



1. General information

Course: MOLECULAR PHYSIOPATHOLOGY

Type: CORE COURSE

Degree: 376 - UNDERGRADUATE DEGREE PROGRAMME IN PHARMACY

Center: 14 - FACULTY OF PHARMACY

Year: 3

Main language: Spanish

Use of additional
languages:

Web site:

Code: 14321

ECTS credits: 6

Academic year: 2023-24

Group(s): 10

Duration: First semester

Second language: English

English Friendly: Y

Bilingual: N

Lecturer: MARIA DEL ROCIO FERNANDEZ SANTOS - Group(s): 10				
Building/Office	Department	Phone number	Email	Office hours
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Lecturer: EDUARDO NAVA HERNANDEZ - Group(s): 10				
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2. Pre-Requisites

The student must consider that in order to pass this course he or she must have previously studied and passed the subjects of Physiology, Biochemistry and Anatomy.

3. Justification in the curriculum, relation to other subjects and to the profession

The subject "Molecular physiopathology" belongs to module 5, Medicine and Pharmacology, of the Degree in Pharmacy. It studies the molecular, cellular and organic aspects that provide the basis for understanding the responses of the human body in a pathological state.

4. Degree competences achieved in this course

Course competences

Code	Description
B01	Proficiency in a second foreign language at level B1 of the Common European Framework of Reference for Languages.
B02	Knowledge of Information and Communication Technologies (ICT).
B03	A correct oral and written communication
B04	Ethical commitment and professional deontology.
B05	Ability to develop those learning skills necessary to undertake further studies.
EM13	Know and understand the structure and function of the human body, as well as the general mechanisms of disease, molecular, structural and functional alterations, syndromic expression and therapeutic tools to restore health.
G03	Know how to apply the scientific method and acquire skills in the handling of legislation, sources of information, bibliography, elaboration of protocols and other aspects considered necessary for the design and critical evaluation of preclinical and clinical trials.
G09	Intervene in health promotion and disease prevention activities at the individual, family and community levels, with an integral and multi-professional vision of the health-disease process.
G10	Design, apply and evaluate clinical reagents, methods and analytical techniques, knowing the basic principles of clinical analysis and the characteristics and contents of laboratory diagnostic reports.
G13	Develop communication and information skills, both oral and written, to deal with patients and users of the centre where they carry out their professional activity. Promote the capacity to work and collaborate with multidisciplinary teams and those related to other health professionals.
G14	Know the ethical and deontological principles according to the legislative, regulatory and administrative provisions governing professional practice, understanding the ethical implications of health in a changing social context.
G15	Recognise own limitations and the need to maintain and update professional competence, with particular emphasis on self-learning of new knowledge based on scientific evidence.
T01	Critical thinking skills based on the application of the scientific method

T02	Ability to manage quality scientific information, bibliography, specialized databases and resources accessible through the Internet.
T03	Handling of basic and specific software for the treatment of information and experimental results.
T04	Motivation for quality, safety at work and awareness of environmental issues, with knowledge of the internationally recognised systems for the correct management of these aspects.
T05	Organizational, planning and implementation skills.
T06	Ability to address human resources decision-making and management.
T07	Ability to work as a team and, where appropriate, exercise leadership functions, encouraging entrepreneurship.
T08	Develop interpersonal skills and the ability to function in an international and multicultural context.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Apply physiological and pathophysiological knowledge to understanding the mechanisms of disease production.

Develop scientific papers on health and disease related issues or problems

Communicate results and conclusions

Autonomous learning capacity

Basic social communication skills in the performance of their profession.

Critical thinking skills

To instil in the student the attitudes and values (knowing how to be) of the pharmaceutical professional and to stimulate and guide him/her to integrate them into his/her personal attitudes and human qualities.

To know the basic mechanisms by which molecular alterations lead to the production of diseases.

Additional outcomes

Apply physiological and pathophysiological knowledge to understanding the mechanisms of disease production. To know the basic mechanisms by which molecular alterations lead to the production of diseases.

Critical thinking skills

Develop scientific papers on health and disease related issues or problems. Communicate results and conclusions

Basic social communication skills in the performance of their profession. Autonomous learning capacity

To instil in the student the attitudes and values (knowing how to be) of the pharmaceutical professional and to stimulate and guide him/her to integrate them into his/her personal attitudes and human qualities.

6. Units / Contents

Unit 1: General pathophysiology.

Unit 1.1 Practical class 1. General pathophysiology.

Unit 2: Physiopathology of the nervous system.

Unit 2.1 Practical class 2. Physiopathology of the nervous system.

Unit 3: Physiopathology of blood.

Unit 3.1 Practical class 3. Physiopathology of blood.

Unit 4: Cardiovascular pathophysiology.

Unit 4.1 Practical class 4. Cardiovascular pathophysiology.

Unit 5: Respiratory pathophysiology.

Unit 5.1 Practical class 5. Respiratory pathophysiology.

Unit 6: Renal pathophysiology.

Unit 6.1 Practical class 6. Renal pathophysiology.

Unit 7: Physiopathology of the digestive system.

Unit 7.1 Practical class 7. Digestive pathophysiology.

Unit 8: Endocrine pathophysiology.

Unit 8.1 Practical class 8. Endocrine pathophysiology

Unit 9: Osteoarticular physiopathology.

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Combination of methods	B01 B02 B03 B04 B05 EM13 G03 G09 G10 G13 G14 G15 T01 T02 T03 T04 T05 T06 T07 T08	1.44	36	Y	N	The following teaching methodologies will be used in combination: Expository method/lecture, case study and problem solving and/or case studies. The availability of teaching resources will be accessible in the Virtual Campus before the beginning of the activities. In addition, students will have access to bibliographic material in the university library of the Albacete campus. The active participation of the student will be taken into account in the final evaluation of the course. This participation will be assessed through cooperative work both in the classroom and outside it and in the preparation and defense of work and problem solving, both with oral

Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	B01 B02 B03 B04 B05 EM13 G03 G09 G10 G13 G14 G15 T01 T02 T03 T04 T05 T06 T07 T08	0.8	20	Y	Y	Practical teaching will be given within periods established in the academic calendar and that do not coincide with other teaching activities. They will be carried out in classrooms and/or laboratories, all of them equipped with the appropriate means to achieve the proposed objectives. In general, the practical activities will consist of oral presentation of topics, resolution of questionnaires or clinical cases, computer simulation of pathophysiological situations, or functional tests. The practical activities are evaluated together with the theoretical ones and are therefore recoverable.
Study and Exam Preparation [OFF-SITE]	Self-study	B01 B02 B03 B04 B05 EM13 G03 G09 G10 G13 G14 G15 T01 T02 T03 T04 T05 T06 T07 T08	3.6	90	Y	N	The student may request personal tutoring on the contents of the course by previously arranging an interview with the corresponding professor.
Formative Assessment [ON-SITE]	Assessment tests	B03	0.16	4	Y	N	There are 2 partial evaluation tests, the first one being eliminatory. Specific dates have been scheduled in the academic calendar for these evaluation tests. At the end of the theoretical and practical teaching, the student can choose to take only a second partial test, if he/she has passed the first test with at least a mark of 4. If he/she does not pass with at least a 4, he/she may choose to take the ordinary exam of the entire programme.
Total:			6	150			
Total credits of in-class work: 2.4				Total class time hours: 60			
Total credits of out of class work: 3.6				Total hours of out of class work: 90			

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System			
Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Final test	0.00%	80.00%	In the case of students who opt for non-continuous evaluation, they will have a single theoretical-practical exam. Since the practical activities are mandatory and cannot be recovered, the existence of an absence without adequate justification will mean that the student will not be able to pass the course. Students who do not pass this score may opt for another final test (extraordinary exam) whose characteristics and assessment are identical to those of the regular exam.
Assessment of active participation	20.00%	20.00%	Participation in seminars, workshops and different practical activities and those such as clicker sessions will be given a maximum of 20%. In general, the active role of the student in the theoretical classes, practical activities, as well as other activities of individual or group work, and network activities proposed during the course will be taken into account.
Test	70.00%	0.00%	In the continuous evaluation and ordinary call, students may choose to be evaluated by means of 2 partial tests, which are not compulsory. If they have passed the first partial test with more than a 4, they can choose to only take the exam of the remaining contents of the course in a second partial test. If the students do not pass the first partial exam, they can choose to take the entire program in a second partial exam. The THEORETICAL contents will represent 70% of the total grade. The PRACTICAL contents will represent 10% of the total grade. If students do not pass the course by means of partial tests and/or final exam in the ordinary exam, they will be able to take the extraordinary exam.
Test	10.00%	0.00%	This section refers to the evaluation of the PRACTICAL contents of the course, which will take place on the same day as the THEORETICAL test, and which represent 10% of the total grade.
Total:	100.00%	100.00%	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

It will be assumed that all students opt for the continuous mode, unless otherwise informed (non-continuous mode) by e-mail to the professor responsible for the subject at the beginning of the course. The change of modality (from continuous to non-continuous) can be made as long as 50% of the evaluated activities have not been completed or the class period has ended. In these cases, even if the student expresses the intention to change, the change cannot be made.

As established in the degree report, in order to pass this subject it will be essential to have completed the laboratory practicals (the only compulsory activity). Students who repeat the course will keep the practicals for two years.

An evaluation system adapted to the regulatory rules of the University of Castilla-La Mancha will be followed. It is a continuous evaluation system in such a way that the course is passed by accumulating at least 50 points. The grade will result from adding the points obtained in the 2 partial tests, which include both practical and theoretical contents, and the student's participation (maximum of 20 points). In continuous evaluation and ordinary call, students can choose to be evaluated by 2 partial tests, not compulsory. If they have passed the first partial test with more than a 4, they can choose to take the exam of the rest of the contents of the course in a second partial test. If the students do not pass the first partial exam, they may choose to take the entire course syllabus. The THEORETICAL contents will represent 70% of the total grade. The PRACTICAL contents will represent 10% of the total grade. If students do not pass the course by means of partial tests and/or final exam in the ordinary exam, they will be able to opt for the extraordinary exam.

Non-continuous evaluation:

It will be assumed that all students opt for the continuous mode, unless otherwise informed (non-continuous mode) by e-mail to the professor responsible for the subject at the beginning of the course. The change of modality (from continuous to non-continuous) can be made as long as 50% of the evaluated activities have not been completed or the class period has ended. In these cases, even if the student expresses the intention to change, the change cannot be made.

As established in the degree report, in order to pass this subject it will be essential to have completed the laboratory practicals (the only compulsory activity). Students who repeat the course will keep the practicals for two years.

In the case of students who opt for non-continuous evaluation, they will have a theoretical and practical exam which will include theoretical content (70%) and practical content (10%). The grade will be the result of adding the points obtained in the ordinary exam with the participation grade. The activities to be carried out for the evaluation of the participation in the non-continuous mode will be indicated by the teacher. Since the practical activities are compulsory and cannot be made up, the existence of an absence without adequate justification will mean that the student will not be able to pass the course. Students who do not pass this score may opt for another final test (extraordinary exam) whose characteristics and assessment are identical to those of the regular exam.

Specifications for the resit/retake exam:

Those students who do not pass the ordinary exam will have the possibility of recovering the subject in the extraordinary exam. Students who have not reached the mark of 5 in the ordinary exam may sit for the "extraordinary exam" of the whole course. As in the previous call, the computation of the score will be as follows: mark of the "extraordinary exam" x 80/100 (which includes 70 of theoretical knowledge and 10 of practical knowledge) + participation mark 20/100. The participation grade referred to in the above formula corresponds to the mark obtained by the student in the ordinary exam. If the practical part and the participation have to be recovered, the professor will inform about the activities and/or tests to be carried out.

Specifications for the second resit / retake exam:

Only students who meet the requirements set out in the UCLM Student Assessment Regulations will be admitted to this competition and will be assessed in accordance with the criteria applied in the extraordinary competition.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	36
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	20
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Formative Assessment [PRESENCIAL][Assessment tests]	4
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	36
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	20
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Formative Assessment [PRESENCIAL][Assessment tests]	4
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	City	ISBN	Year	Description
Valentina L. Brashers & Neal S. Rote	Fisiopatología. Bases biológicas de la enfermedad	Panamericana	Buenos Aires	978-607-8546-33-6	2020	Recomendable sólo para preparar trabajos
Juan Pastrana Delgado	Fisiopatología y patología general básicas para ciencias de la salud	Elsevier		978-84-8086-946-1	2013	Libro de elección para numerosos temas. Libro sencillo y barato.
Laso, F.J.	Introducción a la medicina clínica. Fisiopatología y semiología	Elsevier-Masson.		978-84-458-2606-5	2015	Libro de elección para numerosos temas. Libro muy completo.
Raul A. Uribe Olivares	Fisiopatología. La ciencia del porqué y el cómo.	Elsevier		978-84-9022-934-7	2018	
Tommie L. Norris	Porth Fundamentos de Fisiopatología	Wolters Kluwer	Philadelphia	978-84-17949-72-3	2021	Libro muy completo útil para la preparación de trabajos