SCHEDULE

All the lectures will be given in room 6.2.33

MONDAY 11/7

10h-11h **Lecture 1:** Fixed points and topological methods in nonlinear analysis. Motivation and general overview. Some elementary examples and possible directions towards more advanced examples.
11h-11h30m **Break**
11h30m-12h30m **Lecture 2:** Main properties of the topological degree for continuous maps in Euclidean spaces. The Brouwer degree through its axioms. What is a continuation theorem and applications to nonlinear systems.

TUESDAY 12/7

10h-11h30m **Lecture 3:** The uniqueness of the Brouwer degree and computation of the degree. Applications of the degree. Some extensions.

WEDNESDAY 13/7

10h-11h30m **Lecture 4:** The Brouwer fixed point theorem and its variants (Rothe, Poincaré-Bohl, Poincaré-Miranda). Equivalent formulations. Examples and applications

THURSDAY 14/7

10h-11h30m **Lecture 5:** Boundary value problems for ODEs. Applications to periodically perturbed differential systems. The Poincaré operator. Some relevant examples and applications.

FRIDAY 15/7

10h-11h **Lecture 6:** Beyond the finite dimensional case: The Leray-Schauder degree. Fixed points for completely continuous operators. The Leray-Schauder continuation theorem.
11h-11h30m **Break**
11h30m-12h30m **Lecture 7:** Parameter-depending operator equations and the fundamental theorem on continua of solution pairs. Further extensions and recent developments.