

Chaotic Dynamical Systems

Contents

(a) **Part 1. Introduction.** (*1 week*).

- Contents of Chapter 1, sec. 1.1 and sec. 1.2 or/and the notes provided in the web page of the course.

The goal of this chapter is to understand the concept of a discrete dynamical system. In this course we will study three different dynamical systems.

- The **Logistic map** which is an example of a dynamical system defined in the unit circle $I = [0, 1]$.
- The **Quadratic map** which is an example of a dynamical system defined in the complex plane \mathbb{C} .
- The **Arnold standard map** which is an example of a dynamical system defined in the unit circle \mathbb{S}^1 .

In the web page <http://deim.urv.cat/~antonio.garijo> there are three applets to visualize and play with these dynamical systems. These applets are written in Java and the easiest way to visualize them is to use the CheerpJ Applet Runner. You could follow the following instructions,

- (a) Open the Google Chrome browser.
- (b) Download the CheerpJ Applet Runner from the web page <https://www.leaningtech.com/pages/cheerpj.html#Download>
- (c) Open the applet using the CheerpJ Applet Runner. The icon appears in the right up corner of your browser.
<https://chrome.google.com/webstore/detail/cheerpj-applet-runner/bbmolahhldcbngedljfadjlognfaaein?hl=ca>

If you have problems you can contact with me by email.

Reference Book:(*) *An introduction to Chaotic Dynamical Systems*. R. L. Devaney. Addison-Wesley Studies in Nonlinearity. 1989.

(*) Until the reception of the book some notes will be provided in the web page of the course.