Università degli Studi di Padova

Department of Physics and Astronomy G. Galilei
Master degree in Physics and Physics of Data

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final project of

Laboratory of Computational Physics - mod A

Professor Marco Zanetti, Academic Year 2024/2025.

Time series analysis of bacterial populations in the gut microbiota

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Contents

Chapter 1

Data and Methods

This chapter will contain:

- a short introduction of the scope of the project
- a short description of the dataset
- the statistical analysis of the data
- the description of the methods we will employ (stochastic logistic model, as in the article)

1.1 Data

We analize 10 subjects (mother, father and their offspring of 8 mice) during their whole lifespan. The length of the timeseries ranges from 524 to 1044 days.

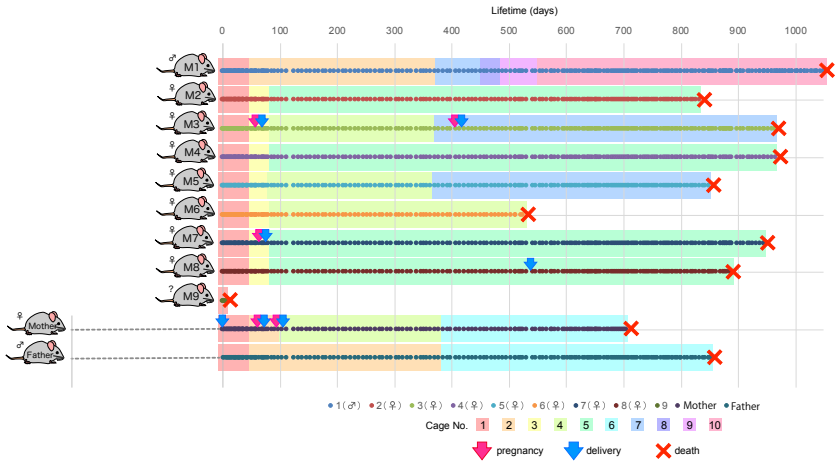

Fig. 1.1: Schematics of data samples

Chapter 2

Time series Analysis with the stochastic logistic model

This chapter will contain all the aanlysis, plots and results about the stochastic logistic model.