COURSE DATA

DATA SUBJECT

Code: 36318
Name: Medical image breakthrough
Cycle: Undergraduate Studies
ECTS Credits: 4.5
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
1204 - Degree in Medicine	Facultat de Medicina i Odontologia	5	First quarter

SUBJECT-MATTER

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

COORDINATION

DUALDE BELTRAN DELFINA

SANCHIS GARCIA JUAN MANUEL

SUMMARY

This optional subject is about an effective and appropriate use of several forms of medical imaging, through its display and reading, in early diagnosis, assessment of aggressiveness and extension, guidance of the treatment and evaluation of therapeutical responses to the main illnesses. It allows students to establish the use of medical imaging and it complements information regarding other clinical subjects.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

Students are recommended to take this subject in the 5th year of the Medicine degree, with the 3rd year (General Radiology) and 4th year (Clinical Radiology) subjects approved.

COMPETENCES / LEARNING OUTCOMES

1204 - Degree in Medicine

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.

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.

Understand the foundations of action, indications and efficacy of therapeutic interventions, based on available scientific evidence.

Working capacity to function in an international context.

DESCRIPTION OF CONTENTS

1. THEORETICAL CLASSES.

1. Adequacy of radiological examinations and their current importance. New concepts of medical imaging.
2. Image biomarkers: concept, development and validation.
3. Medical imaging in cancer patients: from screening to grading.
4. Clinical trials with imaging evaluation.
5. Image-guided therapy: radiological interventionism.
6. Treatment of peripheral vascular disease from the image.
7. Blood perfusion image: normal vessels and neoangiogenesis.
8. Image in stroke. Recanalization therapies.
9. Functional and multivariate imaging: improving the relevance of the examination.
10. New forms of image (multimodal, high field, multispectral).
11. The image in the multidisciplinary approach to patients.

12. Image of facial trauma in the multidisciplinary approach of patients.
13. Conventional radiological report and modern structured report.
14. Phase contrast. MRI applications. Radiological study of hydrocephalus.
15. Neuroradiological study of patients with epilepsy. Specific sequences.
16. Image in the pediatric patient.
17. Non-accidental trauma in the pediatric patient.
18. Spinal cord compression.
19.AI in the image.

2. PRACTICAL CLASSES

Seminaries
1. Imaging of CNS inflammation.
2. Imaging of neurodegeneration.
3. Imaging of brain tumors.
4. Image of cervicofacial spaces.
5. Management and imaging protocol in polytraumatized patients.
6. Image of women. Applying the BI-RADS. Gynaecological tumour pathology. Infertility.
7. Imaging of the vascular system.
8. Current advances in radioguided surgery.
9. Joint image.
10. Interventionism in musculoskeletal pathology.
11. Abdominal imaging techniques.
12. Image in parasitoses.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	19,00
Seminar	26,00
Total hours	**45,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	0,00
Independent study and work	62,00
Preparation of lessons	5,00
Preparation for assessment activities	0,50
Resolution of case studies	0,00
Total hours	**67,50**

TEACHING METHODOLOGY

In **theoretical classes**, the teacher will present, through a master lesson, the most important concepts and contents in a structured way, to obtain the knowledge and skills that the students must acquire. Students participation will be enhanced. The teaching material used by the teacher will be available, if the teacher considers it appropriate, from the electronic resource of the Virtual Classroom.

Classroom practices. Seminars. The teacher will present specialized topics in depth, case studies, bibliography management, current affairs... Group work and oral presentation will be encouraged. It could be understood as "cooperative learning". The teaching material used by the teacher will be available, if the teacher considers it appropriate, from the electronic resource of the Virtual Classroom.

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

EVALUATION

- Final multiple-choice exam that will consist of 50 questions with multiple choice answers, of which 25 will correspond to the theoretical part and 25 to the seminars.
- The questions will have 4 possible answers and only one correct answer.
- Each correct answer will be worth 0.1 points, and there will be a penalty of 0.025 points for each wrong answer.
- Attendance at the seminars is mandatory and will be controlled by signature sheets. The student is considered to meet this requirement if he/she has attended a minimum of 80% of these activities and has adequately justified the impossibility of attending the remaining sessions due to the concurrence of a force majeure event. It will be essential to meet this requirement to pass the subject. If a student attends 80% of the seminars and fails the final evaluation, he/she will be considered as suitable for seminar for one more course. If he/she takes a third enrolment in the subject, he/she will have to attend 80% of the seminars again.
- The maximum grade that can be obtained with the written exam will be 9 points.
- Attendance at least 80% of seminars will be taken into account to obtain the remaining point that will be added to the grade obtained in the final exam provided that this grade is at least 4.5 points out of the total of 9 points in the final exam.
- The subject may be passed regardless of the number of correct questions in the theoretical part or seminars.
- It is a requirement to access the advance call for this subject that the student has attended at least 80% of the seminars.
- Students are reminded of the importance of carrying out evaluation surveys of all the teaching staff of the subjects of the degree.

REFERENCES

BÁSICA
DEL CURA, J.L.; PEDRAZA, S.; GAYETE, A.; & ROVIRA, A. (Eds.). Radiología esencial. 2ª edición. 2018, SERAM, Editorial Médica Panamericana.

RECURSOSs-e Salut
. ClinicalKey Student Medicina, Odontologia y Enfermería [https://uv-es.libguides.com/RecursosSalut]
. Acces Medicina [https://uv-es.libguides.com/Access_Medicina]
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