

## INTRODUCTION TO DYNAMICAL SYSTEMS, FALL 2024

Friday 10.15 - 12.00.

**The course will start on Sep. 13th.**

exercises: Fridays, 13.15 - 15.00. First session on Sep.20th.

Instructor:

Joachim Krieger

MA C1 627

joachim.krieger@epfl.ch

Assistant:

Jaime Gomez

MA C1 657

jaime.gomezramirez@epfl.ch

### **Syllabus:**

-Abstract discrete dynamical systems.

-Ergodicity.

-Poincare recurrence.

-Birkhoff theorem.

-Invariant manifolds and hyperbolicity.

-Conjugation problem for local diffeomorphisms.

-Systems of differential equations in two dimensions, Poincare Bendixson theory.

*Literature:* The course will start out by following a bit the book by Zehnder (Lectures on Dynamical Systems), but will also draw on other sources.

**Examinations, exercises etc:** There will be weekly problem sets, and the assistant will explain their solution during the weekly problem sessions. Students may hand in solutions which can then count as a bonus (up to 1 point towards the final grade at the end of the semester), but this is not compulsory. There will be an oral exam at the end of the semester.