

IDENTIFICATION DETAILS

Degree:	Biomedicine			
Scope	Biology and Genetics			
Faculty/School:	Experimental Sciences			
Course:	MOLECULAR BASICS OF NEURO-DEGENERATIVE DISEASE			
Туре:	Optional		ECTS credits:	3
Year:	4		Code:	2175
Teaching period:	Seventh semester			
Subject:	Molecular Aspects of Diseases			
Module:	Foundations of Biomedicine			
Teaching type:	Classroom-based			
Language:	Spanish			
Total number of student study hours:	75			

SUBJECT DESCRIPTION

The course program addresses the foundations and current advances in the physiopathology of the nervous system in relation to neurodegenerative diseases, given their importance at a social, health and scientific level. It is intended to provide Biomedicine students with the necessary training to understand the cellular and molecular bases of the functioning of the nervous system and in particular of the genetic factors and molecular processes involved in the onset and development of neurodegenerative disorders. At the same time, the knowledge acquired will be related to the clinical application and different treatments used in these pathologies and to the development of experimental models for their study.

Provide students with an up-to-date view of the field of Neuroscience and knowledge of the cellular and molecular bases of nervous system functioning, as well as of the most prevalent neurodegenerative diseases. The specific purposes of the course are: To provide students with an up-to-date view of the field of neuroscience and knowledge of the basic cellular and molecular bases on the functioning of the nervous system, through alterations in the most prevalent neurodegenerative diseases. To enable students to discern, in a logical way, the sites of action of current and future therapeutic alternatives.

PRIOR KNOWLEDGE

Basic knowledge of cell biology and genetics is required.

COURSE SYLLABUS

Theme 1: Neurodegenerative diseases as a biomedical challenge. Epidemiological aspects.
Topic 2: Cellular and molecular bases of the nervous system.
Theme 3: Basic molecular mechanisms involved in aging and neurodegeneration.
Topic 4: Molecular and Cellular Bases of Epilepsy
Topic 5: Molecular and Cellular Bases of Stroke
Topic 6: Alzheimer's Disease and Other Dementias.
Topic 7: Parkinson's Disease.
Topic 8: Huntington's Disease
Topic 9: Molecular and cellular bases of cerebellar ataxias.
Topic 10: Spinal motor neuron diseases: Amyotrophic lateral sclerosis.
Topic 11: Demyelinating Diseases: Multiple Sclerosis.
Topic 12: Glial Brain Tumors.

EDUCATION ACTIVITIES

Expository classes: the proposed topics will be addressed, using the blackboard and audiovisual media. Student discussion and participation will be promoted to facilitate their assimilation and learning. The graphic material used in the classroom, as well as complementary material, will be made available to students, through the Virtual Classroom.

Presentation of works: to aid in the applied learning of the contents of the subject, students must do a written work and then present it orally.

Tutoring: The tutorials will serve to clarify doubts and detect imbalances in the achievement of learning. They will review the main difficulties in the development of the subject's syllabus, and the progress made in the acquisition of knowledge and competencies by students will be analyzed in an open discussion. The tutoring schedule can be consulted in the degree coordinator and will be informed by the teacher at the beginning of the course.

DISTRIBUTION OF WORK TIME

TEACHER-LED TRAINING ACTIVITIES

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LEARNING RESULTS

To know the general mechanisms of the disease and its associated molecular, structural and functional alterations, its syndromic expression and the therapeutic tools to restore health.

SPECIFIC LEARNING RESULTS

That students have demonstrated that they have and understand knowledge in an area of study that builds on the basis of general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study. That students know how to apply their knowledge to their work or vocation in a professional way and possess the competencies that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study. That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant social, scientific or ethical issues. That students can transmit information, ideas, problems and solutions to both specialized and non-specialized audiences. That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

LEARNING APPRAISAL SYSTEM

- The acquisition of knowledge through a written test will be assessed. The grade obtained in the written test will represent 70% of the final grade of the subject. Works/Practices/Activities: they will account for 30%.

- The acquisition of knowledge and skills in the interpretation of scientific articles related to neurodegenerative diseases will be evaluated through the completion of a work that will be presented in writing and orally.

- Attendance at classes and seminars is mandatory. The unjustified absence of any of these sessions leads to the loss of the right to evaluation in the ordinary call and a suspension of the subject. Students in this situation should immediately contact the teacher. The attitude demonstrated during the seminar will be evaluated.

- As this is the last year of the degree, students in second enrollment and subsequent students will be evaluated in the same way as those in the first enrollment. - Plagiarism, as well as the use of illegitimate means in evaluation tests, will be sanctioned in accordance with those established in the Evaluation Regulations and the Regulations on Coexistence of the university.

In order for the grades obtained in the written exam and the work to be taken into account for the average, each of the parts must be passed with a score greater than or equal to 5 points out of 10. Students who obtain a score lower than 5 points in any of these parts must submit to the extraordinary call to pass the part or parts not passed.
In the case of students who go to the extraordinary call, the final grade of the subject will be the exam score. The alternative evaluation system for students in second or subsequent enrollment consists of the same activities and percentages as the ordinary evaluation system. All students in second or subsequent enrollment should contact the teacher at the beginning of the course to inform him of their particular academic case studies.

- Plagiarism, as well as the use of illegitimate means in evaluation tests, will be sanctioned in accordance with the university's Evaluation Regulations and Coexistence Regulations.

ETHICAL AND RESPONSIBLE USE OF ARTIFICIAL INTELLIGENCE

1.- The use of any Artificial Intelligence (AI) system or service shall be determined by the lecturer, and may only be used in the manner and under the conditions indicated by them. In all cases, its use must comply with the following principles:

a) The use of AI systems or services must be accompanied by critical reflection on the part of the student regarding their impact and/or limitations in the development of the assigned task or project.

b) The selection of AI systems or services must be justified, explaining their advantages over other tools or methods of obtaining information. The chosen model and the version of AI used must be described in as much detail as possible.

c) The student must appropriately cite the use of AI systems or services, specifying the parts of the work where they were used and describing the creative process followed. The use of citation formats and usage examples may be consulted on the Library website(<u>https://www.ufv.es/gestion-de-la-informacion_biblioteca/</u>).

d) The results obtained through AI systems or services must always be verified. As the author, the student is responsible for their work and for the legitimacy of the sources used.

2.- In all cases, the use of AI systems or services must always respect the principles of responsible and ethical use upheld by the university, as outlined in the <u>Guide for the Responsible Use of Artificial Intelligence in Studies at UFV</u>. Additionally, the lecturer may request other types of individual commitments from the student when deemed necessary.

3.- Without prejudice to the above, in cases of doubt regarding the ethical and responsible use of any AI system or service, the lecturer may require an oral presentation of any assignment or partial submission. This oral evaluation shall take precedence over any other form of assessment outlined in the Teaching Guide. In this oral defense, the student must demonstrate knowledge of the subject, justify their decisions, and explain the development of their work.

BIBLIOGRAPHY AND OTHER RESOURCES

Basic

Purves et al. Pan-American Neuroscience 5th Edition. 2016

Additional

Dickson & Weller Panamerican Neurodegeneration 2nd Edition, 2012