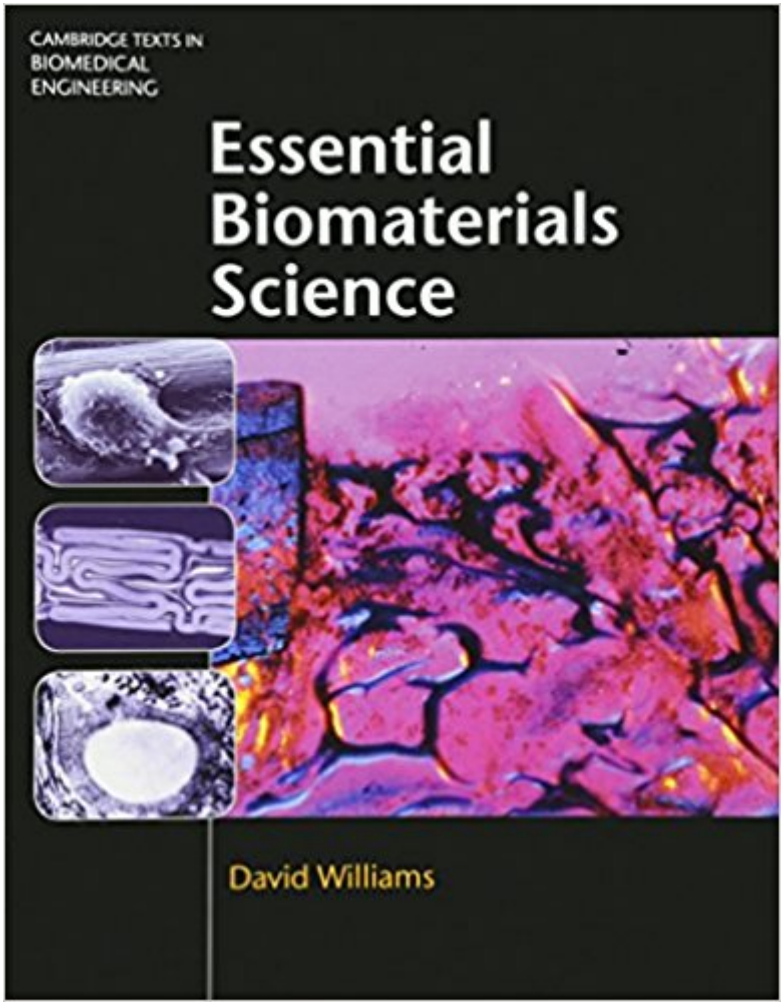
Essential Biomaterials Science (Cambridge Texts In Biomedical Engineering)



Synopsis

This groundbreaking single-authored textbook equips students with everything they need to know to truly understand the hugely topical field of biomaterials science, including essential background on the clinical necessity of biomaterials, relevant concepts in biology and materials science, comprehensive and up-to-date coverage of all existing clinical and experimental biomaterials, and the fundamental principles of biocompatibility. It features extensive case studies interweaved with theory, from a wide range of clinical disciplines, equipping students with a practical understanding of the phenomena and mechanisms of biomaterials performance; a whole chapter dedicated to the biomaterials industry itself, including guidance on regulations, standards and guidelines, litigation, and ethical issues to prepare students for industry; informative glossaries of key terms, engaging end-of-chapter exercises, and up-to-date lists of recommended reading. Drawing on the author's 40 years' experience in biomaterials, this is an indispensible resource for students studying these lifesaving technological advances.

Book Information

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Customer Reviews

"This is the long overdue single-author compendium students, scientists and clinicians were waiting for. Anyone expecting a dry scientific compilation will be pleasantly surprised by the wonderfully lively style in which Professor Williams takes the reader on an exciting journey into the world of modern biomaterials and the opportunities it offers to patients. In a field long plagued by

self-sustained paradigms, wrong models, and wrong questions, this book boldly introduces each chapter on the basis of true clinical needs, taking the captivated reader into the deepest depths of material science and biology and eventually leaving him in a position where his own understanding and judgment has undergone a quantum leap." Peter Zilla, University of Cape Town"This revolutionary book provides a coherent synthesis of the entire field of biomaterials, from the underlying sciences to its practical applications. The book is the culmination of thought from one of the leading pioneers in the field, David F. Williams, who has been active for over 45 years, and is able to bring together not only the importance of the subject matter, but also its historical perspective and future trends. With a strategic focus of thought, this unique text is a seminal contribution that provides an invaluable and thorough resource for anyone interested in the biomaterials field, not just for students, but also for scientists, and government and industry personnel." Anthony Atala, Wake Forest University School of Medicine"This book distils the wide-ranging field of biomaterials down to critical topics, and presents them in an accessible and user-friendly way. In writing the book, the author applies his innovative ideas, vast knowledge and rich experience to adroitly tackle the challenge of "less is more" in processing a wealth of subject matter, placing a special focus on dynamic interactions between various biomaterials with complex biological systems, and translation of tissue engineering products to the clinic. Another valuable feature of this book is the pedagogical implications contained in each topic, which begins with a clear, simple diagram to introduce the reader to the core information, and ends with a number of questions to help the reader to integrate basic concepts into practice. Accordingly, this book provides a great reference for graduate students, researchers and doctors specializing in biomaterials science. Such empowerment will inevitably lead to advancing the state of the art in the field." Xiaosong Gu, Nantong University"David Williams is one of the leading international authorities in biomaterials. Drawing on his vast multidisciplinary experience in the field, Professor Williams presents in this attractive textbook not only a comprehensive view of biomaterials in their various facets, but also innovative ideas, along with the clarity of thought and precision of expression that those who know him well have come to expect of him. Although written primarily for students in biomaterials curricula, I see this book as "a must" for the personal and institutional library." C. James Kirkpatrick, Johannes Gutenberg UniversitÃ¤t Mainz"This is an extraordinary, impressively thorough, reference source and textbook. David Williams has a rare knack for clear communication. He draws on a unique combination of outstanding knowledge, remarkable experience, and a rare appreciation of the key concepts. This book is an absolutely essential, superbly comprehensive, and valuable resource for anyone who wants to truly understand the field of biomaterials." Tony Weiss,

University of Sydney"Williams' Essential Biomaterials Science combines comprehensive scope, single-authored consistency, and contemporary translational practicality in this novel textbook on biomaterials. The book clusters detailed considerations of materials, pathobiology, applications, regenerative therapeutics, and considerations of commercialization and clinical implementation, with an overriding focus on biocompatibility and concepts of biomaterial-tissue interactions, a key theme of Williams' many contributions to and leadership in this field. Well-illustrated, particularly with conceptual graphics, well-referenced with suggested readings, and with end-of-chapter questions, the book is most likely to be most useful to university students at an advanced undergraduate or graduate level, and nicely complements other available references in adding to the richness and usefulness of literature in the field." Frederick Schoen, Brigham and Women's Hospital, Harvard Medical School"It is a remarkable achievement for any one individual, even if that individual is David Williams, to construct such an accomplished and authoritative text. Based on a lifetime spent in the field, this book is comprehensive, thought-provoking, and forward-looking, and is beautifully written and illustrated. While intended, primarily, as a student text, it is certain that there will be biocompatibility between this work and academics, clinicians, regulators and industry practitioners alike, and it is destined to become a definitive biomaterials science text." Keith McLean, CSIRO"This book provides the reader with the most up-to-date information on the ground-breaking revolutions in biomaterials sciences, and huge application potentials to overcome the most acute clinical challenges in the 21st century. Reading this book is an academic enjoyment!" Yan Li, Zhongnan Hospital of Wuhan University"As the advancement of medical science curing various diseases, the role of biomaterials applied to medicine is recognized to be larger in recent years. Almost every week, new biomaterials are announced and launched in the market, and for keeping the high development speed of biomaterials for according to strong demands from medical science, many biomaterial scientists and engineers should be educated. At this moment, this single-authored textbook is just published. This book is composed of several chapters containing important information with many beautiful illustrations and photographs, which help students to understand biomaterials from very basic to near clinical applications. As one of the unique points of this book, each chapter has a brief of glossary of biological and medical terms, which may be unfamiliar for students." Teruo Okano, Tokyo Women's Medical University

This groundbreaking single-authored textbook equips students with everything they need to know about biomaterials science, including essential background and theory, comprehensive and up-to-date coverage of existing biomaterials, and industry insights. Contains extensive interweaved

case studies, informative glossaries and engaging exercises. An indispensable resource for students of biomaterial science and engineering.

The figures need to be improved.

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