COURSE DATA

DATA SUBJECT

Code: 36317
Name: Cardiac image
Cycle: Undergraduate Studies
ECTS Credits: 4.5
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1204 - Degree in Medicine	Facultat de Medicina i Odontologia	4	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1204 - Degree in Medicine	Optional subjects	ELECTIVES

COORDINATION

BODI PERIS VICENTE JOSE

SUMMARY

A global overview of the main invasive and non-invasive cardiac imaging techniques will be presented. Regarding each technique, a brief exposition of its technical foundations, an approach to the images in healthy patients, the contributions of the technique in the most prevalent cardiac pathologies and how to indicate their performance in an appropriate and individualized way to reach the correct diagnosis through a reasoned use of resources. The implications of each technique will be addressed in the prognostic evaluation, treatment and prevention of complications of the most frequent heart diseases.

Seminars will be held that will include the discussion of real clinical cases of patients studied with cardiac imaging techniques, the decision processes involved in choosing each technique.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

Aimed at students in the fourth and fifth year of the Medical Degree

COMPETENCES / LEARNING OUTCOMES

-

Acknowledge diversity and multiculturality.

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.

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

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

Students must be able to apply their knowledge to their work or vocation in a professional manner and have acquired the competences required for the preparation and defence of arguments and for problem solving in their field of study.

Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.

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

Understand and recognise the effects, mechanisms and manifestations of diseases over the structure and function of the human body.

Working capacity to function in an international context.

DESCRIPTION OF CONTENTS

1. THEORY

We will address the following issues during the on-site theoretical activities:

Doppler echocardiography
Cardiac magnetic resonance
Angio-CT
Cardiac catheterization
Nuclear cardiology

2. PRACTICE

Attendance at on-site practical activities will be mandatory. To pass the subject, the student enrolled for the first time must attend at least 80% of the on-site practical activities.

The following issues will be addressed during on-site practical activities:

Doppler echocardiography. Practical cases
Cardiac magnetic resonance. Practical cases
Angio-CT. Practical cases
Cardiac catheterization. Practical cases
Nuclear cardiology. Practical cases
Discussion of online questionnaires
Revision of images

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	19,00
Seminars	20,00
Laboratory	0,00
In-class tutorials	0,00
Clinical practice	6,00
Total hours	**45,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	8,00
Independent study and work	35,00
Preparation of lessons	10,00
Preparation for assessment activities	14,50
Resolution of case studies	0,00
Preparation of supplementary reports	0,00
Preparation of the internship report and evaluation of the internship	0,00
Total hours	**67,50**

TEACHING METHODOLOGY

The teaching methodology is based on the development of three types of activities:

Theoretical activities that present an overview of the main invasive and non-invasive cardiac imaging techniques. Regarding all technologies, their technical aspects will be exposed. Presentations will be completed with images obtained in patients. The individualized contributions of each technique in the most prevalent cardiac pathologies as well as how to use them to optimize available resources will be commented. The implications of each technique should be addressed in the prognostic evaluation, treatment and prevention of complications of most common heart diseases.

Practical activities in which seminars will be held that will include the discussion of real clinical cases of patients studied with cardiac imaging techniques, the decision processes involved in choosing each technique, differential diagnosis, prognostic stratification and treatment of patients, highlighting the relevant role of the anamnesis and physical examination as initial steps for an adequate choice of the most appropriate cardiac imaging technique. Clinical practices will be carried out in the form of discussion of clinical cases in the classroom itself.

Non on-site activities. Preparation of theoretical and practical activities, practical work (individually or in groups) and practical and final evaluation. Appropriate bibliography and different websites of constantly updated scientific societies will be provided where students will be able to review a multitude of real clinical cases with reasoned cardiac imaging. This will allow them to advance autonomously and continue in their knowledge of cardiac imaging techniques both during teaching and in the future, it will help them to carry out practical work and prepare for the evaluation.

The gender perspective, respect for diversity, and the Sustainable Development Goals (SDGs) will be incorporated, whenever possible.

EVALUATION

EVALUATION OF THE FIRST CALL:

Theoretical evaluation: 50% of the final grade. Maximum score to obtain from this section: 50 points. The exam is the same for all students in the subject. A test will be carried out with 25 multiple choice questions based on the general contents taught in both the theoretical activities and the practical in-person and non-face-to-face activities. There will be 4 possible answers to each question. Each correct answer is worth 2 points. Wrong or blank answers do not count.

Practical evaluation: 50% of the final grade. It will consist of 3 sections:

1) Practical examination of cardiac imaging cases. 10% of the final grade. Maximum score that can be obtained from this section: 10 points. Each student will be presented with 1 characteristic real case of cardiac imaging that the student must comment on orally. For this exam, the group will be divided into 2 subgroups, which will take the exam in 2 simultaneous sessions (each session lasting 1 hour during which students must remain in the classroom). The teacher will briefly discuss the case presented with each student.

2) Preparation of a practical work individually or in a group (up to 3 students) focused on the cardiac

imaging techniques addressed during teaching. 10% of the final grade. Maximum score that can be obtained from this section: 10 points. It may be a clinical case or a review on the value of one or more cardiac imaging techniques in the diagnosis and management of a specific pathology. The written report will be delivered through the virtual classroom no later than the day before the practical examination of cardiac imaging cases is carried out. As a guide, the written report will be 10 pages, single-sided, double-spaced and will include a title, summary, introduction, development of the work, conclusions, bibliography and figures. Students who wish may present their work orally in addition to submitting the written report, which will be taken into account in the final evaluation. Only students who make the oral presentation will be able to obtain the maximum score (10 points, 10% of the final grade) in this section.

3) Participation and results obtained in the different continuous evaluation activities. 30% of the final grade. Maximum score that can be obtained from this section: 30 points. At the end of each teaching week, students will be asked a questionnaire with 5 multiple response questions in relation to the material taught throughout the week. Each question will have 4 possible answers, wrong or blank answers do not count. The questionnaires will be carried out in person. The marks obtained in the questionnaires will be added throughout the course and the maximum score that can be obtained is 30 points (30% of the final grade).

Students who do not complete at least 80% of the continuing education questionnaires for justified reasons, if they request it, will be given an oral evaluation instead, which will result in the total grade for this section.

Requirements to pass the subject:

It is not necessary to pass the theoretical and practical evaluation separately.

It is not necessary to pass each of the listed sections separately to pass the subject.

The requirement to pass the subject is to obtain a total (sum of all sections) of at least 50 points.

To pass the subject, students enrolled for the first time must attend at least 80% of the practical in-person activities.

EVALUATION OF THE SECOND CALL:

The grade obtained in the first call in the practical evaluation (50% of the total) will be maintained for the second call.

The theoretical evaluation of the second call will account for 50% of the grade in said call and will have the same characteristics as the first call.

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

- Bodí Peris V, Chorro Gascó FJ (eds): Imagen cardiaca. Valencia. Universidad de Valencia, 2015.
- Chorro Gascó FJ (ed.): Ecocardiografía-Doppler. Valencia, Universidad de Valencia, 2011.
- Chorro Gascó FJ, García Civera R y López Merino V (eds.): Cardiología Clínica. Valencia, Universidad de Valencia, 2007.
- Mann DL, Zipes DP, Libby P, Bonow RO (eds): Braunwald's Heart Disease. A Textbook of Cardiovascular Medicine. Elsevier, 10ª edición, 2015.
- Foro de técnicas de imagen
  http://www.secardiologia.es
  http://www.ecocardio.com/index.asp
- Foro de casos de ecocardiografía
  http://www.ecosiac.org/casos.php
- Foro de casos de resonancia magnética cardiaca
  http://www.scmr.org/navigation/CMR-in-specific-circumstances.html
  http://www.scmr.org/caseoftheweek.html
- Foro de casos cateterismo cardiaco
  http://www.pcronline.com/Clinical-cases
- Foro de cardiología nuclear
  https://www.asnc.org/content.asp?admin=Y&contentid=353
https://humanhealth.iaea.org/HHW/NuclearMedicine/CardiovascularandPulmonary/TeachingCases/index.html

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]