

## 68407 - Radiology and nuclear medicine research

### Syllabus Information

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**Academic Year:** 2019/20

**Subject:** 68407 - Radiology and nuclear medicine research

**Faculty / School:** 104 -

**Degree:** 530 - Master's in Introduction to Medical Research

**ECTS:** 5.0

**Year:** 1

**Semester:** Second semester

**Subject Type:** Optional

**Module:** ---

## 1.General information

### 1.1.Aims of the course

To acquire competences and knowledge about to the legal rules related to the use of ionizing radiation. To know the different imaging modalities. To be able to elaborate a Quality Programme of the different imaging or therapeutic modalities that use ionizing radiation.

### 1.2.Context and importance of this course in the degree

Imaging diagnosis is based in the use of ionizing radiation. There is a specific legislation which requires the justification of imaging modalities that use ionizing radiation, so it is necessary to know the imaging modality which is more suitable to use according the information that should be obtained. The knowledge of this legislation related to the radiological protection of the patients is important for all medical doctors involved in the care of these patients. It is important to consider that all clinical departments or research centers that works with ionizing radiations should have a Quality Programme related to the legal rules.

### 1.3.Recommendations to take this course

Optional subject of the second half of the Master's in Introduction to Medical Research. It would be advisable that the student would have some previous knowledge about the nature, use and effects of ionizing radiations and also about the different diagnostic and therapeutic modalities that use them (X rays, CT, Nuclear Medicine, Oncologic Radiation).

## 2.Learning goals

### 2.1.Competences

To understand the bases or the different diagnostic imaging modalities in the general research context. To analyse and summarize the legal rules about the medical equipments that use ionizing radiation. To elaborate a Quality Programme applicable to the different clinical activities that according to the legal rules need it.

### 2.2.Learning goals

Knowledge of the applicable legal rules and the national and international recommendations about the use of ionizing radiation. Knowledge of the bases to elaborate a Quality Programme of use of ionizing radiation according to these legal recommendations.

### 2.3.Importance of learning goals

The use of ionizing radiation oriented to a diagnostic or therapeutic goal is more frequent every day, so it is important that all medical doctor, who requires or performs these type of exams, would be aware of the potential risk of them and the necessity to follow the legal rules in order to avoid the negative potential effects of this ionizing radiation.

## 3.Assessment (1st and 2nd call)

### 3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

Initial face to face session where the learning methodology of the course will be presented: 10% Analysis of the legal rules about the use of ionizing radiation: 30% Interactive participation in the forum: 20% Design of a Quality Programme of a clinical equipment that uses ionizing radiation: 40%

## 4.Methodology, learning tasks, syllabus and resources

### 4.1.Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. It favors the learning of the principles of research in radiology and nuclear medicine. After the initial face-to-face session, where the the methodological principles of the course are presented, the following sessions will be online. This means the teachers will propose questions and solve students' doubts in a virtual way. At the end of this course, students should be able to establish an analysis of the legal rules applied to the use of ionizing radiations.

### 4.2.Learning tasks

The course includes the following learning tasks:

- An initial face-to-face session.
- Online work: documents to be reviewed by the students.
- Online discussion and dialogue will be encouraged among the students and the professor.

### 4.3.Syllabus

The course will address the following topics:

1. Justification of medical exposure
2. Quality criteria in Diagnostic Radiology
3. Quality criteria in Nuclear Medicine
4. Quality criteria in Radiotherapy
5. Regulation of health radioprotection
6. Regulation on nuclear and radioactive facilities
7. Regulation on installation and use of devices RX with purposes of medical diagnosis
8. Operating specifications of radioactive facilities
9. Radiation protection in biomedical research
10. Radiopharmaceuticals research
11. Exposure to ionizing radiation in particular situations
12. Pregnancy and ionizing radiations

### 4.4.Course planning and calendar

#### Timetable

- This module will be held in the second half of the Master's degree.
- Wednesdays between January the 8th and February the 26th, from 16 to 20 hours, on the virtual platform Moodle. It contains the study materials, areas of participation where students will send their assignments, and where these will be discussed.

#### Assessment

- Examination will be held on March, the 4th and September, the 9th, 2020 at 16.30 hours.

### 4.5.Bibliography and recommended resources

Legal rules that are applied to the use of ionizing radiation (document that will be located in the teaching digital ring).

All the references will be in the Library of the Center and will be located in the web.