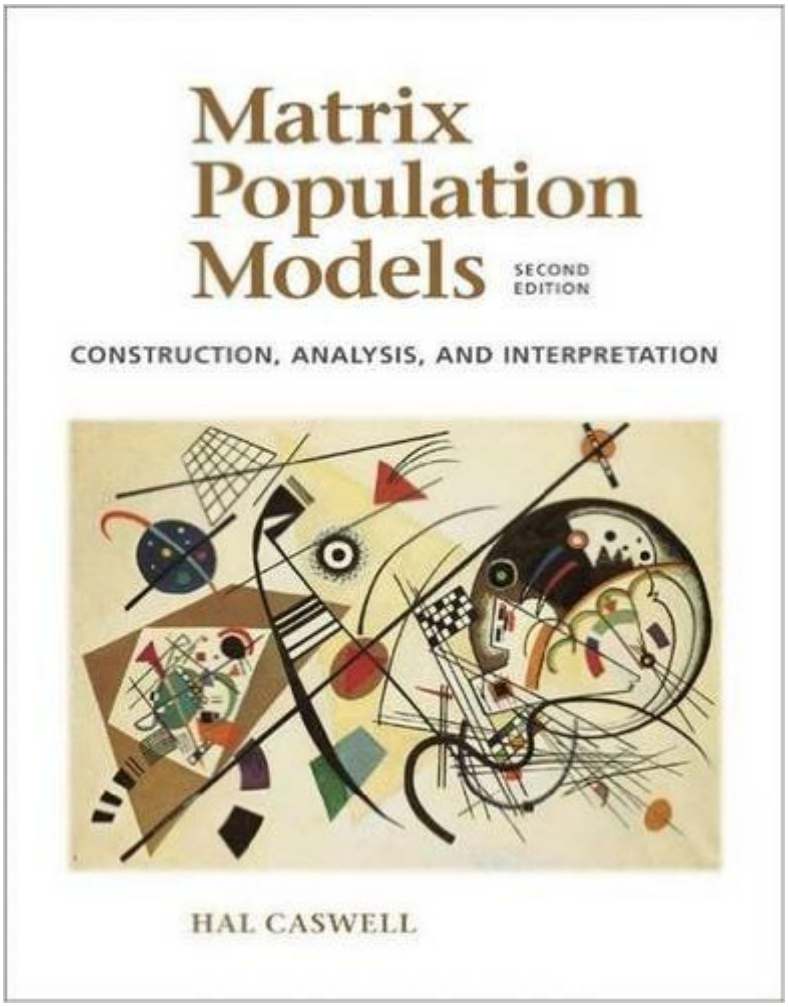
# Matrix Population Models



## Synopsis

Matrix Population Models, Second Edition, is a comprehensive treatment of matrix population models and their applications in ecology and demography. It begins with simple cases, presented in detail so that beginning students can learn how to use these powerful models. It goes on to cover advanced topics in stochastic and nonlinear models. Analytical methods and theoretical issues are illustrated with empirical examples throughout. The decade since the publication of the First Edition of this book has seen enormous progress in the theory and application of matrix population models. The new edition includes greatly expanded treatment of stochastic and density-dependent models, sensitivity analysis, and statistical inference, and new chapters on parameter estimation, structured population models, demographic stochasticity, and applications of matrix models in conservation biology. Matrix Population Models, Second Edition, is an indispensable reference for graduate students and researchers in ecology, population biology, conservation biology, and human demography.

## Book Information

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## Customer Reviews

As a graduate student many years ago, I bought the last shelf copy of the first edition to Caswell's text on matrix population models for our bookstore. After 10+ years of using the book, both in research, and teaching, I'm glad I did. The 2nd edition is a lucid and masterful update, with several nice touches that should be appreciated by both newcomers and experienced modelers. In particular, some of the more turgid text from the first edition has been clarified, and expanded, and several new very important chapters have been added (yes, using branching process theory you

can handle demographic stochasticity with matrix models). A superb book, made even better by the inclusion (at last!) of some basic MATLAB code for some of the more esoteric calculations. My only complaint (related perhaps to the 'code') is that the many good 'worked examples' are not treated more fully. I'd have liked to have seen the actual matrices involved, or some further detail, in some cases, rather than a figure or table summarizing the results. However, a minor complaint - perhaps easily solved by a companion website with code for each example in the book 9something I'm probably going to do on my own, but should be standard these days for any technical text).

There is often a false dichotomy drawn between differential (or difference) equation models of populations and agent-based (artificial life, individual-based, configuration) models. Agent-based models can represent more of the complexity of biological systems at the expense of analytical tractability. Matrix population models form a bridge between the two approaches.Caswell shows how you can elaborate differential equation models to represent much of the population structure and characteristics of interest within a population. His descriptions are clear and easily accessible to biologists as well as people from the more quantitative fields of science.The new edition of this book is due out in April 2000. I am looking forward to it.

Our Aging Population Population Health: Concepts and Methods Public Health Nursing: Population-Centered Health Care in the Community, 9e Population and Community Health Nursing (6th Edition) Public Health Nursing: Practicing Population-Based Care Public Health Nursing: Population-Centered Health Care in the Community Security, Territory, Population: Lectures at the College De France, 1977 - 78 (Michel Foucault, Lectures at the CollÃ¨ge de France) Sterilized by the State: Eugenics, Race, and the Population Scare in Twentieth-Century North America