***Introduction to Theoretical Ecology Assignment***

Graphical Analysis of Lotka-Volterra Competition Model

The Lotka-Volterra competition model can be written in terms of the carrying capacities of the two species:

where:

\* N1 and N2 are the population sizes of species 1 and 2,

\* r1 and r2 are the intrinsic rates of increase for these species,

\* K1 and K2 are the carrying capacities of the habitat for each species,

\* alpha12 and alpha21 are the effects of one species on the population growth of the other. Specifically, alpha12 is the effect of species 2 on the growth of species 1, and alpha21 is the effect of species 1 on the growth of species 2.

1. Please find the equilibrium population sizes of the two species.
2. Determine the stability using graphical analysis.