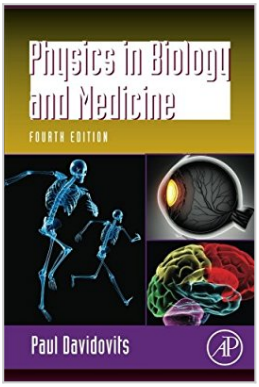

Physics in Biology and Medicine, Fourth Edition (Complementary Science)

By Paul Davidovits

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By Paul Davidovits

Physics in Biology and Medicine, Fourth Edition, covers topics in physics as they apply to the life sciences, specifically medicine, physiology, nursing and other applied health fields. This is a concise introductory paperback that provides practical techniques for applying knowledge of physics to the study of living systems and presents material in a straightforward manner requiring very little background in physics or biology. Applicable courses are Biophysics and Applied Physics.

This new edition discusses biological systems that can be analyzed quantitatively, and how advances in the life sciences have been aided by the knowledge of physical or engineering analysis techniques. The volume is organized into 18 chapters encompassing thermodynamics, electricity, optics, sound, solid mechanics, fluid mechanics, and atomic and nuclear physics. Each chapter provides a brief review of the background physics before focusing on the applications of physics to biology and medicine. Topics range from the role of diffusion in the functioning of cells to the effect of surface tension on the growth of plants in soil and the conduction of impulses along the nervous system. Each section contains problems that explore and expand some of the concepts. The text includes many figures, examples and illustrative problems and appendices which provide convenient access to the most important concepts of mechanics, electricity, and optics in the body.

Physics in Biology and Medicine will be a valuable resource for students and professors of physics, biology, and medicine, as well as for applied health workers.

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Editorial Review

Review

*"The text provides clear descriptions of medical devices and techniques such as MRI, CAT scan and cochlear implant. It discusses biological systems that can be analyzed quantitatively and shows how advances in the life sciences have been aided by the knowledge of physical or engineering analysis techniques."--**Anticancer Research, August 2013***

Reviews from the 2e:

"This is a book you should consider if you are teaching the one-semester premed course. This text could be used in two ways: 1) as a text for a one-term course in the physics of the body (without calculus) for non-physics majors in premed or allied health programs, or 2) as a supplementary text for the introductory physics course, particularly for premed students."--Russell Hobbie, University of Minnesota *"There is certainly a viable market (for this book), if not as a stand-alone physics text, as a collection of problems, examples, and discussions at the boundary between physics and biology and medicine. It is very well written; it is certainly accurate; and it is pretty complete."--David Cinabro,* Wayne State University

From the Back Cover

Paul Davidovits, Professor of Chemistry at Boston College, was co-awarded the prestigious R.W. Wood prize from the Optical Society of America for his seminal work in optics. His contribution was foundational in the field of confocal microscopy, which allows engineers and biologists to produce optical sections through 3D objects such as semiconductor circuits, living tissues, or a single cell. Dr. Davidovits earned his doctorate, masters, and undergraduate degrees from Columbia University. Prior to his appointment at Boston College, he was a faculty member at Yale University. He has published more than 150 papers in physical chemistry and is a Fellow of the American Physical Society and of the American Association for Advancement of Science. The second edition of *Physics in Biology and Medicine* received the Alpha Sigma Nu Book Award in the Discipline of the Natural Sciences.

A PERFECT FIT TO COURSES IN PHYSICS AND BIOPHYSICS

Physics in Biology and Medicine, Fourth Edition covers topics in physics as they apply to the life sciences, specifically medicine, physiology, nursing, and other applied health fields. The text provides clear descriptions of medical devices and techniques such as MRI, CAT scan, and cochlear implant.

Physics in Biology and Medicine, Fourth Edition is a concise introductory paperback that surveys and relates basic physics to living systems. It discusses biological systems that can be analyzed quantitatively, and shows how advances in the life sciences have been aided by the knowledge of physical and engineering analysis techniques.

- Provides practical techniques for applying knowledge of physics to the study of living systems
- Presents material in a straightforward manner requiring very little background in physics or biology

- Includes many figures, examples, illustrative problems, and appendices which provide convenient access to the most important concepts of mechanics, electricity, and optics
- An Instructor Solutions Manual is available at textbooks.elsevier.com
- Updated to include current research topics, including nanoscience, basal metabolism, laser imaging, and atomic force microscopy

About the Author
Paul Davidovits, Professor of Chemistry at Boston College, was co-awarded the prestigious R.W. Wood prize from the Optical Society of America for his seminal work in optics. His contribution was foundational in the field of confocal microscopy, which allows engineers and biologists to produce optical sections through 3D objects such as semiconductor circuits, living tissues, or a single cell. Dr. Davidovits earned his doctorate, masters, and undergraduate degrees from Columbia University. Prior to his appointment at Boston College, he was a faculty member at Yale University. He has published more than 150 papers in physical chemistry and is a Fellow of the American Physical Society and of the American Association for Advancement of Science. The second edition of Physics in Biology and Medicine received the Alpha Sigma Nu Book Award in the Discipline of the Natural Sciences.

Users Review

From reader reviews:

Jimmy Robertson:

This Physics in Biology and Medicine, Fourth Edition (Complementary Science) book is not really ordinary book, you have it then the world is in your hands. The benefit you obtain by reading this book is information inside this book incredible fresh, you will get info which is getting deeper you read a lot of information you will get. This particular Physics in Biology and Medicine, Fourth Edition (Complementary Science) without we realize teach the one who studying it become critical in contemplating and analyzing. Don't be worry Physics in Biology and Medicine, Fourth Edition (Complementary Science) can bring any time you are and not make your case space or bookshelves' turn into full because you can have it with your lovely laptop even cellphone. This Physics in Biology and Medicine, Fourth Edition (Complementary Science) having great arrangement in word as well as layout, so you will not feel uninterested in reading.

Eugene Brown:

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Rachel Glidewell:

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