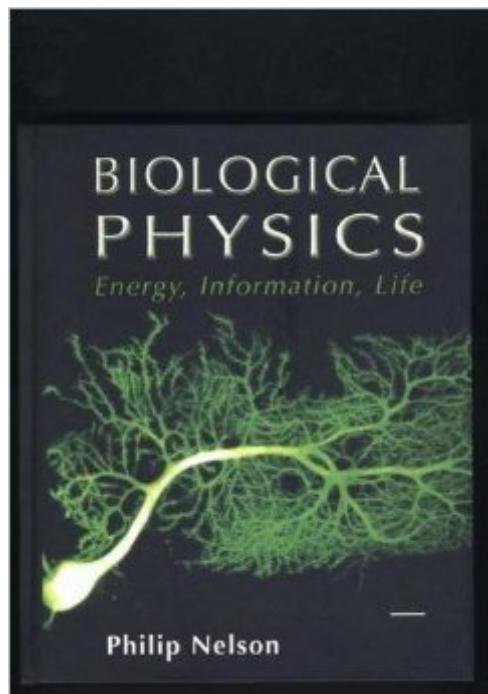


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# Biological Physics: Energy, Information, Life



## Synopsis

Physics and engineering departments are building research programs in biological physics, but until now there has not been a synthesis of this dynamic field at the undergraduate level. Biological Physics focuses on new results in molecular motors, self-assembly, and single-molecule manipulation that have revolutionized the field in recent years, and integrates these topics with classical results. The text also provides foundational material for the emerging field of nanotechnology. The text is built around a self-contained core geared toward undergraduate students who have had one year of calculus-based physics. Additional "Track-2" sections contain more advanced material for senior physics majors and graduate students.

## Book Information

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## Customer Reviews

I used Nelson's Biological Physics textbook for a graduate level reading course in physics, and found it excellent for my needs. I haven't taken a biology course since high school, and although I have researched biological systems for some time, I have had a very fuzzy view of biological physics until recently. I was skeptical of a book that claims it is appropriate for students from second year undergraduate through graduate studies, but by using the Track 2 option, and following up some of the cited papers and suggested readings I found it to be quite suitable. Also, the text was well written, and easy to follow - which is ideal for independent study. Nelson's Biological Physics starts humbly, with a brief introduction of energy, and the size range inherent to biological systems. Using statistical and thermal physics principles, Nelson builds upon simple ideas to end the text with elegant descriptions of complex biological entities like molecular motors and ion channels. Under

other circumstances such topics would frighten even the bravest physics student who has had no initiation to the biological realm of study! With little to no biology background myself, I was apprehensive about a course on biological physics, but found that Nelson usually described relevant systems and experimental methods in sufficient detail and from a perspective that appealed to me. If a topic were not described in great detail, the text generally cited additional resources - especially for more challenging topics. The "Your turn" exercises scattered throughout the text alternated between being helpful and annoying. While useful for engaging the reader, they sometimes provide roadblocks to chapter sections and homework problems when particularly tricky.

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