
Testi del Syllabus

Resp. Did. **BERNARDIS PAOLO** **Matricola: 009028**

Docenti **BERNARDIS PAOLO, 6 CFU**
CHIANDETTI CINZIA, 1 CFU

Anno offerta: **2021/2022**

Insegnamento: **894SM - NEUROSCIENZE COGNITIVE**

Corso di studio: **SM54 - NEUROSCIENZE**

Anno regolamento: **2020**

CFU: **7**

Settore: **M-PSI/02**

Tipo Attività: **C - Affine/Integrativa**

Anno corso: **2**

Periodo: **Primo Semestre**



Testi in italiano

Lingua insegnamento English

Contenuti (Dipl.Sup.) Course arguments:- Introduction to cognitive neuroscience - Methods of cognitive neuroscience (EEG, ERP, fMRI, TMS)- Vision (early visual processes + object and face recognition)- Attention and Space perception- Motor control (planning of movements and the dorsal stream)- Memory (Amnesia and medial temporal lobes + frontal contributions to memory and false memory)- Speech comprehension + Speech Production- Mathematical abilities- How to prepare an oral presentation.
Prof. CHIANDETTI: Soft modularism: The core knowledge hypothesis.

Testi di riferimento Main Textbook: Jamie Ward. (2015). The Student's Guide to Cognitive Neuroscience. Psychology Press: NY. 3rd edition.
Prof. CHIANDETTI: The paper (mandatory):
VALLORTIGARA G, CHIANDETTI C, RUGANI R, SOVRANO VA, REGOLIN L (2010). Animal Cognition. Wiley Interdisciplinary Reviews: Cognitive Science (1) 882-893
Further reading (not mandatory) in Italian only: Chapter 2 - CHIANDETTI C, DEGANO E (2017). Animali. Capacità uniche e condivise tra le specie. Mondadori Università.

Obiettivi formativi The course is intended to provide students with a brain-based account of cognition, and a wide knowledge of the neuroscience methods.

1. Knowledge and understanding.
 - knowledge of basic principles, and the most up-to-date investigation techniques in the cognitive neuroscience field;
 - knowledge of cognitive system architecture, and theoretical models.
2. Applying knowledge and understanding.

The students will be encouraged to propose how to apply his/her knowledge about brain anatomy and physiology to models of human cognition. Moreover, he/she will be able to understand the basic functioning principles of the most commonly used techniques cognitive neuroscience.

3. Making judgements

The student will be able to have a global knowledge of the cognitive system. Particularly he/she will be able to figure out how cognitive processes can be plausibly implemented in the nervous system.

4. Communication skills.

During the course the student will improve his knowledge of technical and scientific terms necessary to describe cognitive processes and psychological theories. The appropriateness of language will be assessed during the written examination.

5. Learning abilities.

Learning abilities will be favored by practical laboratories on some of the experimental techniques explained during the course.

Prerequisiti

None

Metodi didattici

Theoretical lectures and workgroup

Altre informazioni

Scientific papers, web links and lessons' pdf will be given during the course, and could be downloaded from the teacher website: www.units.it/bernardis/didattica.html

Prof. CHIANDETTI: Lecture presentations, links, scientific papers, and other info will be uploaded during the course on Moodle2.

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Any necessary change in the course modalities due to COVID19 emergency will be published at the Department, Master Programme and course websites.

Modalità di verifica dell'apprendimento

EXAM:

Written part (50%): open questions. Students should respond to the questions in 1 hour of time.

Oral part (50%): Presentation of a short empirical paper to the class. Instruction on how to prepare the presentation will be given during the course.

Programma esteso

A brief summary of the brain structures, from the neuron to the highly specialized areas of the cortex. An extensive exposition of the cognitive neuroscience methods: electrophysiology, brain imaging, patients' studies, and transcranial magnetic stimulation. The main theories and findings in the fields of high- and low-level vision, space perception, human movement, mathematical abilities, and language.

The course will be organized in two parts: 46 Hs of introductory theoretical lectures, 8 of which are conceived as a specific seminar dedicated to comparative cognition, and held by prof. Cinzia Chiandetti. The seminar will focus on the core knowledge hypothesis, showing how studies on non-human animals, infants and tribal populations can shed light on the existence of raw mechanisms predisposed in the brain, shared by species, and at the basis of further learning abilities in the domains of space, number, intuitive physics and psychology.

The second part is devoted to students' presentation (8 Hs) of scientific papers. Each student will have to orally present to the class a scientific paper in the Journal club format. The papers will be chosen from a selection provided by the teacher during the course. Students are encouraged to use electronic presentations. The presentation is mandatory.

Students, who didn't have the possibility to present the scientific paper (because abroad), must prepare a critical essay to send by email one

week before the examination. For more information, contact the professor by email. The list of papers will be available during the course.



Testi in inglese

	English
	<p>Course arguments:- Introduction to cognitive neuroscience - Methods of cognitive neuroscience (EEG, ERP, fMRI, TMS)- Vision (early visual processes + object and face recognition)- Attention and Space perception- Motor control (planning of movements and the dorsal stream)- Memory (Amnesia and medial temporal lobes + frontal contributions to memory and false memory)- Speech comprehension + Speech Production- Mathematical abilities- How to prepare an oral presentation.</p> <p>Prof. CHIANDETTI: Soft modularism: The core knowledge hypothesis.</p>
	<p>Main Textbook: Jamie Ward. (2015). The Student's Guide to Cognitive Neuroscience. Psychology Press: NY. 3rd edition.</p> <p>Prof. CHIANDETTI: The paper (mandatory): VALLORTIGARA G, CHIANDETTI C, RUGANI R, SOVRANO VA, REGOLIN L (2010). Animal Cognition. Wiley Interdisciplinary Reviews: Cognitive Science (1) 882-893</p> <p>Further reading (not mandatory) in Italian only: Chapter 2 - CHIANDETTI C, DEGANO E (2017). Animali. Capacità uniche e condivise tra le specie. Mondadori Università.</p>
	<p>The course is intended to provide students with a brain-based account of cognition, and a wide knowledge of the neuroscience methods.</p> <ol style="list-style-type: none">1. Knowledge and understanding.<ul style="list-style-type: none">- knowledge of basic principles, and the most up-to-date investigation techniques in the cognitive neuroscience field;- knowledge of cognitive system architecture, and theoretical models.2. Applying knowledge and understanding.<p>The students will be encouraged to propose how to apply his/her knowledge about brain anatomy and physiology to models of human cognition. Moreover, he/she will be able to understand the basic functioning principles of the most commonly used techniques cognitive neuroscience.</p>3. Making judgements The student will be able to have a global knowledge of the cognitive system. Particularly he/she will be able to figure out how cognitive processes can be plausibly implemented in the nervous system.4. Communication skills. During the course the student will improve his knowledge of technical and scientific terms necessary to describe cognitive processes and psychological theories. The appropriateness of language will be assessed during the written examination.5. Learning abilities. Learning abilities will be favored by practical laboratories on some of the experimental techniques explained during the course.
	None

Theoretical lectures and workgroup

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