

| <b>NEUROSCIENCE</b>         |  |
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| <b>Cycle</b>                | <b>XXX</b>   |
| <b>Duration</b>             | 3 years  |
| <b>Partner Universities</b> | University of Modena and Reggio Emilia   |
| <b>Supervisor</b>           | Prof. Vittorio Gallese – Department of Neurosciences<br>E-mail: <a href="mailto:vittorio.gallese@unipr.it">vittorio.gallese@unipr.it</a>   |
| <b>Research Topics</b>      | <ul style="list-style-type: none"> <li>- Study of the central nervous system in rodents, non-human primates and humans, by means of neuroanatomy, neuropharmacology, molecular biology, electrophysiology and behavioral techniques and brain imaging.</li> <li>- Study of cognition, with particular interest in social cognition in rodents, non-human primates and humans, through the use of techniques of molecular biology, neurochemistry, neuropharmacology, neuroanatomy, behavioral techniques, and recording of single neurons in the animal model and brain activity in humans using brain imaging techniques and stimulation of brain activity.</li> <li>- Study of the neural correlates of psychiatric and neurological disorders such as dementia, epilepsy, sleep disorders, autism spectrum syndrome, schizophrenia and drug addiction.</li> <li>- Acoustic communication in bony fishes of fresh and brackish water</li> <li>- Development of behavior in the house mouse (<i>Mus musculus domesticus</i>): Effects of environmental pollutants with hormonal activity (endocrine disruptors) and steroid hormones</li> <li>- Animal models of psychopathology: genetic (molecular polymorphisms, KO mice) and environmental (development, chronic social stress) bases of anxiety, depression and metabolic disorders.</li> <li>- The behavior of the domestic dog and its relationship with man: attachment, social cognition, temperament and well-being.</li> <li>- Psychobiological and ethological analysis of agonistic human behavior in different sports.</li> <li>- Behavioral analysis of sexual dysfunction in human patients and in animal models</li> </ul> |
| <b>Training objectives</b>  | <p>The aim of the PhD Program in Neurosciences is to train researchers with a global and interdisciplinary vision of the various aspects of neuroscience and behavioral sciences, providing a high degree of research specialization in these areas. A parallel aim is to give a multi-disciplinary training in order to give a unitary view of the problems that the PhD in Neurosciences will deal with in his/her work practice. The specific training is obtained by associating the PhD student with a research group where the student will learn the research techniques and theoretical aspects of the chosen research field. The multi-disciplinary part of the training will be carried out both on a personal basis and through different types of integrated teaching activities about the problems and research techniques specific to the different branches present in the Doctoral School (molecular modeling, molecular neurobiology, neuroanatomy, neurochemistry, neuropharmacology, neurophysiology, cognitive neuroscience, behavioral science and cognitive psychology). A further aim of the Doctoral School is to include the student in a network of relationships and exchanges between the participating groups and top national and international research and</p>   |

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|  | educational Institutes. A training period in foreign laboratories is highly encouraged.   |  |                 |
| <b>Academic degree required</b>                                    | Laurea pursuant to the previous university system, laurea specialistica or laurea magistrale, or a foreign academic qualification that has been recognized as equivalent              |  |                 |
| <b>Positions put out to competition</b>                            |   |  |                 |
| <b>With scholarship</b>  | 6   |  |                 |
| <b>TOTAL</b>   | <b>6</b>  |  |                 |
| <b>Scholarship types</b>   | <b>No.</b>  | <b>Description</b> (funding entity and research topic, if any)   |                 |
|  | <b>2</b>  | Scholarships of the University of Parma  |                 |
|  | <b>3</b>  | Funded by the University of Modena and Reggio Emilia   |                 |
|  | <b>1</b>  | Co-funded by Fondazione Cariparma  |                 |
| <b>Admission procedures</b>  | <b>Assessment of QUALIFICATIONS: up to 35 points</b><br><b>WRITTEN EXAM:</b> up to 35 points<br><b>ORAL EXAM:</b> up to 50 points<br><br><b>Minimum score for ELIGIBILITY: 70/120</b> |  |                 |
| <b>List of QUALIFICATIONS to be submitted and their assessment</b> | <b>Graduation thesis</b>  | Abstract of the graduation thesis<br><b>(mandatory qualification)</b>  | Up to 4 points  |
|  | <b>Curriculum Vitae et studiorum</b>  | Covering the candidate's university career and postgraduate experience, accompanied with a statutory declaration in lieu of the certification of the exams sat and passed, with the relevant marks, as well as the final graduation mark<br><b>(mandatory qualification)</b>   | Up to 15 points |
|  | <b>Research Project</b>   | Instructions: The research project shall consist of a maximum of 3 pages, be written in Italian or in English, focus on an original research topic and it shall be structured as follows: introduction of the problem in the scientific context, significance of the problem, expected results, argumentation. <u>It shall amount to no commitment on the subsequent choice of the doctoral thesis</u> | Up to 4 points  |
|  | <b>Scientific publications</b>  | Including abstracts and/or papers presented at conventions or meetings on topics relevant for the Doctorate in Neurosciences   | Up to 8 points  |
|  | <b>Other qualifications</b>   | Clinical specialty<br>Experience abroad.   | Up to 4 points  |

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| <b>Foreign language</b>                | Language the fluency of which shall be assessed during the Oral Exam: <b>ENGLISH.</b><br>The language assessment will be oral and will consist in reading and translating orally a passage from a scientific article.   |
| <b>Schedule of the admission exams</b> | <p><b>WRITTEN EXAM DATE:</b> 24 September 2014<br/> <b>TIME:</b>10:00am<br/> <b>PLACE:</b> Department of Neurosciences – Physiology Section<br/> Via Volturmo, 39 – 43125 PARMA, ITALY</p> <p><b>ORAL EXAM DATE:</b> 24 September 2014<br/> <b>TIME:</b> 4:00pm<br/> <b>PLACE:</b> Department of Neurosciences – Physiology Section<br/> Via Volturmo, 39 – 43125 PARMA, ITALY</p>  |
| <b>Written Exam topics</b>             | <p>The Written Exam for the topics pertaining to <u>Neurosciences</u> will consist of a written essay on one of the following topics:</p> <ol style="list-style-type: none"> <li>1) The genesis of the nervous impulse;</li> <li>2) synapsis;</li> <li>3) reflexes;</li> <li>4) molecular and cellular bases of signal transduction;</li> <li>5) the motor system;</li> <li>6) the visual system;</li> <li>7) the somatosensory system;</li> <li>8) neurobiology of language;</li> <li>9) neurobiology of attention;</li> <li>10) memory and learning.</li> </ol> <p>The Written Exam for the topics pertaining to <u>Biology of Behaviour</u> will consist of a written essay on one of the following topics:</p> <ol style="list-style-type: none"> <li>1) Individual and social learning;</li> <li>2) Imprinting and behaviour development;</li> <li>3) Genetics and epigenetics of behaviour;</li> <li>4) Parental investment and sexual selection;</li> <li>5) Social behaviour, reproductive systems and parental care;</li> <li>6) Aggressiveness and aggression and social hierarchies;</li> <li>7) Hormones, neurotransmitters and behaviour;</li> <li>8) Kin selection and altruism;</li> <li>9) Evolution of behaviour;</li> <li>10) Communication and emotions.</li> </ol> <p>At the beginning of the exam (which will have a maximum duration of three hours) two topics relating to Neurosciences and two topics relating to Biology of Behaviour will be selected randomly from those listed above, allowing candidates to choose one for their exam</p> |
| <b>Oral Exam topics</b>                | The Oral Exam will focus on the Written Exam essay, on a brief presentation by the candidate of his/her research project and on the discussion of the candidate's reasons to attend the Doctorate Program in Neurosciences and of his/her specific research interests.  |
| <b>OTHER INFORMATION</b>               | For foreign candidates, the Oral Exam may be held in English at the candidate's choice.   |