Pseudocode

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Pseudocode for Lotka-Volterra Model

Load packages (ggplot2, grid arrange, and deSolve packages)

Write a custom function for Lotka Volterra model Unpack parameters: -herbivore and carnivore -birthrate, attackrate, efficiency, death Write equations dherbivore/dt and dcarnivore/dt

Set parameters, initial state variables and time step (=0.1) based on the prompt

Simulate the model using ode -define column names for the modelSim

Convert modelSim to dataframe to plot

Plot simulation using ggplot

play with parameters, understand role and limitations of each parameter

Rosenzweig-MacArthur Model

Load packages (ggplot2, grid arrange, and deSolve packages)

Write a custom function for Lotka Volterra model Unpack parameters: -herbivore and carnivore -prey birthrate, predator attack rate, conversion efficiency, predator death rate, density of prey when predator's kill rate is 1/2*max, and prey self-limiting term Write equations dherbivore/dt and dcarnivore/dt (rates of change for prey and predator populations over time)

Set parameters, initial state variables and time step (=0.1) based on the prompt

Simulate the model using ode -define column names for the modelSim

Convert modelSim to dataframe to plot

Plot simulation using ggplot

play with parameters, understand role and limitations of each parameter

Explain parameters