27021 - Lebesgue Integral

Información del Plan Docente

Academic Year	2018/19
Subject	27021 - Lebesgue Integral
Faculty / School	100 - Facultad de Ciencias
Degree	453 - Degree in Mathematics
ECTS	6.0
Year	4
Semester	Half-yearly
Subject Type	Compulsory
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, problem-solving sessions and tutorials.

4.2.Learning tasks

This course is organized as follows:

- **Lectures**. Theory contents will be explained. Learning material will be available in Moodle.
- **Problem-solving sessions**. These sessions serve to understand and apply the theoretical results. Blackboard will

be used.

- **Tutorials**. Individual tutorial hours can take place at teachers' office hours.
- **Autonomous work and study**. Problem assignments for individual work.

4.3.Syllabus

This course will address the following topics:

- **Topic 1**. Measures.
- **Topic 2**. Measurable functions. Integration with respect to a measure.
- **Topic 3**. Lp spaces.
- **Topic 4**. Decomposition of measures.
- **Topic 5**. Radon-Nikodym and Lebesgue theorems.
- **Topic 6**. Product measure. Fubini theorem.

4.4.Course planning and calendar

Four weekly hours correspond to this course.

Further information concerning the timetable (http://ciencias.unizar.es/web/horarios.do), classroom, office hours, assessment dates and other details regarding this course (http://www.unizar.es/analisis_matematico/docencia.html) will be provided on the first day of class or please refer to the Faculty of Sciences website and Moodle (https://moodle2.unizar.es/).

4.5.Bibliography and recommended resources
- Bartle, Robert G. A modern theory of integration. GSM-32, Amer. Math. Soc. 2001
- Bressoud, David, M. A radical approach to Lebesgue's theory of integration. Cambridge 2008
- Chae, Soo Bong Lebesgue integration. Springer-Verlag 1995
- Letac, G. Integration and probability. Exercises and solutions. Springer-Verlag 1995
- Tao, T. An introduction to measure theory. GSM-126, Amer. Math. Soc. 2011