



Information about the subject

Degree: Bachelor of Science Degree in Medicine

Faculty: Faculty of Medicine and Health Sciences

Code: 340404 **Name:** Medicine and Surgery of the Cardiocirculatory System

Credits: 9,00 **ECTS Year:** 4 **Semester:** 1/2

Module: Human Clinical Training

Subject Matter: Human Pathology **Type:** Compulsory

Field of knowledge: Health Science

Department: -

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

Human Clinical Training

Subject Matter	ECTS	Subject	ECTS	Year/semester
Human pathology basis	6,00	General Pathology I	3,00	3/1
		General Pathology II: Analysis by Problems	3,00	3/2
Psychology	6,00	Medical Psychology and Psychopathology	6,00	3/2
Human Pathology	102,00	Clinical Allergology and Immunology	3,00	3/2
		Dermatology	6,00	5/1
		Endocrinology and Nutrition	6,00	5/2
		Haematology	3,00	3/2
		Infectious Diseases	3,00	3/2
		Medical Oncology and Radiotherapy	3,00	5/2
		Medicine and Surgery of the Cardiocirculatory System	9,00	4/2
		Medicine and Surgery of the Digestive System	6,00	4/1
		Medicine and Surgery of the Musculoskeletal System	9,00	4/2
		Medicine and Surgery of the Nephro-Urological System	6,00	5/1



Human Pathology	Medicine and Surgery of the Nervous System	9,00	5/2
	Medicine and Surgery of the Respiratory System	6,00	3/2
	Obstetrics and Gynaecology	9,00	4/2
	Ophthalmology	3,00	3/2
	Otorhinolaryngology	3,00	4/2
	Paediatrics	9,00	5/2
	Palliative Medicine	3,00	6/1
	Psychiatry	3,00	5/1
	Rheumatology	3,00	4/2

Recommended knowledge

- 1 Structure and physiology of the heart and integrated functioning of the cardiovascular system
- 2.Pathology of diseases of the circulatory system and their causes and main mechanisms
3. Physical signs and symptoms of major cardiovascular system abnormalities and physical examination methods
- 4.Main methods of instrumental and analytical exploration of the heart and vascular system
- 5.Basic pharmacology of treatments related to the circulatory system



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 Know how to identify, through its color code, eye drops commonly used in ophthalmological clinic: myriatics, myotics, anesthetics, antibiotics, corticosteroids and fluorescein.
- R2 Up-to-date knowledge of the etiology, mechanisms and symptoms of cardiovascular disease.
- R3 Understand the importance of anamnesis data and physical examination for diagnostic guidance.
- R4 Be able to establish a differential diagnosis of heart symptoms and signs.
- R5 Know the different complementary cardiovascular techniques with basic interpretation of electrocardiogram and chest x-ray.
- R6 Correctly guide medical and surgical treatment of cardiovascular diseases.
- R7 Understand the importance of risk factor prevention, being able to recognize and treat them.
- R8 Know, witness and perform the process of anamnesis and physical examination in Cardiology and Angiology, both in patients in Consultation and not in Hospitalized
- R9 Especially, witness and perform blood pressure intake, carotid and femoral arterial pulse palpation and cardiac auscultation. Also perform clinical exploratory maneuvers of assessment of integrity and / or involvement of the arterial, venous and peripheral lymphatic system.
- R10 Know and witness the realization of Electrocardiograms, as well as participate in the systematic interpretation of their interpretation
- R11 Know and face-to-face the use of other complementary techniques used in Cardiology (ECO, Stress Test, Holter, Interventionism)
- R12 Witness and collaborate in the elaboration of the patient's medical history with the data obtained from anamnesis, complementary physical examination
- R13 Know the social conditions involved in patient relationships and therapeutic diagnostic decision-making.
- R14 Know the interrelationships between the different states involved in the care, care and treatment of patients.



- R15 Know the main pharmacological and non-pharmacological therapeutic means.
- R16 Know the interrelationships with other medical and surgical specialties.
- R17 Know and witness the use of basic techniques in Cardiac Surgery such as Extracorporeal Circulation and brain and myocardial protection techniques.
- R18 Know and witness the use of other complementary techniques used in Cardiac Surgery, such as cell-saver or balcony intra-aortic counterpulsion and ventricular assists.
- R19 Know the main surgical risk factors and participate in their assessment in the specific patient undergoing Cardiac Surgery. Analyze its impact on clinical outcomes obtained after surgery.
- R20 Know the main surgical indications and techniques used in patients with ischemic heart disease. Witness some coronary surgery intervention with and without extracorporeal circulation. Know and witness the use of the different types of grafts used in coronary bypass.
- R21 Know the main surgical indications and techniques used in patients with valvular heart disease. Witness any intervention of repair surgery or prosthetic valve replacement. Know the main types of valvular substitutes and the recommended guidelines for anticoagulant treatment of infectious endocarditis prophylaxis.
- R22 Know the main pathologies of the chest aorta, diagnostic study prognosis and surgical management. It would be advisable to witness any open or endovascular surgery.
- R23 Clinical inspection of vascular patients and semiological interpretation thereof. Obtaining segmentary pressures of the members, ankle/arm index. Semiological and evolutionary value of it.
- R24 Know and evaluate the importance of the main diagnostic methods used in pathology and cardiovascular to guide the indication and type of surgical technique (EcoDoppler, Angiography, AngioTac and angio-RNM, EMG, etc.)
- R25 Witness and collaborate in early postoperative follow-up (ICU) and hospitalization room of the patient undergoing cardiovascular surgery. Know and witness the management of the main post-surgical complications.
- R26 Being able to develop a diagnostic judgment based on anamnesis and exploration data
- R27 Being able to optimize the use of diagnostic and therapeutic resources
- R28 Search for information in bibliographic sources and know how to analyze them.



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 to possess and understand knowledge in a study area that starts from the base of the general secondary education, and is usually found at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study				X
CB2	Students know how to apply their knowledge to their job or vocation in a professional way and possess the competences that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study				X
CB3	Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical topics				X
CB4	Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience				X
CB5	Students have developed the learning skills needed to undertake further studies with a high degree of autonomy				X
GENERAL		Weighting			
		1	2	3	4
CG4	Developing professional practice with respect to patient autonomy, beliefs and culture			X	
CG5	Recognizing the limitations themselves and the need to maintain and update their professional competence, giving special importance to the autonomous learning of new knowledge and techniques and to the motivation for quality			X	
CG6	Developing professional practice with respect for other health professionals, acquiring teamwork skills		X		



CG9	Understanding and recognizing the effects, mechanisms and manifestations of the disease on the structure and function of the human body				X
CG11	Understanding and recognizing the effects of growth, development and aging on the individual and their social environment			X	
CG12	Understanding the basis of action, indications and efficacy of therapeutic interventions, based on available scientific evidence				X
CG13	Getting and writing a medical history containing all relevant information			X	
CG14	Perform a physical exam and mental assessment			X	
CG15	Having the ability to make an initial diagnostic judgment and establish a reasoned diagnostic strategy			X	
CG16	Recognizing and treating life-threatening situations and those that require immediate attention				X
CG17	Establishing all diagnosis, prognosis and treatment, applying principles based on the best possible information and clinical safety			X	
CG18	Indicating the most appropriate therapeutics of the most prevalent and chronic acute processes, as well as terminally ill patients			X	
CG19	Raising and proposing appropriate preventive measures for each clinical situation			X	
CG20	Acquiring enough clinical experience in hospital institutions, health centers or other health institutions, under supervision, as well as basic knowledge of patient-centered clinical management and appropriate use of tests, medicines and other health system resources	X			
CG21	Listening to carefully, obtain and synthesize relevant information about the problems afflicting the patient and understand the content of this information		X		
CG22	Writing medical histories and other medical records in an understandable way to outsiders		X		
CG23	Communicating effectively and clearly, both orally and in writing, with patients, family members, media workers and other professionals		X		
CG24	Establishing good interpersonal communication that enables patients, family members, media workers and other professionals to address patients, families, media and other professionals with efficiency and empathy		X		



CG29	Knowing national and international health organizations and the environments and conditions of different health systems	X			
CG33	Maintaining and using records with patient information for further analysis, preserving data confidentiality	X			
CG36	Being able to formulate hypotheses, critically collect and evaluate information for problem solving, following the scientific method	X			

SPECIFIC		Weighting			
		1	2	3	4
CE39	Recognizing, diagnosing and guiding the management of the main cardiocirculatory pathologies				X
CE54	Recognizing the characteristics of the pathology prevalent in the elderly. Family and community medicine: living environment of the sick person, promotion of health at the family and community level	X			
CE55	Recognizing, diagnosing and guiding the management of life-threatening situations			X	
CE56	Knowing how to make a complete anamnesis, patient-centered and oriented to the various pathologies, interpreting its meaning		X		
CE57	Knowing how to do a physical examination by devices and systems, as well as a psychopathological examination, interpreting its meaning		X		
CE59	Establishing an action plan, focused on the needs of the patient and the family and social environment, consistent with the symptoms and signs of the patient		X		
CE60	Knowing how to do basic and advanced life support				X

TRANSVERSAL		Weighting			
		1	2	3	4
CT1	Analytical and synthesis capacity			X	
CT2	Planification and organization capacity		X		
CT3	Oral and written communication in mother language			X	



CT7	Solving problems				X
CT8	Making decisions			X	
CT9	Team work			X	
CT10	Interdisciplinary team work		X		
CT12	Interpersonal relationship skills		X		
CT14	Critical reasoning			X	
CT15	Ethical commitment			X	
CT16	Individual learning			X	
CT17	New situations' adaptation			X	
CT26	Knowing how to value personal action and know your own skills and limitations	X			
CT32	Being able to establish and maintain relationships with other professionals and institutions		X		
CT33	Knowing how to get relevant information from personal interviews			X	



Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R5, R6, R12, R13, R14, R15, R16, R21, R22, R24, R27, R28	15,00%	Open questions
R1, R2, R3, R4, R5, R6, R12, R13, R14, R15, R16, R21, R22, R24, R26, R27, R28	65,00%	Tests
R7, R8, R9, R10, R11, R12, R17, R18, R19, R20, R23	10,00%	Practices
R7, R8, R9, R10, R11, R12	10,00%	Simulations, ECOE

Observations

1) In the event that in the exams, a discrepancy of more than 10% is observed between the maximum possible mark and the maximum mark achieved, the coordinating teacher may adjust the scores to the latter as long as it is confirmed that the level of difficulty of the contents of a topic and of the questions has been higher than the maximum required for the degree in Medicine and Surgery that seeks to train GENERAL doctors of excellence 2) The Coordinating Professor may, depending on the availability of time and the interested students, offer the possibility of an oral exam, maintaining the same degree of difficulty of the writing and keeping the score on each question depending on the quality and number of the minimum mandatory answers. , in a similar way that is done in the ECOES. This oral exam may be carried out on different dates than those set for the written evaluation, taking into account the availability of classrooms. 3) At the discretion of the Coordinating Professor, there may be 1-2 written or oral tests throughout the course that are voluntary but allow the elimination of material for the partial or final exam of the subject. This possibility will be offered by virtue of the interest, participation and work of the students in the course. Criteria for awarding honors: Honors may be awarded to the best students, who must have obtained a minimum grade of 9. If circumstances require it, a special test may be established to determine those students deserving of honors, taking into account the limitation of 5% of enrolled students. In second and subsequent calls, only the honors that could subtract after the first call may be granted. In addition, for the Direction of the End-of-Degree Project, 2-3 students per



ACADEMIC YEAR and per teacher will be accepted in Cardiology. Those students with Honors in the Subject will have priority to be accepted, followed by those with Excelling. The attitude and interest shown in the subject and knowledge in Biostatistics will also be valued, especially in multivariate analysis and survival curves. The request must be sent by email to the official email of the Coordinating Professor of the Subject, after the exams indicating motivation, grade in the subject and the level of knowledge referred to in Biostatistics and use of the SPSS, SAS or similar programs. The Director may establish an examination for the selection of candidates.

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 | Masterclass |
| M2 | Problems resolution and practical cases |
| M3 | Virtual simulations |
| M4 | Content presentations by teacher |
| M5 | Knowledges and skills explanation |
| M7 | Oral presentation by student |
| M8 | Group activities supervised by professor |
| M9 | Knowledge acquirance through student interaction and activity |
| M11 | Personalised attention by professor |



- M12 Tests to understand the level of knowledge acquirance and skills
- M13 Written work
- M14 Online activity on e-learning
- M15 Personal study
- M16 Information research
- M17 Discussion and solving issues in group
- M18 Work in team
- M19 Group work for searching, discussion and information research
- M21 Supervision of clinical histories
- M22 Clinical practices



IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theory class M1, M2	R1, R2, R3, R4	61,00	2,44
Seminar and group practices M3, M5	R7, R8, R9, R10, R11	20,00	0,80
Practices in small groups M22	R18, R19, R20, R21, R22, R23, R24, R25, R26, R27	25,00	1,00
Tutoring M11	R1, R2, R3, R4, R5, R6, R7, R27	2,00	0,08
Evaluation M12	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27	4,50	0,18
TOTAL		112,50	4,50

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
No attendance M15	R1, R2, R3, R4, R5, R6, R12, R13, R14, R15, R16, R28	112,50	4,50
TOTAL		112,50	4,50



Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
INTRODUCTION TO CARDIOVASCULAR DISEASES. ARTERIAL HYPERTENSION.	<ol style="list-style-type: none">1.Arterial hypertension. Epidemiology and Pathophysiology2.Arterial hypertension. Diagnosis3.Arterial hypertension. Treatment4.Cases Secondary arterial hypertension
HEART FAILURE	<ol style="list-style-type: none">1.Heart failure. Concept. Pathophysiology.2.Pulmonary hypertension. Cor pulmonale.3.Heart failure. Diagnosis and treatment4.Acute HF: Acute lung edema and cardiogenic shock
MYOCARDIOPATIAS	<ol style="list-style-type: none">1.Myocarditis. Dilated and ischemic cardiomyopathy. Other phenotypes of dilated cardiomyopathy of secondary cause.2.Hypertrophic cardiomyopathy. Restrictive cardiomyopathy
VALVULOPATHIES	<ol style="list-style-type: none">1.Mitral stenosis Pulmonary valve pathology2.Aortic valve disease3.mitral regurgitation. Tricuspid valve pathology4.Surgical treatment of valvular heart disease
CONGENITAL HEART DISEASES	<ol style="list-style-type: none">1.Congenital heart disease in adults and young people. Classification. Atrial and Ventricular Septal Defects. Ductus arteriosus persistence2.Coarctation of Aorta. Tetralogy of Fallot. Ebstein's disease. Transpositions.3.Surgical treatment of congenital heart disease



PATHOLOGY OF THE PERICARDIUM AND ENDOCARDIUM. OTHER HEART DISEASES.

- 1.Uncomplicated acute pericarditis. Cardiac manifestations of systemic diseases
- 2.Cardiac tamponade. Constrictive pericarditis
- 3.Infectious endocarditis
- 4.Pericardial Surgery. Tumors Cardiac and aortic trauma

DISEASES OF THE BLOOD VESSELS

- 1.Diseases of the Aorta. Acute Aortic Syndrome
- 2.Vascular semiology. Cutaneous affection in the enf. Vascular
- 3.Diseases of the arteries
- 4.Diseases of the veins and lymphatics

ARRHYTHMIAS

- 1.Sinus and escape rhythm. Classification of Arrhythmias. Breast disease
- 2.Atrioventricular blocks. Pacemaker
- 3.Tachycardias Mechanisms. Extrasystole. Supraventricular Tachycardias 1
- 4.Supraventricular Tachycardias 2
- 5.Preexcitation. Wolff-Parkinson-White syndrome
- 6.Fibrillation and atrial flutter
- 7.Wide QRS tachycardias. Tachycardias and Ventricular Fibrillation
- 8.Syncope. Cardiac arrest.

ISCHEMIC CARDIOPATIA

- 1.Atheromatosis Chronic ischemic heart disease I
- 2.Chronic ischemic heart disease II
- 3.Acute coronary syndromes I: Unstable angina
- 4.Acute coronary syndromes II: Acute myocardial infarction
- 5.Surgical treatment of ischemic heart disease



Temporary organization of learning:

Block of content	Number of sessions	Hours
INTRODUCTION TO CARDIOVASCULAR DISEASES. ARTERIAL HYPERTENSION.	4,00	8,00
HEART FAILURE	8,00	16,00
MYOCARDIOPATIAS	4,00	8,00
VALVULOPATHIES	5,00	10,00
CONGENITAL HEART DISEASES	4,00	8,00
PATHOLOGY OF THE PERICARDIUM AND ENDOCARDIUM. OTHER HEART DISEASES.	5,00	10,00
DISEASES OF THE BLOOD VESSELS	6,00	12,00
ARRHYTHMIAS	10,25	20,50
ISCHEMIC CARDIOPATIA	10,00	20,00



References

1. Harrison Principios de Medicina Interna. 20 Edición J. Larry Jameson, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, Dan L. Longo, Joseph Loscalzo, Eds. Mc Graw Hill Interamericana., 2019.
2. Farreras Rozman. Medicina Interna, 19ª edición. Borstnar, Ciril Rozman / Francesc Cardellach Lopez (eds). ISBN: 978-84-9113-545-6; 2020 Ed. Elsevier España.
3. Williams B, Mancia G, Spiering W et al. ESC Scientific Document Group . 2018 ESC/ESH Guidelines for the management of arterial hypertension. Eur Heart J. 2018;39:3021-3104.
4. Hindricks G, Potpara T, Dagres N, Arbelo E, Bax JJ, Blomström-Lundqvist C, et al. ESC Scientific Document Group. 2020 ESC Guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association of Cardio-Thoracic Surgery (EACTS). Eur Heart J. 2020 Aug 29;ehaa612. doi:10.1093/eurheartj/ehaa612.
5. Guías de actuación de la Sociedad Europea de Cardiología. Accesibles en: <https://www.escardio.org/Guidelines>
6. New England Journal of Medicine, Revista Oficial de THE MASSACHUSETTS MEDICAL SOCIETY.
7. Hampton, J.R. ECG fácil, 9ª ed. 2018. Ed Elsevier España.
8. Quesada J, Quesada A, Lloris, JM (eds). Cardiología. CEISAL-UCV. 2020. Valencia. España



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:



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: