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Alimadad, Azadeh; Borwein, Alex; Borwein, Peter; Dabbaghian, Vahid; Drakes, Chiaka; Ferguson, Ron; Ghaseminejad, Amir H.; Gusev, Yuri; Hare, Warren; Li, Jenny; Mitrovic-Minic, Snezana; Rutherford, Alexander; van der Waall, Alexa; Vásárhelyi, Krisztina; Vertesi, Les

Modelling in healthcare.

Providence, RI: American Mathematical Society (AMS) (ISBN 978-0-8218-4969-9/hbk). xvii, 218 p. $ 59.00 (2010).

The main purpose of this text is to introduce modelling in healthcare, which is a new and fast developing subject. The book has three parts: Modelling in Healthcare, Data Collection and Statistical Models, Model Design and Interpretation. All material is divided into sixteen chapters written in a self-contained manner. Any chapter can be read and understood without having read previous chapters; sufficient background information is provided to make the text accessible to a reader with a solid knowledge of high school mathematics. The layout of all chapters is unified – most chapters are divided into five sections titled Model Overview, Common Uses, Model (or Mathematical) Details, Examples and Related Reading. This structuring helps the reader to use the book most efficiently. In each of the Examples section two or three examples of practical applications are provided, although, for the sake of simplicity, some examples have been created artificially. All the material in the book falls into two categories; there are chapters dealing exclusively with specific types of models and those of rather general nature. In fact, all three chapters in the first part introduce modelling as a subject focusing in particular on modelling in healthcare and describe how to use the book. Chapters 4 and 9 that open parts two and three discuss, respectively, fundamental issues related to types of data, data collection and data errors and principles guiding selection, development and implementation of models. Chapters 5-8 in the second part of the book focus on fundamental techniques used in statistical modelling. Here the reader can find helpful information on descriptive statistics and distributions, regression analysis, basics of epidemiological and psychosocial risk modelling. All the remaining chapters in the book discuss particular models including, for instance, psychosocial models, human capital models, queueing and traffic models, etc. Case studies in Chapters 10-16 in the third part require more solid mathematical background since they contain elements of the graph theory, game theory, differential equations, optimization and network theory. The book contains an appendix where some of the modelling software has been reviewed. It concludes with a bibliography containing 230 items and a useful subject index. Written by a group of experts in a transparent and precise manner, this nice book invites the reader to explore how modelling in healthcare works and what it is capable of. It is certainly a very useful introductory text on the subject. *Svitlana P. Rogovchenko (Umeå)*

Classification: M65 K45 K95
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