

## Gender-structured population modeling: mathematical methods, numerics, and simulations

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### Abstrak

Gender-Structured Population Modeling: Mathematical Methods, Numerics, and Simulations gives a unified presentation of and mathematical framework for modeling population growth by couple formation. It provides an overview of both past and present modeling results. The authors focus on pair formation (marriage) and two-sex models with different forms of the marriage functionthe basis of couple formation&#59575;nd discuss which of these forms might make a better choice for a particular population (the United States). The book also provides results on model analysis, gives an up-to-date review of mathematical demography, discusses numerical methods, and puts deterministic modeling of human populations into historical perspective.

The authors describe several models and derive the theoretical results that demonstrate the validity of these models. The numerical methods for approximating the solutions of the differential models&#59594;he equivalent of creating discrete simulators are delineated. Simulation results are compared with actual demographic data to show some of the difficulties concerning the availability of data and to show that mathematical demography provides reasonable qualitative and quantitative estimates. The models in this book can be applied to different sets of data.