Classical models in biology (exercises) BL.6003
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Series 1: Malthus and Verhulst model

1. Malthus model

Use the function “ode” to solve numerically Malthus’ model. Show the trajectory for the two following set of parameters and initial conditions.

a) $r = 0.2$, and $N_0 = 5$
b) $r = -2$, and $N_0 = 5$

In the report, give your code and the plot of the trajectories.

2. Verhulst model

Solve numerically with “deSolve” the model of Malthus. Show the trajectory for the two following set of parameters and initial conditions.

a) $r = 2, \alpha = 0.1$ and $N_0 = 1$
b) $r = 2, \alpha = 0.1$ and $N_0 = 30$
c) $r = -2, \alpha = 0.1$, and $N_0 = 50$

In the report, give your code and the plot of the trajectories.