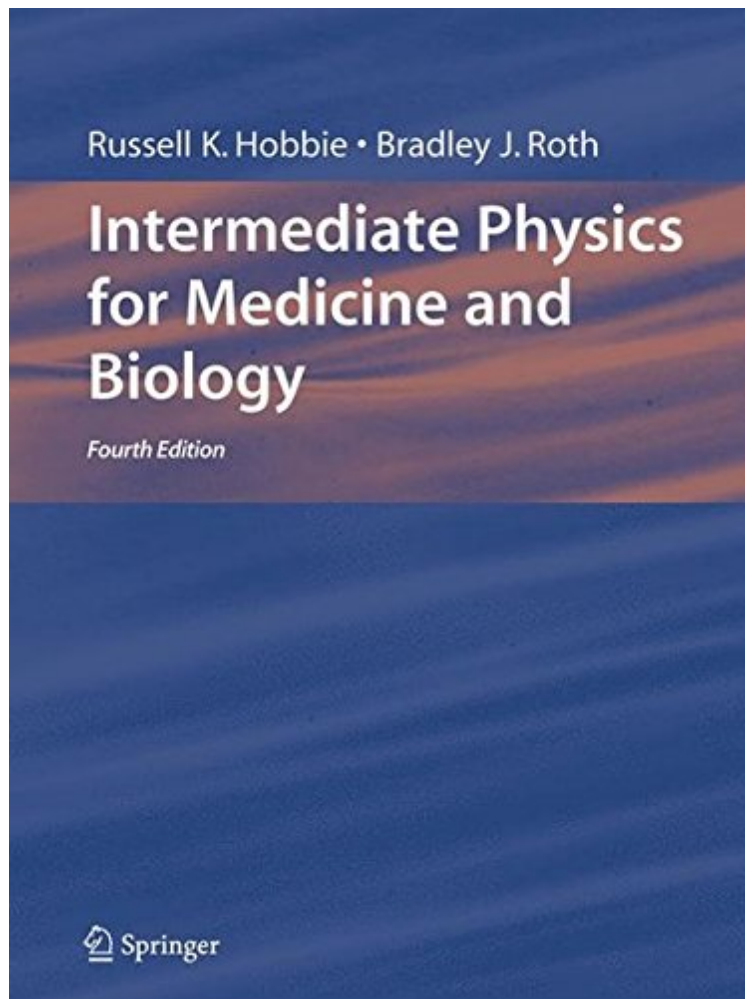


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## Intermediate Physics for Medicine and Biology, 4th Edition (Biological and Medical Physics, Biomedical Engineering)

*Russell K. Hobbie, Bradley J. Roth*  
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**Russell K. Hobbie, Bradley J. Roth : Intermediate Physics for Medicine and Biology, 4th Edition (Biological and Medical Physics, Biomedical Engineering)** before purchasing it in order to gage whether or not it would be worth my time, and all praised Intermediate Physics for Medicine and Biology, 4th Edition (Biological and Medical Physics, Biomedical Engineering):

0 of 5 people found the following review helpful. One StarBy Jessica WebbEven the professor thinks it's a bit much for an undergrad.12 of 12 people found the following review helpful. A must-read for physicists interested in biologyBy John WikswoIntermediate Physics for Medicine and Biology (Biological and Medical Physics, Biomedical

Engineering) is now in its fourth edition, and gets better every time. This is the ideal starting place for biologists who need to use physics to explain something biological or physiological, or physicists who want to apply quantitative physics theories or techniques to biological phenomena or delve into medical or biological physics. The derivations and illustrations are clear and useful, and the book provides detailed explanations rather than just decreeing the applicable equation for a particular phenomenon. The rich set of problems makes it an ideal textbook for physics or biomedical engineering or quantitative biology; the breadth of the material makes it a wonderful reference book. 6 of 6 people found the following review helpful. A Great Textbook for Medical Physics By Ron This is an ideal textbook for an introductory level medical physics/biomedical engineering course for juniors and seniors. When I used this textbook to teach an introductory level medical physics class, I found it to be rich in biological and medical materials, and hardly referred my students to other textbooks. It includes most of the derivations that students need to know and plenty of problems for them. The authors have done a great service for the students by explaining required physics concepts in the textbook.

From the Preface to the 3rd Edition, but Russell K. Hobbie "Between 1971 and 1973 I audited all the courses medical students take in their first two years at the University of Minnesota. I was amazed at the amount of physics I found in these courses and how little of it is discussed in the general physics course. I found a great discrepancy between the physics in some papers in the biological research literature and what I knew to be the level of understanding of most biology majors or premed students who have taken a year of physics. It was clear that an intermediate-level physics course would help these students. It would provide the physics they need and would relate it directly to the biological problems where it is useful. This book is the result of my having taught such a course since 1973. It is intended to serve as a text for an intermediate course taught in a physics department and taken by a variety of majors."

Aus den Rezensionen zur 4. Auflage: Es ist eines dieser amerikanischen Grolehrbcher: ppig dimensioniert, didaktisch stark ... Fr all diejenigen, die sich wissenschaftlich im Grenzbereich von Physik und Biologie bewegen, ist der groformatige Band ein wahres Geschenk. Die langjhrigen Dozenten haben das didaktische Konzept an Generationen von Studierenden erprobt und den Stoff des Bandes immer wieder aktualisiert. (www.buchkatalog.de) From the Back Cover Intended for advanced undergraduate and beginning graduate students in biophysics, physiology, medical physics, cell biology, and biomedical engineering, this wide-ranging text bridges the gap between introductory physics and its application to the life and biomedical sciences. This extensively revised and updated fourth edition reflects new developments at the burgeoning interface between physics and biomedicine. Among the many topics treated are: forces in the skeletal system; fluid flow, with examples from the circulatory system; the logistic equation; scaling; transport of neutral particles by diffusion and by solvent drag; membranes and osmosis; equipartition of energy in statistical mechanics; the chemical potential and free energy; biological magnetic fields; membranes and gated channels in membranes; linear and nonlinear feedback systems; nonlinear phenomena, including biological clocks and chaotic behavior; signal analysis, noise and stochastic resonance detection of weak signals; image formation and description; image reconstruction; hearing and medical ultrasound; atoms and light; near infrared scattering; optical coherence tomography; infrared radiation; ultraviolet light; radiometry and photometry; the interaction of photons and charged particles in tissue; radiological physics and the use of x-rays in diagnosis and therapy; nuclear medicine; and magnetic resonance imaging. Discussion of theory is more closely linked to experiment, and stochastic processes are presented as an integral part of biological systems. A prior course in physics and in calculus is assumed. Over 800 problems (a 44% increase from the third edition) are included to test the student's understanding and to provide additional biological examples. A solutions manual is available to instructors. Each chapter has an extensive list of references as well as useful bibliographies for further reading. Intermediate Physics for Medicine and Biology is also ideal for self study and as a reference for workers in medical and biological research. KEY FEATURES: Provides an excellent background in physics for physicians, biomedical engineers, and biologists Includes a new chapter on sound and ultrasound and presents stochastic processes as an integral part of biological systems Emphasizes applications of physics to biomedicine rather than molecular biophysics Contains numerous problems and exercises for course use and as a reference for self study About the Author Russell K. Hobbie, Professor of Physics Emeritus, University of Minnesota. Bradley J. Roth, Professor of Physics, Oakland University.