

**COURSE DATA****Data Subject**

Code	40144
Name	Behavioural neurobiology
Cycle	Master's degree
ECTS Credits	6.0
Academic year	2021 - 2022

Study (s)

Degree	Center	Acad. year	Period
2074 - M.D. in Basic and Applied Neurosciences	Faculty of Biological Sciences	1	First term

Subject-matter

Degree	Subject-matter	Character
2074 - M.D. in Basic and Applied Neurosciences	3 - Neurobiology of behaviour	Obligatory

Coordination

Name	Department
SALVADOR FERNANDEZ-MONTEJO, OTILIA ALICIA	268 - Psychobiology
VINADER CAEROLS, CONCEPCION	268 - Psychobiology

SUMMARY

The subject Neurobiology of Behavior is located in the first four-month period of the Master in Basic and Applied Neurosciences of the Universitat de València. It shares teaching period with Cellular and Molecular Neurobiology and Systems Neurobiology. The object of study of Behavioral Neurobiology is located at the highest level of integration among those in which neuroscientists move (e.g., molecular, cellular, systems, organism). In this subject the student is expected to know, in addition to the basic contents, the fundamentals of the experimental methods and techniques used in the study of animal and human behavior, while at the same time contributing to develop the ability to communicate this type of experimental work.



The general objective of the course Neurobiology of Behavior is to provide the student with knowledge related to (a) the design and selection of research techniques of human and animal behavior; (b) the biological bases of motivation and emotion, social behavior, learning and memory; and (c) other higher cognitive processes, in an introductory way to Neuropsychology, and taking into account the differentiation due to sex and age.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

OUTCOMES

2074 - M.D. in Basic and Applied Neurosciences

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Ser capaz de aplicar las técnicas de búsqueda, identificación, selección y recogida de información científica especializada, así como de los métodos que se han de tener en cuenta a la hora de examinar críticamente cualquier clase de fuentes y documentos científicos.
- Saber comunicar el conocimiento sobre neurociencia y sus implicaciones a públicos especializados y no especializados de un modo claro y sin ambigüedades, usando la lengua propia y el inglés.
- Saber diseñar estrategias experimentales multidisciplinarias en el ámbito de las neurociencia comportamental, cognitiva y afectiva para la resolución de problemas biológicos complejos
- Comprender el papel del profesional en neurociencias en el contexto científico y social
- Comprender las aproximaciones experimentales y sus limitaciones así como interpretar resultados científicos en neurociencia comportamental, cognitiva y afectiva
- Conocer las estructuras y mecanismos biológicos básicos del comportamiento y de los procesos psíquicos



- Ser capaz de comprender y conocer las implicaciones de los procesos evolutivos para el desarrollo del comportamiento y de la psique, tanto onto- como filogenéticamente, atendiendo a la diferenciación sexual.
- Adquirir y entender las bases del funcionamiento neurobiológico y sus implicaciones en el comportamiento y procesos psíquicos
- Saber aplicar el método científico a los estudios en neurociencias y poseer el espíritu crítico requerido para distinguir la información científica rigurosa de la pseudociencia
- Conocer los principios éticos y legales de la investigación científica en neurociencia cognitiva y afectiva.
- Saber trabajar en equipos multidisciplinares y diseñar estrategias experimentales multidisciplinares en el ámbito de las neurociencias para la resolución de problemas biológicos complejos
- Saber trabajar de manera responsable y rigurosa en el laboratorio, considerando los aspectos de seguridad, manipulación y eliminación de residuos así como del correcto uso de los animales de experimentación y los principios éticos para la investigación en humanos.
- Conocer los principios éticos y legales de la investigación científica en neurociencias
- Comprender las aproximaciones experimentales y sus limitaciones, así como interpretar resultados científicos en neurociencias y saber elaborar y redactar informes que los describan
- Adquirir destrezas en el manejo de las metodologías empleadas en las neurociencias y en el registro anotado de actividades, así como en el manejo de programas informáticos para la obtención y análisis de los datos y la exposición de los resultados
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Comprender las relaciones entre ciencia y sociedad y la ubicación de la neurociencia en el contexto de la ciencia actual.
- Saber elaborar y redactar informes en el ámbito de la investigación.

LEARNING OUTCOMES

1. Demonstrate understanding of brain mechanisms of behavior and mental processes.
2. Demonstrate practical proficiency in experimental methodologies used in behavioral neurobiology.
3. Effectively organize information and public presentations with rational and scientific arguments.
4. Demonstrate ability to solve theoretical and practical questions related to the subject matter.

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Theory classes	18,00	100
Laboratory practices	9,00	100
Tutorials	9,00	100
Seminars	2,50	100
Other activities	2,00	100
Preparing lectures	109,50	0
TOTAL	150,00	

TEACHING METHODOLOGY

Lecture with active participation through discussion of the most complex aspects and resolution of doubts and questions.

Practical activities, problem solving, practical cases, preparation of practical reports, etc.

EVALUATION

The evaluation of the subject includes the attendance to the sessions and all the activities included in it.

To pass the subject the student must obtain a score higher than 5/10, and obtain at least 50% of the maximum score in the knowledge and skills test for the rest of the activities to be considered in the final grade.

The percentage of each of the activities will be as follows:

Evaluation of the group tutorials at the beginning of the course: 15%.

Theoretical-practical knowledge and skills test: 60%.

Other activities included in the evaluation: 25%.

REFERENCES**Basic**

- BEAR, M.F., CONNORS, B.W. y PARADISO, M.A. (2016) Neurociencia. La exploración del cerebro (4ª edic.). LWW Lippincott Wolters Kluwer, Madrid
- CARLSON, N.R. (2018). Fisiología de la conducta (12 ed.). Pearson Educación SA, Madrid.
- COLLADO, P. et al. (2016). Psicología Fisiológica. UNED, Madrid.
- KANDEL, ER, et al. 2021 (6ª Ed.) Principles of neural sciences. McGraw-Hill/Interamericana de España. Edición inglesa en la misma editorial en 2000.



KOLB B., WHISHAW I.Q. (2016) Neuropsicologia Humana. Medica Panamericana, Madrid.
NELSON, R.J. & KRIEGSFELD, L.L. (2017): An Introduction to Behavioral Endocrinology, Fifth Edition. Sinauer Associates: Sunderland
PURVES D, ET AL. 2016. Neurociencia, 5ª edición. Madrid: Editorial Médica Panamericana.
REDOLAR RIPOLL, D. (2013). Neurociencia Cognitiva. Panamericana, Madrid.
TOATES, F (2011) Biological Psychology. Prentice Hall.
TIRAPU-USTARROZ, J, García-Molina J., Rios-Lago, M., Ardila, R. (2012). Neuropsicología de la corteza prefrontal y las funciones ejecutivas. Ed. Viguera.
SQUIRE ET AL. 2008. Fundamental Neuroscience, 3rd Edition. Nueva York: Academic Press.

Additional

- Crawley JN, Gerfen CR, Rogawski MA, Sibley DR, Skolnick P, Wray S (Eds). 2007. Short protocols in neuroscience. Systems and behavioral methods. Hoboken, NJ: John Wiley & Sons.
Kamble S. 2007. Psychology of learning behaviour. Nueva Deli: Global Vision Publishing House.
Martin P, Bateson P. 2007. Measuring behaviour: an introductory guide, 3rd Edition. Cambridge University Press.

Páginas webs:

Sociedad Española de Neurociencia: <http://www.websenc.es/>
Federation of European Neuroscience Societies: <http://fens.mdc-berlin.de/>
Society for Neuroscience: <http://www.sfn.org/>

Se podrá añadir la específica de cada tema.

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

ADDENDA

1. CONTENTS

The contents are maintained with respect to the original guide, although greater emphasis will be placed on those necessary for the acquisition of the competencies and learning outcomes of the course.

2. WORKLOAD AND TIME SCHEDULE OF THE COURSE

The workload of the course and its planning during the first four-month period will be in accordance with the health regulations in force.



3. TEACHING METHODOLOGY

In accordance with the regulations in force, the teaching methodology will be hybrid, preferably face-to-face if health conditions allow it.

4. EVALUATION

The evaluation of the academic guide is maintained and, if necessary, will be adapted to the health circumstances and the regulations in force.

5. BIBLIOGRAPHY

The one that appears in the corresponding section of the Academic Guide.