

# 27231 - Nuclear Chemistry. Physicochemical Properties of Drugs and Radiopharmacy

## Syllabus Information

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**Academic Year:** 2020/21

**Subject:** 27231 - Nuclear Chemistry. Physicochemical Properties of Drugs and Radiopharmacy

**Faculty / School:** 100 - Facultad de Ciencias

**Degree:** 452 - Degree in Chemistry

**ECTS:** 5.0

**Year:** 4

**Semester:** Second semester

**Subject Type:** Optional

**Module:** ---

## 1.General information

### 1.1.Aims of the course

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

### 1.3.Recommendations to take this course

## 2.Learning goals

### 2.1.Competences

### 2.2.Learning goals

### 2.3.Importance of learning goals

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

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

## 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 is strongly related to understanding and reasoning processes. A wide range of teaching and learning tasks are implemented, such as lectures, group work presentation and seminars.

Students are expected to participate actively in the class throughout the semester.

Classroom materials will be available via Moodle. These include a repository of power point used in class, the course syllabus, as well as other learning resources and online support material.

Further information regarding the course will be provided on the first day of class.

### 4.2.Learning tasks

The 5 ECTS course includes the following learning tasks:

- Formative activity 1 (4 ECTS): Interactive lecture classes on nuclear chemistry, physicochemical properties of drugs and radiopharmacy (see section 5.3 for the topics).
- Formative activity 2 (0,75 ECTS): Practical visits to nuclear medicine, radiotherapy and radiodiagnosis installations under the supervision of personnel of radiology and physical medicine. In this formative activity is essential the participation of the students.

- Formative activity 3 (0,25 ECTS): Resolution of practical cases through the use of computer software.

### **4.3.Syllabus**

The course will address the following topics:

- Topic 1. The atomic nucleus
- Topic 2. Kinetic aspects of radioactivity
- Topic 3. Radioactive decay
- Topic 4. Natural and artificial radioactivity
- Topic 5. Radiation effects on matter
- Topic 6. Detection of radiation
- Topic 7. Biological effects of radiation
- Topic 8. Radiation protection
- Topic 9. Medical applications of radioisotopes
- Topic 10. Radiopharmacy
- Topic 11. Physico-chemical properties and drug stability
- Topic 12. Classification and management of radioactive waste

### **4.4.Course planning and calendar**

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the Facultad de Ciencias web (<https://ciencias.unizar.es/grado-en-quimica-0>).

### **4.5.Bibliography and recommended resources**

[http://biblos.unizar.es/br/br\\_citas.php?codigo=27231&year=2019](http://biblos.unizar.es/br/br_citas.php?codigo=27231&year=2019)