Marine forests characterization through citizen science approaches; - Comparative analysis of the biology and ecology of Egyptian (<i>Solea aegyptiaca</i>) and common sole (<i>Solea solea</i>) in the Adriatic Sea; - Emerging algal biotoxins: bioaccumulation and biological effects in aquatic organisms; - Long-term observational system in the northern Adriatic Sea: an integrated study on phytoplankton, trophic state and water masses. <p>Curriculum Civil and Environmental Protection</p> <ul style="list-style-type: none"> - Comparative and multi-scale study on the COVID19 emergency management; - The Mediterranean turned anoxic in the past. Could this happen in the future? Ocean's role in the comprehension of past and future climate changes; - Organic and inorganic contaminants in the atmospheric particulate; - Contaminants of Emerging Concern (e.g., PFAS and flame retardants) in aquatic ecosystems; - Effects of the different treatments of fertilization waters in hydroponics horticultural crops on oxidative stress at the roots, leaf, and stem level. <p>Candidates will also explain the reasons for choosing the topic of their Research Proposal and how they intend to develop it in practice. The Committee will verify the aptitude of the candidate for scientific research. Linguistic proficiency in English will also be assessed.</p> <p>Overall evaluation criteria: clarity, competence and methodological accuracy of exposition.</p>
<p>N. 9 ordinary positions</p>	<p>In detail: n. 6 with scholarship financed by the University including 4 for co-financing through the Development Projects by excellence department DISVA n. 3 without scholarship</p>
<p>N. 3 positions only for students with a degree obtained abroad</p>	<p>In detail: n. 1 with scholarship financed by the University n. 2 with scholarship financed through the Development Projects by excellence department DISVA</p>
	<p>When submitting the application, in accordance with the art. 4 of the Call for Applications, students shall submit, in addition to other qualification documents, the following documents: - A PhD research proposal in English, as defined in the model attached to the Call for Applications (annex C) and referring to the issues identified in the context of doctoral</p>

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research activities. The presentation of the research will be exposed if possible in English during the interview.

It should be noted that:

- candidates may submit only one research proposal;

- **abstract of the thesis carried out** (or in progress) for the achievement of the qualification that allows access to the Doctorate (Specialist or master's degree / old system degree / AFAM second level academic degree / academic qualification obtained abroad) of maximum 5,000 characters spaces included.