

IDENTIFICATION DETAILS

Degree:	Biotechnology			
Scope	Biology and Genetics			
Faculty/School:	Experimental Sciences			
Course:	MOLECULAR PATHOLOGY			
		_		
Туре:	Optional		ECTS credits:	3
Year:	4		Code:	2057
		-		
Teaching period:	Seventh semester			
Subject:	Molecular Biomedicine			
Module:	Biochemistry and Molecular Biology			
Teaching type:	Classroom-based			
Language:	Spanish			
Total number of student study hours:	75			

SUBJECT DESCRIPTION

Knowledge of the molecular processes that underlie the main pathologies in human beings is necessary for the design of new therapies and approaches from the field of Biotechnology. The perspective will be as broad as possible, with regard to the systems, organs and pathologies under study

GOAL

To know the biochemical and molecular mechanisms underlying the main human pathologies as well as their clinical significance. Research current challenges in the prevention and treatment of these diseases.

The specific aims of the subject are:

Understand the main mechanisms that lead to a pathological process.

Know the peculiarities of the different organs and tissues of the human body in the development of diseases.

Foster critical capacity in the analysis of scientific information.

PRIOR KNOWLEDGE

It is necessary to be familiar with essential aspects of Human Physiology and General Biochemistry. It is also highly recommended to have knowledge of Metabolic Regulation.

COURSE SYLLABUS

- 1. Cell pathology
- 2. Inflammation
- 3. Neoplasia
- 4. Control of the internal environment
- 5. Molecular physiopathology of Alzheimer's disease
- 6. Molecular physiopathology of motor diseases (Parkinson's and Huntington's)
- 7. Molecular physiopathology of retinal damage
- 8. Molecular physiopathology of diabetes mellitus
- 9. Molecular physiopathology of atherosclerosis
- 10. Molecular physiopathology of hypertension
- 11. Molecular physiopathology of liver cirrhosis
- 12. Molecular physiopathology of peptic ulcer

EDUCATION ACTIVITIES

Participatory exhibition class. The theoretical contents of the subject will be taught in master classes presented by the teacher or by guest teachers. The classes taught by the teacher will cover the essential aspects of the pathology under study: molecular bases, etiology, pathogenesis and physiological impact and clinical significance. Interaction with students will be encouraged, through frequent inquiries and tasks related to other topics. Carrying out and presenting exercises, case studies, debates... The resolution of questions, carrying out tests, solving practical cases, analyzing scientific articles or news, or carrying out work will be evaluated. Tutoring: Through tutoring, the teacher, at the request of the student and at the established time for this purpose, will answer questions or discuss the questions posed to him by the student, in order to guide him in learning the subject

DISTRIBUTION OF WORK TIME

TEACHER-LED TRAINING ACTIVITIES	INDIVIDUAL WORK
35 Horas	40 Horas

SKILLS

Basic Skills

Students must have demonstrated knowledge and understanding in an area of study that is founded on general secondary education. Moreover, the area of study is typically at a level that includes certain aspects implying knowledge at the forefront of its field of study, albeit supported by advanced textbooks

Students must be able to apply their knowledge to their work or vocation in a professional manner and possess skills that can typically be demonstrated by coming up with and sustaining arguments and solving problems within their field of study.

Students must have the ability to gather and interpret relevant data (usually within their field of study) in order to make judgments that include reflections on pertinent social, scientific or ethical issues

Students must be able to convey information, ideas, problems and solutions to both an expert and non-expert audience

Students must have developed the learning skills needed to undertake further study with a high degree of

independence

To acquire firm theoretical, practical, technological and humanistic training needed to develop professional activity.

To have acquired the ability for analytical, synthetic, reflective, critical, theoretical and practical thought.

To foster a concern for knowledge as a key tool in the personal and professional growth process of a student.

To value sciences as a cultural fact.

To develop an ability to search for, take in, analyze, sum up and relate information.

To be familiar with the basic principles and theories of human and experimental sciences.

To develop oral and written communication skills.

General Skills

To acquire firm theoretical, practical, technological and humanistic training needed to develop professional activity.

To have acquired the ability for analytical, synthetic, reflective, critical, theoretical and practical thought.

To foster a concern for knowledge as a key tool in the personal and professional growth process of a student.

To value sciences as a cultural fact.

To develop an ability to search for, take in, analyze, sum up and relate information.

To be familiar with the basic principles and theories of human and experimental sciences.

To develop oral and written communication skills.

Specific skills

Recognize the main causes and types of response to cellular, molecular, subcellular, organ and tissue damage.

Identify the basic mechanisms and processes of different human pathologies.

Develop habits of rigorous thinking.

Ability to communicate the knowledge acquired orally and in writing.

Analyze and synthesize the main ideas and contents of all types of texts; discover the theses contained in them and the issues they raise, and critically judge their form and content.

LEARNING RESULTS

Identify the general mechanisms of cell damage and inflammation.

Describe the main characteristics of the most prevalent pathologies in our society.

Associate molecular mechanisms and changes with their clinical significance.

Interpret recent scientific literature.

LEARNING APPRAISAL SYSTEM

Ordinary evaluation system:

Evaluation of the theoretical content of the subject: evaluation by means of a final exam at the end of the subject, which may be a test, development or short question type. It will represent a maximum of 80% of the student's final grade. It is necessary to pass the exam with a 5 to be able to average the rest of the grades. Carrying out and presenting exercises, case studies, debates... (20%): These exercises can be individual, group or collaborative work. It is necessary for the student to pass the continuous evaluation block in order to pass the subject.

Alternative evaluation system:

Students in second or subsequent enrollment will be able to take advantage of this system. They must contact the teacher to apply for this system.

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 University's 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

publishers, J. Larry Jameson... [et al.]. Harrison: Principles of Internal Medicine/20th ed. Madrid:Mc Graw-Hill Education, 2018.

(publishers, J. Larry Jameson... [et al.]. Harrison: Principles of Internal Medicine/20th ed. Madrid:Mc Graw-Hill Education, 2018., ||Kathryn L. McCance, Sue E. Huether; section editors, Valentina L. Brashers, Neal S. Rote. Pathophysiology: The Biologic Basis for Disease in Adults and Children/8th ed. Missouri:Elsevier, 2019.)

Kumar, Vinay (1944-) Robbins. Human Pathology [Electronic Resource]/10th ed. Madrid:Elsevier, 2018. (Kumar, Vinay (1944-) Robbins. Human Pathology [Electronic Resource]/10th ed. Madrid:Elsevier, 2018., ||Kumar, Vinay (1944-) Robbins and Cotran. Structural and Functional Pathology [Electronic Resource]/9th ed. Madrid:Elsevier, 2018.)