

ANNEX.1A	
UNIVERSITA' DEGLI STUDI DEL MOLISE	
<i>Area Servizi Integrati</i>	
Dottorato in BIOSCIENZE E TERRITORIO (DOT1339138) PhD IN BIOSCIENCES AND TERRITORY Coordinator: prof. Gabriella Stefania SCIPPA	
Length of course	1st November 2015 – 31st October 2018
Educational targets	<p>The PhD Course in Biosciences and Territory aims to develop advanced scientific and technological abilities required to carry out highly qualified autonomous research activities, even with an interdisciplinary approach, to apply to the fields of environmental biology, territory planning, management and monitoring, computer science and mathematics.</p> <p>Curricula:</p> <ol style="list-style-type: none"> 1. Environmental Biology: aims to develop highly qualified researchers with multidisciplinary skills, able to plan and carry out autonomously basic and applied research concerning the physical, chemical and biological interactions of the various biotic and abiotic environmental components. 2. Computer science-Mathematics: aims to provide wide-ranging and in depth know-how on a) computer science and mathematics, involving historical and epistemological knowledge as well to create synergies between computer science, mathematics and statistics b) information systems, software engineering, basic knowledge for images processing, for numerical analysis and for exact science methodology and epistemology. 3. Territory: intends to prepare researchers qualified to deal, by using innovative integrated approaches, with different territory issues as environmental safeguard, social and economical development, planning of system defenses against natural and anthropic risks.
Admission requirements	<ul style="list-style-type: none"> - A University degree obtained after 2-year specialization courses - A University degree (old university legislation) - Foreign academic qualification already declared equipollent by competent Italian authorities or deemed equivalent for the sole purposes of the competition.
Total available places	<p>Total available places n.10:</p> <ul style="list-style-type: none"> - With scholarship n. 8 - Without scholarship n. 2 <p>Curriculum Territory</p> <p>n.5 with scholarships one of which for foreign students, n. 1 without scholarship</p> <p>Curriculum Environmental Biology</p> <p>n. 2 with scholarships</p> <p>Curriculum Computer science-Mathematics</p>

	n. 1 with scholarship, n.1 without scholarship
Exams - Modalities of admission	<p><u>Italian candidates</u></p> <ul style="list-style-type: none"> ▪ Evaluation of qualifications and project proposal annexed to the application ▪ Interview in Italian or English language ▪ Language: compulsory knowledge of English language <p><u>Italian candidates residing abroad</u></p> <ul style="list-style-type: none"> ▪ Evaluation of qualifications and project proposal annexed to the application ▪ Possible interview in videoconference. <p>A Skype contact is compulsory</p> <p><u>Foreign candidates</u></p> <ul style="list-style-type: none"> ▪ Evaluation of qualifications and project proposal annexed to the application ▪ Interview in English language ▪ Language: compulsory knowledge of English language <p><u>Foreign candidates residing abroad</u></p> <ul style="list-style-type: none"> ▪ Evaluation of qualifications and research project proposal annexed to the application ▪ Possible interview in videoconference. <p>A Skype contact is compulsory</p>
Interview	<p><u>Place:</u> Università degli Studi del Molise, Dipartimento di Bioscienze e Territorio, Pesche (IS)</p> <p><u>Date:</u> starting from 28th September 2015 at 10.00 according to the agenda established by the commission based on the number of the admitted to the interview.</p>
Other assessable qualifications	<p>Qualifications evaluated up to 20/80 points:</p> <ul style="list-style-type: none"> - Final degree mark; - Scientific publications on peer-reviewed journals (max. 3), participation to national and international congresses with oral presentations and posters; - Other qualifications considered evaluable (study grants, awards, courses attended, Masters, Erasmus or study programs abroad, work experiences, etc) -
Criteria for evaluating the exams	<p>Evaluation of qualifications is preparatory in order to be admitted to the tests. All candidates having scored at least 15/80 and 15/80 for the project proposal annexed to the application will be considered suitable for the interview. The scores will be published, as soon as available, and before the interview, on the web site of the Dipartimento di Bioscienze e Territorio</p> <p>http://www.unimol.it/unimolise/s2magazine/index1.jsp?idPagina=50764</p> <p>(</p>

	<p>Scored at most 20/80 for the titles scored at most 60/80 for the project presentation: 20/80 for the research project proposal annexed to the application form 40/80 for the oral presentation and discussion of the research project proposal annexed to the application form</p>
Examination themes	<p>Candidates must present together with the filled application form a research project proposal with the date and signature. The proposal will be discussed during the oral interview.</p> <p>The research project the candidate intends to develop during the PhD program and that must be annexed to the application must have a maximum length of 10.000 characters (excluding references). The project proposal must be on one of the following themes:</p> <p>1. Curriculum - Territory:</p> <ol style="list-style-type: none"> 1. Environmental modeling processes and spatial-temporal scenario building for the conservation of species and habitats. 2. Advanced methods in historical, archaeological and/or geographical analyses on the territory, through GIS application, with particular focus on the following processes: territorialisation from the ancient (romanization, centuriation and Infrastructuring) to the modern age (human settlement and land use); long term rural establishment and historical scheme of the current landscape; sustainable management and development of the territorial assets. 3. Analysis and modeling of the mechanical response of soils for understanding the behavior of geotechnical systems and the soil-structure interaction, under seismic loadings. 4. Advanced techniques for diagnosis and assessment of existing structures, with particular reference to those belonging to architectural and historical heritage. <p>Scholarship financed by the Dipartimento di Bioscienze e Territorio, Area of Forestry and cofinanced by Istituto Agrario S.Michele all'Adige – Fondazione Mach:</p> <p>Functional and forest ecology, sustainable forest management, multifunctional silviculture and related indicators of biodiversity; productivity and stability of forest ecosystems with regard to environmental factors and disturbances, with special attention to mountain environments.</p> <p>Scholarship for foreign students, financed by the Dipartimento di Bioscienze e Territorio, Area of Forestry (Grant FORMIT, coordinator Prof. Marchetti):</p> <p>Remote sensing and Sustainable Forest Management: integration of data</p>

available from field Forest Inventories with remotely sensed data to support the implementation of sustainable management approaches and improve the protection of forest ecosystems.

2. Curriculum - Environment:

1. Analysis of microbial communities and their interactions with the environment.
2. Use of microorganisms for environmental recovery.
3. Multidisciplinary analysis of the interactions between plants and biotic and/or abiotic environmental components.
4. Use of plants for environmental “green technologies”.
5. Chemical and physical analysis of environmental contaminants and their effects on plant secondary metabolism.
6. Chemical and physical analysis of plant secondary metabolites and their relationships with the environment.

3. Curriculum - Computer Science:

1. Analysis of internal quality of software systems.
2. Decision support systems for software development.
3. Historical evolution of numerical methods for integral equations of Volterra.
4. Evolution of numerical analysis in Italy.
5. Teaching of Mathematics based on the most common applications used in digital devices.
6. Innovative algorithms for Cluster Counting / Timing for Drift Chambers implemented on FPGA Boards.

For the oral presentation and discussion of the project candidates could use information technology supports.