Ph.D. Course in Biology and Applied Sciences (DOT197K79Z)

Coordinator  
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CUN Area  
Area – 01 - Mathematics and Informatics; Area – 03 – Chemistry; Area – 05 – Biology; Area – 06 – Medicine; Area 08 - Civil Engineering and Architecture; Area – 09 - Industrial and Information Engineering; Area 12 - Law Studies

E.R.C.  
PE1 - PE4 - PE5 - PE6 - PE8 - LS1 - LS2 - LS3 - LS4 - LS8 – LS9 - SH4

Overview  
The Ph.D. Program in Biology and Applied Sciences of the University of Molise aims at training advanced scientific and technological skills able to carry out autonomous and interdisciplinary research in the field of biology and safety of infrastructure and information, developing and integrating advanced tools for analysis and processing of data. Particular attention is paid to the education of the student to develop strategies of analysis and solution of complex problems to be applied both in fundamental and applied research.

The course is divided into two curricula:
- **Biology**: aims at training highly qualified professionals with an interdisciplinary preparation able of designing and autonomously carrying out basic and applied research in the context of the various biological systems. The research topics concern microbial, animal and plant organisms and include their study at cellular, molecular and morpho-functional level.
- **Applied Sciences**: aims at training professionals able to autonomously design and carry out research in scientific fields characterized by high levels of interdisciplinarity by using quantitative methods. Researches are in the field of information sciences, structural and environmental monitoring technologies by exploiting the integration of numerical analysis techniques, optimization methods, data and knowledge management, software engineering and IT security and structural and geotechnical engineering.

Additional information on the Program is available at the Ph.D. Course website  
Web site  
http://dipbioter.unimol.it/dottoratobeat/

Duration  
01/12/2021 – 30/11/2024

Available positions  
Position with scholarship with a restricted theme (INNOVATION)  
n. 1

| Pos.

| MACROAREA INNOVATION (Action IV.4) |
|-----------------------------------|------------------|
| **Software Telemetry and Big Data Analysis for Cybersecurity** curriculum |
| "Applied Sciences" |
| **Company**: n. 12 months at Leonardo – Cybersecurity Piazza Monte Grappa n. 4 00195 Roma, Italy |

Requirements for admission to the competition  
The degree took after a Graduate Program (Two-year higher course) already declared equipollent by competent Italian authorities or deemed equivalent for the sole purposes of the competition to a Second Level Italian specialist/master degree equivalent to those released in Italy in the following classes:

- LMG/01 Law
- LM2 Archaeology
- LM-4 Architecture and Architectural engineering
- LM-6 Biology
- LM-8 Industrial Biotechnologies
- LM-10 Conservation of environmental and architectural heritage
- LM-11 Conservation and restoration of the cultural heritage
- LM-18 Computer science
- LM-21 Biomedical engineering
Assessable qualifications and related score

List of assessable qualifications (score up to a maximum of 20/80):

- graduation mark; in the case of participation in the selection before graduation, the weighted average mark of the passed exams taken;
- other educational qualifications which can be deduced from the curriculum vitae et studiorum: specialization diplomas; attendance of post-graduate specialization courses; documented research activity at universities and research centers; prize and awards obtained during the study; participation in Erasmus programs; internship and abroad activities; work experience, internships and training in companies; I and II level masters; research grants
- maximum three peer-reviewed scientific publications and a maximum of five participations in national and international conferences with written contributions, oral presentations, or posters.

The required qualification obtained outside Italy should have the characteristics of equivalence with those indicated above.

In the evaluation of the applications and with particular reference to the project proposal submitted by the candidates, the Commissions will also take into account the criteria (art. 7 of the call), pursuant to art. 3 of D.M. 1061 of 10.08.2021.

PhD in Chemical engineering
PhD in Civil engineering
PhD in Construction engineering
PhD in Safety engineering
PhD in Management engineering
PhD in Computer systems engineering
PhD in Mechanical engineering
PhD in Environmental engineering
PhD in Information technology methods for the humanities
PhD in Mathematical modelling for engineering
PhD in Material engineering
PhD in Chemistry
PhD in Natural sciences
PhD in Computer systems safety
PhD in Industrial chemistry
PhD in Statistics
PhD in Methods and techniques for the information society

Thematic areas of the research project proposals and of the interview:

Research proposal (score up to a maximum of 20/80):

The project proposal, dated and signed, should focus to the following themes selected among those of interest (related to each of two curricula):

Candidates are required to prepare a research project proposal opportunely dated and signed.

This research proposal, consistent with second-level degree, should be focused on the following INNOVATION theme:

LM-22 Chemical engineering
LM-23 Civil engineering
LM-24 Construction engineering
LM-26 Safety engineering
LM-31 Management engineering
LM-32 Computer systems engineering
LM-33 Mechanical engineering
LM-35 Environmental engineering
LM-43 Information technology methods for the humanities
LM-44 Mathematical modelling for engineering
LM-53 Material engineering
LM-54 Chemistry
LM-60 Natural sciences
LM-66 Computer systems safety
LM-71 Industrial chemistry
LM-82 Statistics
LM-91 Methods and techniques for the information society
2/S Archaeology
4/S (Architecture and construction engineering)
6/S (Biology)
8/S (Industrial biotechnologies)
9/S (Pharmaceutical, veterinary and medical biotechnologies)
10/S (Conservation of architectural heritage and environment)
11/S (Conservation of scientific assets and industrial civilization)
12/S (Conservation and restoration of cultural heritage)
20/S (Physics)
22/S (Law)
23/S (Computer Science)
24/S (Computer Science for humanities)
27/S (Chemical engineering)
28/S (Civil engineering)
35/S (Computer engineering)
36/S (Mechanical engineering)
38/S (Environmental engineering)
61/S (Materials science and engineering)
62/S (Chemical science)
81/S (Sciences and technologies of industrial chemistry)
82/S (Science and technology for the environment and the territory)
1. “Software Telemetry and Big Data Analysis for Cybersecurity” curriculum Applied Sciences (INNOVATION THEME)

The research proposal may encompass graphic elements and be divided into paragraphs containing a summary, the state of the art, the objectives, the methodology, the techniques and the related technological resources, a temporal framework of the different research phases, the expected objectives and their impact in the reference scientific area.

Interview

The oral exam and interview (score up to a maximum of 40/80) will consist of the oral presentation of the research proposal and a discussion of the technical and scientific issues related to it. Knowledge of the English language will also be evaluated. Candidates can carry out the presentation and discussion in English.

<table>
<thead>
<tr>
<th>Assessment criteria and ranking of the candidates</th>
<th>The assessment of academic qualifications is preparatory to the interview. The results of the I evaluation phase will be published, as soon as available on the website <a href="https://www2.unimol.it/dottorato/">https://www2.unimol.it/dottorato/</a></th>
</tr>
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<tbody>
<tr>
<td>To be admitted to the oral exam, the candidate must get a score that should be not less than 20/80 (given by the sum of the evaluation of qualifications and of project proposal).</td>
<td>The maximum score is equal to 80/80, divided into the following sub-scores:</td>
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<tr>
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<td>• 20/80 Academic qualifications;</td>
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<td>• 20/80 Research proposal in written form;</td>
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<td>o Consistency of the project proposal with the themes indicated</td>
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<td>o Originality of the project and the contribution to knowledge in the area</td>
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<td>o Clarity used to identify and describe the research objectives</td>
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<td>o Project structure and feasibility</td>
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<td>o Organization and synthesis</td>
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<td>• 40/80 Interview and knowledge of English language.</td>
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<td>o Clarity and mastery of knowledge in the area of the project - state of the art</td>
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<td>o Clarity of the candidate to expose and describe the objectives, originality, expected results, contribution to the knowledge of the area and any practical application of the proposed research</td>
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<td>o Candidate’s ability to discuss the structure of the project, including methods</td>
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<td>o Aptitude to the research activity</td>
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The results of the two evaluation phases will be published, as soon as available on the website https://www2.unimol.it/dottorato/

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<thead>
<tr>
<th>Merit ranking</th>
<th>Candidates with an overall score of at least 40/80 points will be included in the overall merit ranking.</th>
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<tr>
<th>Interview calendar</th>
<th>Date: December 10, 2021. The timetable will be established by the Commission on the basis of the number of candidates admitted to the oral exam</th>
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<td>Place: Google Meet – (link will be sent to candidates).</td>
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