University of Puerto Rico Mayaguez Campus
Faculty of Arts and Sciences
Department of Mathematical Sciences

THE DEPARTMENT OF MATHEMATICAL SCIENCES PROUDLY PRESENTS

COLLOQUIUM

SPRING 2015

Continuous Transformations on Banach Spaces

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ABSTRACT

We will show some examples of continuous functions f on compact spaces $K \subset \mathbb{R}^n$ for which there exists a point $x \in K$ such that its orbit $=: \{f^n(x) : n \in \mathbb{N}\}$ is dense in K. After a brief review of the geometry of infinite dimensional Banach spaces, we will mainly consider continuous linear transformations (bounded operators) on them. The contrast of the behavior of different classes of operators is surprising. On one hand the compact operators are the most similar ones to linear transformations on finite dimensional spaces. On the other extreme there are operators with a dense orbit. If, in addition, they have a dense set of periodic points, they are called chaotic. We will also see the concept of Frechet derivatives for non linear transformations and a brief application.

Monzón Building, Room 201, **10:45 AM**
Refreshments will be served 15 minutes before the colloquium in Monzón 213