Marek Kimmel
Department of Statistics
Rice University

BRANCHING PROCESSES IN BIOLOGY

Abstract

The series of lectures will be loosely based on the monograph under the same title (Springer 2002).

Lecture 1 will cover basic notions of the Galton-Watson process, such as criticality, extinction and conditional limit results, and then a discussion of generalizations.

Lecture 2 will cover basic applications such as clonal model of cancer resistance, Polymerase Chain Reaction, and gene amplification.

Lecture 3 will cover advanced applications, including the iterated Galton-Watson process and O'Connell's method of dating the mitochondrial Eve. The overall purpose is to show the richness of biological models in which branching processes are of use.