27008 - General Topology

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	453 - Degree in Mathematics
ECTS	9.0
Course	
Period	Annual
Subject Type	Compulsory
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The learning process is based in the following items:
- Theoretical Lectures,
- Problem sessions.

5.2.Learning activities

Theoretical Lectures.
Participative problem sessions.

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Semipresential learning through the Moodle page of the subject; moodle.unizar.es (acces restricted to students enrolled in the subject).

5.3.Program

GENERAL TOPOLOGY

1.- METRIC SPACES (I): Normed linear spaces. Metric spaces. Limit point, Derived and Closure set. Open sets.

2.- TOPOLOGICAL SPACES: Topological spaces. Bases and subbases. Interior, derived set, clousure and frontier.

3.- CONTINUOUS FUNCTIONS: Relative topology and subspaces. Open and closed maps, homeomorphisms. Product spaces. Quotient spaces.

4.- SEPARATION AND COUNTABILITY: Hausdorff spaces. Regular spaces. Normal spaces. Countability properties and related concepts.

5.- COMPACTNESS: Compact spaces. Locally compact spaces. Alexandroff compactification. Countably and sequentally compact spaces.

6.- METRIC SPACES (II): Compactness in metric spaces. Complete metric spaces. Completion of a matric space.

7.- CONNECTEDNESS: Connected spaces. Locally connectes spaces. Pathwise connected spaces. The homotopy relation.

8.- HOMOGENEOUS SPACES: Topological groups. Topological transformations groups. Topology of linear groups.

5.4.Planning and scheduling

Schedules of lectures and problems will coincide with the officially established and will be available at: https://ciencias.unizar.es

5.5.Bibliography and recomended resources

- Dugundji, James. Topology / James Dugundji Boston : Allyn and Bacon, 1966
- Higgins, P. J.. Introduction to topological groups / P. J. Higgins Cambridge : University Press, 1974
- Munkres, James R. Topología / James R. Munkres; traducción, Ángel Ferrández Izquierdo ... [et al.] . - 2ª ed. Madrid : Prentice Hall, D.L. 2001
- Willard, Stephen. General topology / Stephen Willard . - [1st. ed.] Reading, Massachusetts [etc.] : Addison-Wesley, cop. 1970