

27034 - Functional Analysis

Syllabus Information

Academic Year: 2020/21

Subject: 27034 - Functional Analysis

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

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 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 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://biblos.unizar.es/br/br_citas.php?codigo=27034&year=2020