Some discrete models in population dynamics and ecology

Jacek Banasiak

Instytut Matematyki Politechniki dzkiej & School of Mathematics, Statistics and Computer Science, University of KwaZulu-Natal

e-mail: banasiak@aims.ac.za

Abstract

In this talk we provide a survey of linear discrete models of populations structured with respect to attributes such as age, geographical position, or function or social status. We focus on two main topics. One is the impact of the structure of the network of connections in the population on the properties of the related dynamical system and, in particular, on the long term behaviour of such populations. The other topic pertains to population models described by transition matrices with entries that may be negative and provides, in particular, a complete solution to the so-called Natchez Indian problem, [1].

References

[1] Luenberger, D.G.: Introduction to dynamic systems. Theory, models and applications. Wiley, New York (1979)