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Titolo	Numerical methods in biomedical engineering [[electronic resource] /] / Stanley M. Dunn, Alkis Constantinides, Prabhas V. Moghe
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier Academic Press, c2006
ISBN	1-280-96128-7 9786610961283 0-08-047080-7
Descrizione fisica	1 online resource (628 p.)
Collana	Academic Press series in biomedical engineering
Altri autori (Persone)	DunnStanley Martin ConstantinidesA MoghePrabhas V
Disciplina	610/.28
Soggetti	Biomedical engineering - Mathematics Biomedical engineering - Mathematical models Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front cover; Title page; Copyright page; Table of contents; Preface; Organization and Outline of the Book; Part I: Fundamentals; Chapter 1 Modeling Biosystems; 1.1 Biomedical Engineering; 1.2 Fundamental Aspects of Biomedical Engineering; 1.3 Constructing Engineering Models; 1.3.1 A framework for problem solving; 1.3.2 Formulating the mathematical expression of conservation; 1.3.3 Using balance equations; 1.4 Examples of Solving Biomedical Engineering Models by Computer; 1.4.1 Modeling rtPCR efficiency; 1.4.2 Modeling transcranial magnetic stimulation; 1.4.3 Modeling cardiac electrophysiology 1.4.4 Using numerical methods to model the response of the cardiovascular system to gravity1.5 Overview of the Text; 1.5.1 Part I: Fundamentals; 1.5.2 Part II: Steady-state behavior (algebraic models); 1.5.3 Part III: Dynamic behavior (differential equations); 1.5.4 Part IV: Modeling tools and applications; 1.6 Lessons Learned in this Chapter; 1.7 Problems; 1.8 References; Chapter 2 Introduction to Computing; 2.1 Introduction; 2.2 The Role of Computers in Biomedical Engineering; 2.3 Programming Language Tools and Techniques; 2.3.1 Sequences of

statements; 2.3.2 Conditional execution
2.3.3 Iteration2.3.4 Encapsulation; 2.4 Fundamentals of Data Structures for MATLAB; 2.4.1 Number representation; 2.4.2 Arrays; 2.4.3 Characters and strings; 2.4.4 Logical or Boolean data types; 2.4.5 Cells and cell arrays; 2.4.6 Data structures not explicitly found in MATLAB; 2.4.7 Data type conversion; 2.5 An Introduction to Object-Oriented Systems; 2.6 Analyzing Algorithms and Programs; 2.6.1 Polynomial complexity; 2.6.2 Operation counting; 2.7 Lessons Learned in this Chapter; 2.8 Problems; Chapter 3 Concepts of Numerical Analysis; 3.1 Scientific Computing
3.2 Numerical Algorithms and Errors3.3 Taylor Series; 3.4 Keeping Errors Small; 3.5 Floating-Point Representation in MATLAB; 3.5.1 The IEEE 754 standard for floating-point representation; 3.5.2 Floating-point arithmetic, truncation, and rounding; 3.5.3 Roundoff error accumulation and cancellation error; 3.6 Lessons Learned in this Chapter; 3.7 Problems; 3.8 References; Part II: Steady-State Behavior; Chapter 4 Linear Models of Biological Systems; 4.1 Introduction; 4.2 Examples of Linear Biological Systems; 4.2.1 Force balance in biomechanics; 4.2.2 Biomedical imaging and image processing
5.3 Examples of Nonlinear Equations in Biomedical Engineering

Sommario/riassunto

Numerical Modeling in Biomedical Engineering brings together the integrative set of computational problem solving tools important to biomedical engineers. Through the use of comprehensive homework exercises, relevant examples and extensive case studies, this book integrates principles and techniques of numerical analysis. Covering biomechanical phenomena and physiologic, cell and molecular systems, this is an essential tool for students and all those studying biomedical transport, biomedical thermodynamics & kinetics and biomechanics.·
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2. Record Nr. UNINA9910477018103321

Titolo	Movement of knowledge : medical humanities perspectives on medicine, science, and experience / / Rachel Irwin, Kristofer Hansson (editors)
Pubbl/distr/stampa	Gothenburg : , : Kriterium, , 2020
Descrizione fisica	1 online resource (256 pages)
Disciplina	610.696
Soggetti	Communication in medicine - United States Communication in medicine
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Movement of knowledge: Introducing medical humanities perspectives on medicine, science, and experience Kristofer Hansson & Rachel Irwin -- Prenatal diagnosis: The co-production of knowledge and values in medical research and public debate Anna Tunlid -- The objects of global health policy: Turning knowledge into evidence at the World Health Organization Rachel Irwin -- Sharing knowledge: Neuroscience and the circulation of medical knowledge Asa Alftberg -- Press releases as medical knowledge: Making news and identification in medical research communication Karolina Lindh -- The ethical tool of informed consent: How mutual trust is co-produced through entanglements and disentanglements of the body Markus Idvall -- The co-creation of situated knowledge: Facilitating the implementation of care models in hospital-based home care Kristofer Hansson et al. -- A number in circulation: HbA1c as standardized knowledge in diabetes care Kristofer Hansson -- Knowledge worlds apart: Aesthetic experience as an epistemological boundary object Max Liljefors -- Medicines in the grey market: A sociocultural analysis of individual agency Rui Liu & Susanne Lundin.
Sommario/riassunto	Medical knowledge is always in motion. It moves from the lab to the office, from a press release to a patient, from an academic journal to a civil servant's desk and then on to a policymaker. Knowledge is deconstructed, reconstructed, and transformed as it moves. The

dynamic, ever-evolving nature of medical knowledge has given rise to different concepts to explain it: diffusion, translation, circulation, transit, co-production. At the same time, its movements--and the ways in which we conceptualize and describe them--have material consequences. For instance, value judgements on the validity of certain forms of knowledge determine the direction of clinical research. Policy decisions are taken in relation to existing knowledge. The acceptance or rejection of treatment protocols based on medical 'facts' impacts on patients, dependents, health providers, and society at large. Simply put, knowledge and the movement of knowledge matter. How do they matter, though? The contributors to this volume examine the complexity of medical knowledge in everyday life. We demonstrate not only the pervasive influence of knowledge in medical and public health settings, but also the range of methodological and theoretical tools to study knowledge. Ours is a multidisciplinary approach to the medical humanities, presenting both contemporary and historical perspectives in order to explore the borderlands between expertise and common knowledge.