Ano Letivo   2019-20

Unidade Curricular   NEUROCIÊNCIAS COGNITIVAS

Cursos   NEUROCIÊNCIAS COGNITIVAS E NEUROPSICOLOGIA (2.º ciclo)
ESPECIALIZAÇÃO DE NEUROPSICOLOGIA

Unidade Orgânica   Faculdade de Ciências Humanas e Sociais

Código da Unidade Curricular   15261023

Área Científica   PSICOLOGIA

Sigla

Línguas de Aprendizagem
English

Modalidade de ensino
Teóricas e teóricas-práticas

Docente Responsável   Alexandra Isabel Dias Reis

DOCENTE	TIPO DE AULA	TURMAS	TOTAL HORAS DE CONTACTO (*)
Karl Magnus Petersson	OT; T; TP	T1; TP1; OT1	19,5T; 19,5TP; 5OT

* Para turmas lecionadas conjuntamente, apenas é contabilizada a carga horária de uma delas.

ANO	PERÍODO DE FUNCIONAMENTO*	HORAS DE CONTACTO	HORAS TOTAIS DE TRABALHO	ECTS
1º	S1	19,5T; 19,5TP; 5OT	140	5

* A-Anual;S-Semestral;Q-Quadrimestral;T-Trimestral

Precedências

Sem precedências

Conhecimentos Prévios recomendados

Conhecimento em Psicologia Cognitiva / Biológica / Neurobiológica no nível BSc é útil. Além disso, o conhecimento elementar em Neurociência e Biologia / Química / Física é útil.

Objetivos de aprendizagem (conhecimentos, aptidões e competências)

Nesta unidade curricular apresentam-se diferentes conceitos e modelos necessários à compreensão das bases biológicas dos processos cognitivos, comportamentais e emocionais. Será dado destaque aos resultados obtidos com metodologias e técnicas actuais, incluindo os métodos de neuroimagem, que permitem investigar as bases neuronais de processos cognitivos como a memória, linguagem, atenção e processos emocionais. Ao concluir a unidade curricular, o estudante deverá mostrar as seguintes competências: a) saber caracterizar a organização de diferentes processos cognitivos e emocionais; b) saber relacionar os diferentes aspectos da cognição e do comportamento com as suas bases biológicas; c) saber quais os tópicos actuais de investigação em Neurociências Cognitivas; e d) conhecer as principais metodologias de investigação em Neurociências Cognitivas; e) discutir tópicos actuais neste domínio científico.

Conteúdos programáticos

(1) Brain and mind from the perspective of Cognitive Neuroscience: An overview of the subject
(2) Information processing infrastructure: Basic neurobiology & neurophysiology
(3) Neuroanatomy
(4) The first half of the perception-action cycle
(5) Vision & object recognition
(6) The second half of the perception-action cycle
(7) The encoding-retrieval cycle in interaction with the perception-action cycle;
(8) The neurocognition of language
(9) The neurocognition of attention
(10) Working memory: Cognitive Control

Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular

O programa de curso é selecionado para fornecer conhecimentos e conceitos fundamentais em Neurociência Cognitiva relevantes para o estado atual da pesquisa nesta área científica. Conhecimentos e teorias atuais serão apresentados juntamente com estudos experimentais. A análise de trabalhos científicos concretiza e ilustra as seções do programa.

Metodologias de ensino (avaliação incluída)

The theoretical classes follow the classical lecture method. Nevertheless, the student is constantly invited to participate in order to better understand the different concepts and topics presented in the course. Students will be evaluated by written examinations at the end of the course. In order to pass the course the student will score an average of at least 10 (max 20). In case the student does not achieve an average of at least 10, the student will be provided the opportunity to pass the course through a final written exam.

Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular

A metodologia expositiva das aulas teóricas é adequada para o conhecimento teórico e uma compreensão adequada dos temas do programa.

Bibliografia principal

Baddeley, A. (2003). Working memory: Looking back and looking forward. Nat Rev Neuroscience, 4, 829?839.

Botvinick, M. M. (2008). Hierarchical models of behavior and prefrontal function. Trends in Cog Sciences, 12, 201?208.

Gazzaniga, M. S., Ivry, R. B., Mangun, G. R., Steven, M. S. (2009). Cognitive Neuroscience: The Biology of Mind, 3rd Edition.

Hagoort, P., & Van Berkum, J. A. (2007). Beyond the sentence given. Philosophical Transactions of the Royal Society B, 362, 801?811.

Koch, C., & Laurent, G. (1999). Complexity and the nervous system. Science, 284, 96?98.

MacSweeney, M., Capek, C. M., Campbell, R., & Woll, B. (2008). The signing brain: the neurobiology of sign language. Trends in Cog Sciences, 12, 432?440.

Stoet, G., & Snyder, L. H. (2009). Neural correlates of executive control functions in the monkey. Trends in Cog Sciences, 13, 228?234.

Yang, C. D. (2004). Universal grammar, statistics or both? Trends in Cognitive Sciences, 8, 451?456.

Academic Year

2019-20

Course unit

COGNITIVE NEUROSCIENCE

Courses

COGNITIVE NEUROSCIENCE AND NEUROPSHICOLOGY
ESPECIALIZAÇÃO DE NEUROPSICOLOGIA

Faculty / School

FACULTY OF HUMAN AND SOCIAL SCIENCES

Main Scientific Area

PSICOLOGIA

Acronym

Language of instruction

English

Teaching/Learning modality

Lectures

Coordinating teacher

Alexandra Isabel Dias Reis

Teaching staff	Type	Classes	Hours (*)
Karl Magnus Petersson	OT; T; TP	T1; TP1; OT1	19,5T; 19,5TP; 5OT

* For classes taught jointly, it is only accounted the workload of one.

Contact hours

T	TP	PL	TC	S	E	OT	O	Total
19,5	19,5	0	0	0	0	5	0	140

T - Theoretical; TP - Theoretical and practical ; PL - Practical and laboratorial; TC - Field Work; S - Seminar; E - Training; OT - Tutorial; O - Other

Pre-requisites

no pre-requisites

Prior knowledge and skills

Knowledge in Cognitive/Biological/Neurobiological Psychology at the BSc level is helpful. In addition, elementary knowledge in Neuroscience and Biology/Chemistry/Physics is useful.

The students intended learning outcomes (knowledge, skills and competences)

This course presents concepts and models, based on neurobiology and information processing, needed to understand the neurobiological basis of cognition, emotion and behavior. Emphasis will be given to results obtained with current methodologies and techniques, including neuroimaging methods, which allow to investigate the neural basis of cognitive processes such as memory, language, attention and emotional processes. After completing the course, students must show the following skills: a) characterize the organization of different cognitive and emotional processes; b) know how to relate the different aspects of cognition and behavior to their biological basis; c) be acquainted with current research topics in Cognitive Neuroscience; d) identify the principal research methodologies in Cognitive Neuroscience; and e) know how to discuss current topics in this scientific field.

Syllabus

(1) Brain and mind from the perspective of Cognitive Neuroscience: An overview of the subject
(2) Information processing infrastructure: Basic neurobiology & neurophysiology
(3) Neuroanatomy
(4) The first half of the perception-action cycle
(5) Vision & object recognition
(6) The second half of the perception-action cycle
(7) The encoding-retrieval cycle in interaction with the perception-action cycle;
(8) The neurocognition of language
(9) The neurocognition of attention
(10) Working memory: Cognitive Control

Demonstration of the syllabus coherence with the curricular unit's learning objectives

The course program is selected to provide fundamental knowledge and concepts in Cognitive Neuroscience relevant to the current state of research in this scientific area. Current knowledge and theories will be presented along with experimental studies. The analysis of scientific papers concretize and illustrate the sections of the program.

Teaching methodologies (including evaluation)

The theoretical classes follow the classical lecture method. Nevertheless, the student is constantly invited to participate in order to better understand the different concepts and topics presented in the course. Students will be evaluated by written examinations at the end of the course. In order to pass the course the student will score an average of at least 10 (max 20). In case the student does not achieve an average of at least 10, the student will be provided the opportunity to pass the course through a final written exam.

Demonstration of the coherence between the teaching methodologies and the learning outcomes

The expository methodology from the theoretical classes is adequate for the theoretical knowledge and a proper understanding of the program topics.

Main Bibliography

Baddeley, A. (2003). Working memory: Looking back and looking forward. Nat Rev Neuroscience, 4, 829?839.

Botvinick, M. M. (2008). Hierarchical models of behavior and prefrontal function. Trends in Cog Sciences, 12, 201?208.

Gazzaniga, M. S., Ivry, R. B., Mangun, G. R., Steven, M. S. (2009). Cognitive Neuroscience: The Biology of Mind, 3rd Edition.

Hagoort, P., & Van Berkum, J. A. (2007). Beyond the sentence given. Philosophical Transactions of the Royal Society B, 362, 801?811.

Koch, C., & Laurent, G. (1999). Complexity and the nervous system. Science, 284, 96?98.

MacSweeney, M., Capek, C. M., Campbell, R., & Woll, B. (2008). The signing brain: the neurobiology of sign language. Trends in Cog Sciences, 12, 432?440.

Stoet, G., & Snyder, L. H. (2009). Neural correlates of executive control functions in the monkey. Trends in Cog Sciences, 13, 228?234.

Yang, C. D. (2004). Universal grammar, statistics or both? Trends in Cognitive Sciences, 8, 451?456.