

## 27034 - Functional Analysis

### Syllabus Information

**Academic Year:** 2021/22

**Subject:** 27034 - Análisis funcional

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

**Degree:** 453 - Degree in Mathematics

**ECTS:** 6.0

**Year:** 4

**Semester:** First semester

**Subject Type:** Optional

**Module:**

### 1. General information

### 2. Learning goals

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

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

#### 4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures and practice sessions.

#### 4.2. Learning tasks

This course is organized as follows:

- **Lectures.** Main concepts and fundamental results will be explained here. Several references are given, to be followed or considered by the students, as a complement to those aspects of the course explained in the classroom.
- **Practice sessions.** Students practice and solve exercises which develop the content of the course.

The teaching activities and assessment tasks will take place in a face-to-face mode, except in the case that, due to the health situation, the dispositions emitted by the competent authorities and by the University of Zaragoza compel to take them to a greater or lesser extent in a telematic form.

#### 4.3. Syllabus

This course will address the following topics:

- **Topic 1.** Hilbert spaces.
- **Topic 2.** Banach spaces; fundamental theorems.
- **Topic 3.** Compact operators.
- **Topic 4.** Locally convex spaces.

#### 4.4. Course planning and calendar

There are four weekly hours, corresponding to four sessions during the first term.

Further information concerning the timetable (<http://ciencias.unizar.es/web/horarios.do>), 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 Faculty of Sciences website and Moodle.

#### 4.5. Bibliography and recommended resources

- Análisis funcional / Bernardo Cascales Salinas... [et al.] Murcia : Electrolibris ; [Madrid] : Real Sociedad Matemática Española, D.L. 2013.
- Rudin, Walter: Análisis real y complejo / Walter Rudin ; traducción José María Martínez Ansemil . - 3a. ed. Madrid[etc] : McGraw-Hill, cop.1987.
- Conway, John B.: A course in functional analysis / John B. Conway New York : Springer, 1985.
- Rudin, Walter: Functional Analysis, McGraw-Hill, 1973.
- Meise, R. y Vogt, D.: Introduction to Functional Analysis, Oxford Sci. Pub., Clarendon Press, 1997.
- Horvath, J.: Topological Vector Spaces and Distributions, Addison Wesley, 1966.

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=27034>