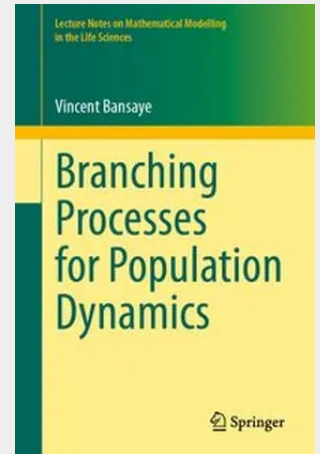


## Branching Processes for Population Dynamics

Branching Processes for Population Dynamics offers a modern introduction to branching processes and modeling for life sciences. Beginning with the classical Galton–Watson model, it extends to random environment and focus then on structured populations, where individuals may have different biological characteristics. It develops in particular the spinal point of view for the study of structured branching processes. Using martingales and Markov chains, this approach allows to describe typical lineages and the long-time behavior of population-level trait evolution. The final chapter develops large population limits, showing how processes converge to deterministic models like PDEs, linking individual-based model to macroscopic systems.

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