

els such as are used in this book are "coarse-grained": they apply in some averaged sense to a population of intrinsically heterogeneous individuals. One of the central challenges in the field, I believe, is to connect the fine-grained data from individual event-histories to the coarse-grained world of dynamic models. Epidemiologists and demographers have begun work on this problem, starting at the data end of things, but their work is not discussed or referenced in this book. The poor connection between data and models is particularly noticeable in studies of disease in developing countries. Data for developing countries are often available only for small regions and short time spans; careful analysis of epidemiological and demographic information is essential in order to make useful assumptions about heterogeneity, contact patterns, age dependence of transmission, and the like. This book, with its notable emphasis on data, should help draw much-needed attention to these matters.

The book briefly mentions a new trend in simple mathematical models, in which strong nonlinear effects are hypothesized to drive the time course of disease over a chaotic trajectory. Chaotic dynamic models, at this point, are much further removed from the data than are the models in this book. Existing methods for the study of observed chaos require time series of observations that are impossibly long by any sensible epidemiological standard. From a practical standpoint it is difficult to be other than skeptical about the utility of models in this field that involve chaotic dynamics.

The most important transition for mathematical modeling in applied science is from studying itself to making an effective attack upon the practical problems that inspired it. This book shows that mathematical epidemiology has surely begun that transition. On this and many other counts, readers can be grateful to Anderson and May for their talent and industry in writing this book.

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