



Information about the subject

Degree: Bachelor of Science Degree in Nursing

Faculty: Faculty of Medicine and Health Sciences

Code: 1211105 **Name:** Human Physiology

Credits: 6,00 **ECTS Year:** 1 **Semester:** 2

Module: Common basic training

Subject Matter: Physiology **Type:** Basic Formation

Field of knowledge: Health sciences

Department: -

Type of learning: Classroom-based learning

Languages in which it is taught: English, Spanish

Lecturer/-s:

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Universidad
**Católica de
Valencia**
San Vicente Mártir

Course guide

Year 2023/2024
1211105 - Human Physiology

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Lecturer**)

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Module organization

Common basic training

Subject Matter	ECTS	Subject	ECTS	Year/semester
Anatomy	6,00	Human and Functional Anatomy	6,00	1/1
Physiology	12,00	Human Physiology	6,00	1/2
		Physiopathology	6,00	2/1
Biochemistry	6,00	Clinical Biochemistry	6,00	1/1
Biostatistic	6,00	Biostatistics and Research Methodology	6,00	1/2
Psychology	6,00	Psychology of Care	6,00	1/1
Pharmacology	6,00	Pharmacology	6,00	2/1
Nutrition	6,00	Nutrition and Dietetics	6,00	2/1
ICT	4,50	ICT	4,50	This elective is not offered in the academic year 23/24
English	6,00	English	6,00	1/2
Life support	6,00	Emergency Care and Life Support	6,00	4/1

Recommended knowledge

No prerequisites specified



Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 To acquire knowledge and identify the structure and function of the human body.
- R2 To understand the molecular and physiological bases of cells, tissues, organs, and systems.
- R3 To perform nursing techniques and/or procedures aimed at assessing the physiological status of the individual.



Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	Students have demonstrated possession and understanding of knowledge in an area of study that is at the core of general secondary education, and is often at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study.		X		
CB2	Students are able to apply their knowledge to their work or vocation in a professional way and possess the skills usually demonstrated by developing and defending arguments and solving problems within their area of study.		X		
CB3	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.			X	
CB4	That students can convey information, ideas, problems and solutions to both specialized and non-specialized audiences.		X		
CB5	Students have developed those learning skills necessary to undertake further study with a high degree of autonomy.			X	

GENERAL		Weighting			
		1	2	3	4
6	To base interventions in nursing on scientific evidence and on the available means.				X
9	To promote healthy life spans, to promote taking care of each person by themselves and support the maintenance of preventive and therapeutic measures.	X			
16	To understand the systems of information related to health.	X			



SPECIFIC		Weighting			
		1	2	3	4
1b	To know and identify the structure and function of the human body.				X
2b	To understand the molecular and physiological basis of cells and tissues.				X
10b	To know pathophysiological processes and their manifestations and the risk factors that determine the health and disease states in the different stages of their vital cycle.	X			



Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
	75,00%	Theoretical written exams
	20,00%	Practical tests and works
	5,00%	Attendance and active participation

Observations

-In order to average the evaluation tests, it will be necessary to obtain a 50%-grade in the written test (3.5 points out of 7 that) and a 50%-grade in the workshops.

-The accomplishment of the workshops is MANDATORY.

-Criteria for awarding Honors: To obtain Excellent with Honors, it is required at least a 90%-grade in the course final evaluation

-Correct use of language will be assessed. Spelling mistakes, grammatical inconsistencies and "sms" language will be penalized with a 0.1 point reduction for a fault committed.

1. Final exam (70%):

The evaluation will be carried out at the end of the course, through a final test and may contain the following evaluation instruments:

Multiple-choice questions. These questions are corrected following the correction formula $A - (E / n - 1)$

True or False questions. The ability of the student to justifiably reason the matter indirectly is assessed. A false claim not justified or badly justified does NOT penalize, it is simply not counted.

Questions to relate content

Development questions. The student's ability to summarize the information and reason the contents of the subject is assessed

The minimum grade to pass the written test will be 5 out of 10.



2. Mid-term exam (5%)

Halfway through the semester there will be a mid-term exam. This exam does not eliminate content for the final exam. The lecturer will let the students know in advance which chapters will be assessed in the mid-term. It is NOT mandatory.

3. Evaluation of workshops (15%)

The workshops of the course will consist of the technical realization and interpretation of a normal ECG and Renal Physiology, after the realization of each practice there will be an evaluation of the same through different exercises that contemplate the items that the student must have passed after the completion of the workshop. The completion of the workshops will be MANDATORY.

4. Autonomous classroom work (5%) and active student participation (5%).

Throughout the semester, several activities will be carried out concerning the level of understanding of each student.

It is NOT mandatory.

Comments regarding the evaluation of the subject:

- Students who do not pass the final exam will receive the grade of the exam only.
- Students who have passed the exam, but have not passed the workshops, will be given a grade of 4.5. In the second call they will only have to carry out the workshops they have pending in order to pass the subject.
- Students have the right to know the grades of all the assessment tools included in the guide at least one week before the written test and not on the date of the test review.

DEVELOPMENT of the subject in second and subsequent enrollments:

The subject will be included in the semester that is taught in the ordinary group. In the event that the number of students is less than 6, they will be included in the tutorials and monitoring of the teacher of the ordinary course and group tutorials will not be carried out.

The lecturer responsible for this group (second enrollment and subsequent ones), will contact the students through the virtual campus, to let them know the schedule of the corresponding lessons.

1. Final exam (80%):

The theoretical evaluation will be carried out at the end of the course, through a final theoretical test and may contain the following evaluation instruments:

Multiple-choice questions. These questions are corrected following the correction formula $A - (E / n - 1)$

True or False questions. The ability of the student to justifiably reason the matter indirectly is assessed. A false claim not justified or badly justified does NOT penalize, it is simply not counted.

Questions to relate content

Development questions. The student's ability to summarize the information and reason the contents



of the subject is assessed

The minimum grade to pass the written test will be 5 out of 10.

2. Workshops (20%)

The grade of the part of the workshops of the previous course that is approved will be saved. In the case of not having passed the workshops the previous year, they will have to carry them out and be evaluated in the current course. The minimum qualification to pass the workshops is to obtain 5 out of 10

After each practice has been carried out, an evaluation will be carried out.

MENTION OF DISTINCTION:

According to Article 22 of the Regulations governing the Evaluation and Qualification of UCV Courses, the mention of "Distinction of Honor" may be awarded by the professor responsible for the course to students who have obtained, at least, the qualification of 9 over 10 ("Sobresaliente"). The number of "Distinction of Honor" mentions that may be awarded may not exceed five percent of the number of students included in the same official record, unless this number is lower than 20, in which case only one "Distinction of Honor" may be awarded.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

- | | |
|----|---|
| M1 | Exposition of contents by the teacher, analysis of competencies, explanation and demonstration of abilities, skills and knowledge in the classroom. |
| M2 | Group work sessions supervised by the teacher. Case study, diagnostic analysis, problems, field study, computer room, visits, data search, libraries, network, Internet, etc. Significant construction of knowledge through student interaction and activity. |
| M3 | Supervised monographic sessions with shared participation. |
| M5 | Activities developed in spaces and with specialized equipment. |
| M6 | Personalized attention and in small groups. Period of instruction and/or orientation carried out by a tutor with the objective of reviewing and discussing the materials and topics presented in the classes, seminars, readings, completion of assignments, etc. |
| M7 | Set of oral and/or written tests used in the initial, formative or summative evaluation of the student. |



- M8 Student study: Individual preparation of readings, essays, problem solving, seminars, papers, memoirs, etc. To expose or deliver in the theoretical classes, practical classes and/or small group tutorials. Work done on the university platform (www.plataforma.ucv.es).
- M9 Group preparation of readings, essays, problem solving, papers, memoirs, etc. To present or deliver in the theoretical classes, practical classes, seminars and/or small group tutorials. Work done on the university platform (www.plataforma.ucv.es).

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
In-campus interactive lecture M1	R1, R2, R3	54,00	2,16
Practice Classes M2	R1, R2, R3	4,00	0,16
Evaluation M7	R1, R2, R3	2,00	0,08
TOTAL		60,00	2,40

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Student's self-employment M8		90,00	3,60
TOTAL		90,00	3,60



Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
GENERAL PHYSIOLOGY	Unit 1- Introduction to Physiological Sciences. Chemical composition of the human body. Genetic control of cell function and inheritance Unit 2.- Cell physiology. Resting potential, action potential. Muscle contraction
MAINTENANCE OF THE HUMAN BODY	Unit 3- Physiology of Blood. -Composition, functions, plasma proteins -Metabolism and function of the red blood cell. Hematopoiesis and erythrocytogenesis. -Blood types -Defensive systems. Immunity in the human body -Hemostasis and coagulation processes Unit 4- Physiology of the Cardiovascular system. Heart, blood vessels. Hemodynamics -Introduction. Automatism. The EKG -Cardiac cycle. Coronary circulation -Blood pressure. Pulse. Microcirculation. Venous and lymphatic circulation -Regulation of circulation Unit 5- Physiology of the Respiratory System -Introduction. Respiratory mechanics -Pulmonary ventilation. Gas exchange and transport -Regulation of respiration Unit 6- Electrolyte balance, acid-base balance. Physiology of the Urinary System -Distribution of fluid in the body -Renal function. Urination, acid-base balance Unit 7- Digestive System.



REGULATION SYSTEMS OF THE HUMAN BODY. CONTINUITY

Unit 8- Physiology of the Endocrine and Reproductive System

- Introduction
- Physiology of the hypothalamic-pituitary axis
- Thyroid hormones
- Endocrine pancreas
- Kidney glands
- Male reproductive system
- Female reproductive system

Unit 9- Physiology of the Nervous System. Sense organs

- Nervous tissue and homeostasis. Nervous System Overview
- The spinal cord and spinal nerves
- The brain and cranial nerves
- Autonomous Nervous System
- Sensitive, motor and integrating system
- Special systems

PRACTICALS

Practical 1

This is a workshop on the basic electrocardiogram consisting of a practical explanation of how the ECG works, basic cardiac electrophysiology, sinus rhythm, heart rate. After the workshop, students will be evaluated by means of different theoretical and practical exercises to check that they have acquired the established competences.

Practical 2

This is a workshop on renal physiology in which a simulation is performed using the Physioex program, in addition to the analysis of a urine strip. The aim is that students understand the basic physiological processes related to urine formation. The evaluation is carried out by means of a checklist in which the acquisition of the established learning results is verified.



Temporary organization of learning:

Block of content	Number of sessions	Hours
GENERAL PHYSIOLOGY	3,00	6,00
MAINTENANCE OF THE HUMAN BODY	20,50	41,00
REGULATION SYSTEMS OF THE HUMAN BODY. CONTINUITY	4,00	8,00
PRACTICALS	2,50	5,00

References

Basic bibliography:

- Tortora- Derrickson (2018) Introduction to the human body. Principles of anatomy and physiology. Panamericana. 15th ed.
- Fox SI (2017) Human Physiology. McGraw-Hill. 14th ed.
- Guyton-Hall (2016). Textbook of medical physiology. Elsevier Saunders. 13th ed.
- Susan E Mulroney; Adam K. Myers (2011). Netter Fundamentals of Physiology. Elsevier-Masson. 1st Ed
- General Physiology Web. Available at: <https://www.webfisio.es/>



Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

Situation 1: Teaching without limited capacity (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

Situation 2: Teaching with limited capacity (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

☒ Microsoft Teams

☒ Kaltura



Situation 3: Confinement due to a new State of Alarm.

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

☒ Microsoft Teams

☒ Kaltura

Explanation about the practical sessions:

Workshops will be taught through the platforms indicated above, under the instructions and supervision of the lecturer responsible for the group. The evaluation will follow the same criteria and will consist of an online written test, questionnaire or task (through UCVnet) on the theoretical-practical contents of the workshops.

The learning results indicated in the Guide are respected.

HOSPITAL VIRTUAL

SEMI-PRESENTIALITY SITUATION

The dates and sessions are kept, the group of students is divided into 2 in the Center itself, doing the same practices, but in 2 different rooms and with two responsible instructors. The evaluation will normally be carried out through the proposed checklist.



SITUATION OF NO PRESENTIALITY

The dates and sessions are kept, each subgroup is added to their session through the TEAMS platform. It will work through the visualization of videos, resolution of clinical cases (with active participation), and kahoot-type activities. The evaluation will be carried out by completing the planned checklist, but with the support of the clinical cases worked on and uploaded as attachments, together with the responses recorded in the online activities and participation in the session to validate the items.



2. System for Assessing the Acquisition of the competences and Assessment System

ONSITE WORK

Regarding the Assessment Tools:

☒ The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

☐ The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

Comments to the Assessment System:

Regarding the exam, if there is no possibility of having it at the UCV, it will be developed through the platform, with the same score percentages and established structure.