



## DOCTORAL PROGRAMME IN BIOMEDICAL SCIENCES

Coordinator prof. Massimo Stefani

<b>BIOMEDICAL AREA</b>	
<b>ADMINISTRATIVE OFFICE</b>	Department of Experimental and Clinical Biomedical Sciences “Mario Serio”
<b>CURRICULA</b>	<ol style="list-style-type: none"> <li>1. Human Morphology and Morphogenesis</li> <li>2. Functional Biology of Biomolecules and Biosystems</li> <li>3. Physiological and Nutritional Sciences</li> <li>4. Experimental Pathology</li> <li>5. Endocrinological, Molecular and Regenerative Biotechnologies</li> <li>6. Biomedical Sciences of Evolutive Age</li> <li>7. Gender Medicine</li> </ol>
<b>POSITIONS AVAILABLE: 11</b> Positions with scholarship: 10 Positions without Scholarship: 1	
<b>SCHOLARSHIPS: 10</b>	<p>6 – University of Florence</p> <p>3 – Department of Experimental and Clinical Biomedical Sciences “Mario Serio” – <b>Progetto Ministeriale “Dipartimenti di Eccellenza 2018–2022”</b></p> <p>1 – DI.V.A.L Toscana s.r.l          Thematic: <i>“Optimisation of critical steps in the production of antibodies for the development of innovative diagnostic and therapeutic tools”</i></p>
<b>STUDY/RESEARCH PERIODS ABROAD</b>	Not mandatory
<b>DOCUMENTS REQUIRED FOR THE ADMISSION</b> (under penalty of exclusion)	<ul style="list-style-type: none"> <li>• Copy of the Identification Document</li> <li>• <u>Replacement Declaration Form</u> self-declaration for:             <ul style="list-style-type: none"> <li>- Italian Degree required for the access</li> <li>- transcript of records with marks (<i>for those candidates whose degrees will be awarded within the 31<sup>st</sup> October 2019</i>)</li> <li>- acknowledgment of compliance for any other qualification documents enclosed with the application</li> </ul> </li> <li>• Foreign Degree required for the access (<i>those candidates whose degrees will be awarded within the 31<sup>st</sup> October 2019, shall enclose the list of the examinations completed with marks</i>)</li> </ul>
<b>DOCUMENTS REQUIRED FOR THE EVALUATION</b>	<p><b>MANDATORY</b></p> <ul style="list-style-type: none"> <li>• Curriculum vitae</li> <li>• Research Project</li> <li>• Title of the thesis</li> </ul> <p><b>OPTIONAL</b></p> <ul style="list-style-type: none"> <li>• List of publications</li> <li>• Any other qualification document</li> </ul>

<b>REFERENCE LETTERS</b>	A section is provided in the online application to specify the e-mail address of one professor/researcher willing to provide information about candidates training path and activities performed within a scientific field related to the Ph.D. course.																		
<b>RESEARCH PROJECT</b>	The research project, written in English and of maximum 12,000 characters including spaces, which must include summary, introduction, methodology, expected results and references. The project must refer specifically to one or more of the working themes listed in the section below <b>“Thematics”</b> .																		
<b>MODALITY OF EVALUATION</b>	<ul style="list-style-type: none"> <li>• <b>Evaluation of curriculum vitae, research project, publications and other qualification documents</b></li> <li>• <b>Interview</b></li> </ul> <p>As detailed in the section below <b>“Evaluation Marks”</b></p>																		
<b>OTHER LANGUAGE FOR THE EXAMINATION</b>	English																		
<b>SKYPE INTERVIEW</b>	<b>NO</b>																		
<b>EVALUATION MARKS</b>	<table border="1" data-bbox="507 1160 1425 1664"> <thead> <tr> <th data-bbox="507 1160 1062 1243">parameter</th> <th data-bbox="1062 1160 1233 1243">minimum score</th> <th data-bbox="1233 1160 1425 1243">maximum score</th> </tr> </thead> <tbody> <tr> <td data-bbox="507 1243 1062 1339">Curriculum vitae, publications and other qualification documents</td> <td data-bbox="1062 1243 1233 1339">–</td> <td data-bbox="1233 1243 1425 1339">20/120</td> </tr> <tr> <td data-bbox="507 1339 1062 1406">Research Project redaction</td> <td data-bbox="1062 1339 1233 1406">–</td> <td data-bbox="1233 1339 1425 1406">40/120</td> </tr> <tr> <td colspan="3" data-bbox="507 1406 1425 1518"><b>Only applicants reaching a minimal total score of 40/120 relative to the parameters curriculum/publications/project will be admitted to the interview</b></td> </tr> <tr> <td data-bbox="507 1518 1062 1608">Interview: discussion of the project and publications</td> <td data-bbox="1062 1518 1233 1608">–</td> <td data-bbox="1233 1518 1425 1608">60/120</td> </tr> <tr> <td colspan="3" data-bbox="507 1608 1425 1664" style="text-align: center;"><b>Eligibility is achieved with a minimum score of 80/120</b></td> </tr> </tbody> </table>	parameter	minimum score	maximum score	Curriculum vitae, publications and other qualification documents	–	20/120	Research Project redaction	–	40/120	<b>Only applicants reaching a minimal total score of 40/120 relative to the parameters curriculum/publications/project will be admitted to the interview</b>			Interview: discussion of the project and publications	–	60/120	<b>Eligibility is achieved with a minimum score of 80/120</b>		
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<b>THEMATICS</b>	<p><b>Curriculum in Human Morphology and Morphogenesis:</b></p> <ol style="list-style-type: none"> <li>1) Systematic and topographic anatomy: anatomical variants of organs and apparatuses of anatomical relevance</li> <li>2) Applied anatomy: anatomic characteristics and topographical relations of organs and apparatuses of interest for diagnostic imaging and clinical semeiotics</li> <li>3) Morpho-functional histology and cytology: structure-function relationships and mechanisms of regulation in physiological conditions and in pathological models</li> <li>4) Embryology and organogenesis: mechanisms of cell and tissue</li> </ol>																		

differentiation for regenerative medicine  
5) Histochemistry: localization of specific functional molecules in cells and tissues by advanced microscopy methods

**Curriculum in Functional Biology of Biomolecules and Biosystems:**

- 1) Biophysics of proteins, lipid bilayers and biomembranes
- 2) Cell proteostasis and its regulation
- 3) Cell biology of amyloids and its relevance on associated systemic and neurodegenerative pathologies
- 4) Phospholipid signalling
- 5) Yeast and other model systems proteomics
- 6) Anti-aggregation power and nutraceutical properties of natural compounds

**Curriculum in Physiological and Nutritional Sciences:**

- 1) Molecular mechanism, regulation and mechanochemical coupling of striped muscle contraction
- 2) Electrophysiology and mechanics of smooth muscle
- 3) Nervous mechanisms involved in respiratory activity genesis and control
- 4) Components and strategies involved in motor control of the human voluntary movement
- 5) Pathophysiology of gastrointestinal apparatus and of nutrition and prevention of chronic-degenerative pathologies. Epidemiological and intervention studies on foods and alimentary profiles
- 6) Adaptations to muscle activity and to sport of musculoskeletal apparatus, respiratory and circulatory systems. Training methodologies

**Curriculum in Experimental Pathology**

- 1) Molecular and cellular mechanisms of cancer transformation and progression
- 2) cancer stamina cells; characterization and targets
- 3) Innovative approaches to cancer diagnosis and prognosis
- 4) mechanisms of microbial pathogenicity
- 5) Antimicrobial drugs: mechanisms of action and resistance
- 6)Molecular and cellular mechanisms of aging and longevity

**Curriculum in Endocrinological, Molecular and Regenerative Biotechnologies:**

- 1) Pathophysiology of male reproductive apparatus and its accessory glands
- 2) Genetic aspects of male infertility
- 3) Control mechanisms of human spermatogenesis
- 4) DNA fragmentation in human spermatozoa: biochemical mechanisms and clinical meaning and significance
- 5) Pathophysiology of thyroid, hypophysis and adrenal gland
- 6) Pathophysiology of fat tissue

**Curriculum in Biomedical Sciences of Evolutive Age:**

- 1) Clinical biochemistry and modifications of cell and systemic redox status in human physiology and pathology
- 2) Innovative strategies for neoplastic and cardiovascular therapy by the use of plant polyphenols
- 3) Specific aspects of diagnostics, therapy and prevention in pediatrics
- 4) Hygiene public health and health organization
- 5) Detection of high priority malocclusions in evolutive age in orthodontics

	<p>6) Prevention of infective and chronic pathologies, vaccinations, food hygiene and public health laboratory</p> <p><b>Curriculum in Gender Medicine:</b></p> <ol style="list-style-type: none"> <li>1) Endocrinological aspects of the female vs male reproductive apparatus</li> <li>2) Mechanisms of control of the female vs male sexuality</li> <li>3) Endocrinological-metabolic control mechanisms of the female vs male reproduction</li> <li>4) Endocrinological and gynecological aspects of the female oncologic pathology</li> <li>5) Pathophysiology of the metabolic diseases in the female and the male</li> </ol>
<p>Further information available at the following web page:  <a href="https://www.sbsc.unifi.it/vp-200-dottorato-in-scienze-biomediche.html">https://www.sbsc.unifi.it/vp-200-dottorato-in-scienze-biomediche.html</a></p>	

<b>EXAMINATION SCHEDULE</b>			
	<b>DATE</b>	<b>TIME</b>	<b>PLACE</b>
<b>INTERVIEW</b>	3 <sup>rd</sup> July 2019	09:00 a.m.	Department of Experimental and Clinical Biomedical Sciences "Mario Serio" Viale Morgagni 50 – Florence Aula A
<p>The list of candidates admitted to the interview and the final ranking will be published at the following web page: <a href="https://www.unifi.it/p11549.html">https://www.unifi.it/p11549.html</a></p>			