COURSE DATA

DATA SUBJECT

Code: 34451
Name: Medical physiology II
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
1204 - Degree in Medicine	Facultat de Medicina i Odontologia	2	First quarter
1204 - Degree in Medicine	Facultat de Medicina i Odontologia	2	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1204 - Degree in Medicine	Physiology II	BASIC
1204 - Degree in Medicine	Physiology II	BASIC

COORDINATION

VICTOR GONZALEZ VICTOR MANUEL

SUMMARY

The aim of this discipline is to help students to acquire knowledge, skills and abilities regarding functions of organ systems related to nutrients intake (respiratory and digestive) and of the endocrine control system.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

Health Sciences High school modality, where the student gets Biology, Physics and Chemistry contents. General Physiology, Biochemistry and Medical Physiology I in the first course.

COMPETENCES / LEARNING OUTCOMES

1204 - Degree in Medicine

Acknowledge diversity and multiculturality.

Be able to formulate hypothesis, gather information and evaluate it critically in order to solve problems by following the scientific method.

Capacity for communicating with professional circles from other domains.

Consideration of ethics as a fundamental value in the professional practise.

Criticism and self-criticism skills.

Establish a good interpersonal communication which may allow professionals show empathy and talk to the patients efficiently,as well as to their relatives, the media and other professionals.

Handles material and the use of basic laboratory techniques.

In the professional practise, take a point of view which is critical, creative, constructive and research-oriented.

Know how to use IT in clinical, therapeutic and preventive activities, and those of research.

Know how to use the sources of clinical and biomedical information available, and value them critically in order to obtain, organise, interpret and communicate scientific and sanitary information.

Knows how to carry out functional tests, determines vital parameters and interprets them.

Knows how to perform a basic physical examination.

Knows the morphology, structure and function of skin, blood, organs and body systems: circulatory, digestive, locomotor, reproductive, excretory and respiratory systems; endocrine system, immune system, central and peripheral nervous systems.

Knows the processes of growth, maturation and aging of the different organs and systems. Homeostasis. Adaptation to the environment.

Proper organisation and planning of the workload and timing in professional activities.

Team-working skills and engaging with other people in the same line of work or different.

Understand and recognise the effects of growth, development and aging which affect individuals and their social environment.

Understand and recognise the structure and normal function of the human body, at the following levels: molecular, tissue, organic, and of systems, in each phase of human life and in both sexes.

Working capacity to function in an international context.

DESCRIPTION OF CONTENTS

1. THEORY UNITS

1. Introduction to the study of the respiratory system.
2. Lung ventilation, volumes and pulmonary flows.
3. Gas exchange in the lungs and tissues.
4. Transport of O2.
5. Transport of CO2.
6. Ventilation regulation.
7. Acid-base balance regulation.
8. Introduction to the digestive system Physiology.
9. Motor and secretory processes in the mouth and esophagus.
10. Gastric motility and secretions.
11. Liver physiology.
12. Pancreatic and biliary secretions.
13. Motor and secretory processes in thin intestine.
14. Motor and secretory processes in thick intestine.
15. Digestion and absorption of glycids, proteins and lipids.
16. Absorption of vitamins, electrolytes and water.
17. Introduction to the Physiology of the endocrine system.
18. Physiology of the hypothalamic-adenohypophysis system
19. Physiology of the neurohypophysis.
20. Physiology of the endocrine pancreas.
21. Physiology of the adrenal medulla.
22. Physiology of the adrenal cortex.
23. Physiology of the thyroid.
24. Calcium and phosphate metabolism.
25. Physiology of the testicle.
26. Physiology of the ovary and endometrial cycle.
27. Physiology of the ovary and endometrial cycle II.
28. Fertilization, embryo implantation and nutrition. Functions of the placenta.
29. Gestation, childbirth and lactation.
30. Fetal, neonatal and growth Physiology.

2. LABORATORY PRACTICE UNITS

1. Respiratory auscultation: respiratory auscultation focus.
2. Recognition and analysis of different breath sounds.
3. Simple spirometry.
4. Forced spirometry. Results interpretation.
5. Blood and urinary pH regulation
6. Functional exploration of the digestive system I.

7. Functional exploration of the digestive system II.
8. In vitro digestion.
9. Anthropometry. Interpretation of growth curves.
10. Determination of blood glucose. Curve of glucose tolerance.
11. Functional assessment of the endocrine system.

The practical classes are designed in compliance with international standards on the use of animals in teaching and experimentation.

Rules regarding practical classes:
-It is mandatory to attend at least 80% of practical classes.
-Attendance will be monitored by a roll call.
-If a student is late, he/she will not be allowed to join the class once it has begun.
-If there are extenuating circumstances (which can be proven in writing) due to which a student is late or cannot attend a practical class, the member of teaching staff responsible for the group will be asked to authorize the student to take the missed class(es) at another time. Without said authorization, students cannot attend the classes of other groups.
-Students who are repeating the subject may attend practical classes if they wish, although attendance is not compulsory.

3. TUTORIALS

Participation in group assignments is mandatory.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	4,00
Theory	33,00
Laboratory	23,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	4,00
Independent study and work	55,00
Preparation of lessons	20,00
Preparation for assessment activities	10,00

Resolution of case studies	1,00
Total hours	**90,00**

TEACHING METHODOLOGY

The teaching methodology of the subject is as follows:

- **Theoretical classes** (30 Thematic units). Lectures in which the teacher will present, in a structured form, the most important concepts and contents of the discipline. The objective is for students to acquire knowledge, skills and deductive reasoning ability. If the teacher deems it necessary, the didactic material used will be made available for students through the Virtual Classroom. Students¿ participation will be potentiated.

- **Laboratory Classes** (11 Thematic units). The teacher will present the objectives, report on material handling, monitor job performance and help the interpretation of results. The aim is to use practical teaching to acquire new knowledge and/or consolidate the theoretical knowledge, acquire skills, abilities and aptitudes.

- **Tutorials**. Students will be organized into small working groups to which topics, case reports and / or tasks are proposed to allow them to elaborate on the theoretical and / or practical program of Medical Physiology II. The work is coordinated by the teacher, taking place later oral presentation and / or discussion. The objectives to be achieved are:

a) Development of the necessary skills to produce a high quality work.

b) Promote cooperative work, responsibility strategies, self-learning and self-thinking, and finally

discuss all the material.

c) Learn to summarize, contrast information, and the of truthful literature sources.

d) Establish, deepen and expand knowledge, aptitudes, and skills.

e) Promote student-teacher relationship.

The gender perspective, the respect for diversity, and the sustainable development goals (SDGs) will be incorporated into teaching, whenever possible.

EVALUATION

Theory evaluation: 60% of the final qualification. Evaluation will be based on a written test (final exam) that reflects the contents of the theory programme and whose aim is to assess the student¿s acquisition of knowledge.

Practical evaluation: 40% of the final qualification. Evaluation will be based on: 1) a written test (final exam) that evaluates the acquisition of skills related to general and specific competences (30% of the final mark); and 2) continuous assessment of the student¿s attitude, participation, and skill and knowledge acquisition in practical classes and the work carried out in tutored groups (10% of the final mark).

Final exam. With a maximum mark of 9 points, this exam will evaluate the acquisition of theory and practical knowledge. It consists of a written test of 60 multiple choice questions with 4 possible answers, of which only one is correct or corresponds most closely with the statement. Each correctly answered question will receive 0.15 points, and for every wrong answer one fourth of this score will be subtracted. Unanswered questions will not be penalized. The contents of the exam will be the same for all groups.

Attendance at practical activities is mandatory. The student is considered to meet this requirement if he or she has attended a minimum of 80% of these activities and has adequately justified the impossibility of attending the remaining sessions due to the occurrence of a cause of force majeure. It will be essential to comply with this requirement to pass the subject.

Students are reminded of the importance of carrying out evaluation surveys on all the teaching staff of the degree subjects.

REFERENCES

BASIC:

- Hall J.E. (2020). Guyton y Hall: Tratado de Fisiología Médica. 14ªed. Elsevier.
- Koeppen B.M. & Stanton B.A. (2018). Berne y Levy: Fisiología. 7ª ed. Elsevier.
- Recursos e-Salut: ClinicalKey Student Medicina, Odontologia y Enfermería [https://uv-es.libguides.com/RecursosSalut] Acces Medicina [https://uv-es.libguides.com/Access_Medicina] Médica Panamericana [https://uv-es.libguides.com/Medica_Panamericana].

COMPLEMENTARY:

- Barrett, K.E., Barman, S.M., Boitano, S., Brooks H.L. (2020) Ganong. Fisiología Médica. 26ªed. McGraw-Hill.
- Boron W.F & Boulpaep E.L. (2017) Fisiología médica 3ª ed. Elsevier.
- Conti F. (2010) Fisiología Médica. McGraw-Hill.
- Costanzo L.S (2016) Fisiología 6ª ed. Elsevier.
- Molina, P.E. (2018). Endocrine Physiology, 5ª ed. McGraw-Hill.
- Mulroney, S.E., Myers, A.K. (2017) Netter Fundamentos de Fisiología 2ªed. Elsevier.
- Smith R. (2005). Netter obstetricia, ginecología y salud de la mujer. Masson.

- Pellicer, A., Bonilla F.M. (2014). Obstetricia y ginecología para el grado de medicina. Panamericana.
- Rhoades R.A., Bell, D.R. (2018) Fisiología médica. Fundamentos de medicina clínica. 5ª ed. Lippincott Williams.
- Silverthorn D.U. (2019). Fisiología humana: Un enfoque integrado. 8ªed. Panamericana.
- Fox S. (2014). Fisiología Humana. 13 ª ed. Mc Graw- Hill.
- Pocock G., Richards C.D. (2005) Fisiología humana. 2ª ed. Masson.
- Tresguerres J.A.F. (2010). Fisiología Humana. 4ª ed. McGraw-Hill.
- LIBROS PREGUNTAS TIPO TEST - Barrett K.E, Barman S.M., Boitano S., Reckelhoff J.F. (2017) Ganong¿s Physiology Examination and Board Review McGraw-Hill Education. - Hall, J. Guyton and Hall Physiology Review (2015). 3rd ed. Elsevier. - Meeting, P.J. PreTest Physiology (2014) 14th Ed. McGraw-Hill.