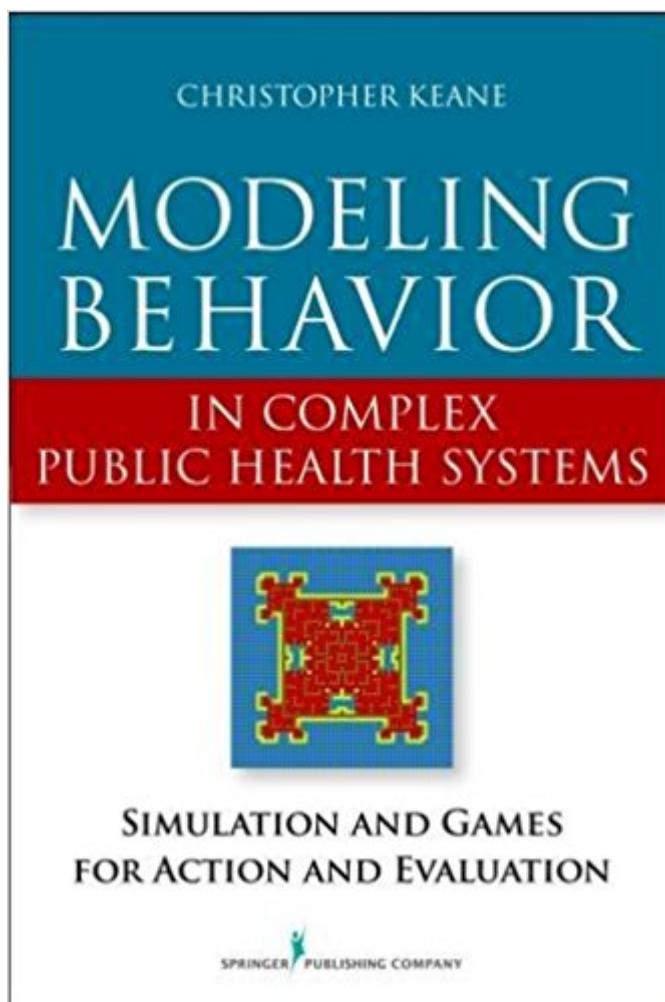


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Modeling Behavior In Complex Public Health Systems: Simulation And Games For Action And Evaluation



Synopsis

This graduate text is the first to present methods for modeling health behavior dynamics, using numerous online interactive simulations, downloadable programs, and examples of applications to planning interventions. The book examines behaviors that range from simple individual health protective actions to complex cooperative public health actions. It provides a user-friendly and effective method for teaching systems thinking, a core competency now required by the Association of Schools of Public Health. The text presents evolutionary and ecological models of health behavior, which readers first explore using interactive online simulations. The fundamental principles of these models are explained through the book's narrative and demonstrated through the use of simple board games. The text then shows how to translate these board games into computational models using NetLogo, a free, user-friendly software. Thus no computer programming background is required. Readers will learn the basics of agent-based modeling of individual behavior, social network behavior, organizational behavior, spread of disease, and a variety of public health interventions. Applying these methods to public health systems, sample models introduce the dynamics of networks of organizations and how they can interact to protect health. A unifying theme throughout is how complex individual and collective health behavior develop from simple individual health decisions or behavior repeated over time. The book also includes a student's models at successive stages of learning, including her early-stage incorrect program, which readers can themselves try to correct. Students will learn to create their own models, use them to conduct simulated experiments, and apply these methods to planning and evaluating behavior change interventions. Each chapter provides online interactive models and downloadable sample programs.

Key Features:

- Uses interactive simulation for modeling health behavior dynamics for complex public health systems
- Demonstrates agent-based modeling of individual health behavior, network behavior, public health intervention effects, and the spread of disease
- Teaches readers to create models that can improve their local needs assessments, program logic modeling, and program planning and evaluation
- Includes numerous interactive online simulations, downloadable programs, and examples of applications to planning interventions
- Facilitates "systems thinking," a required core competency

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