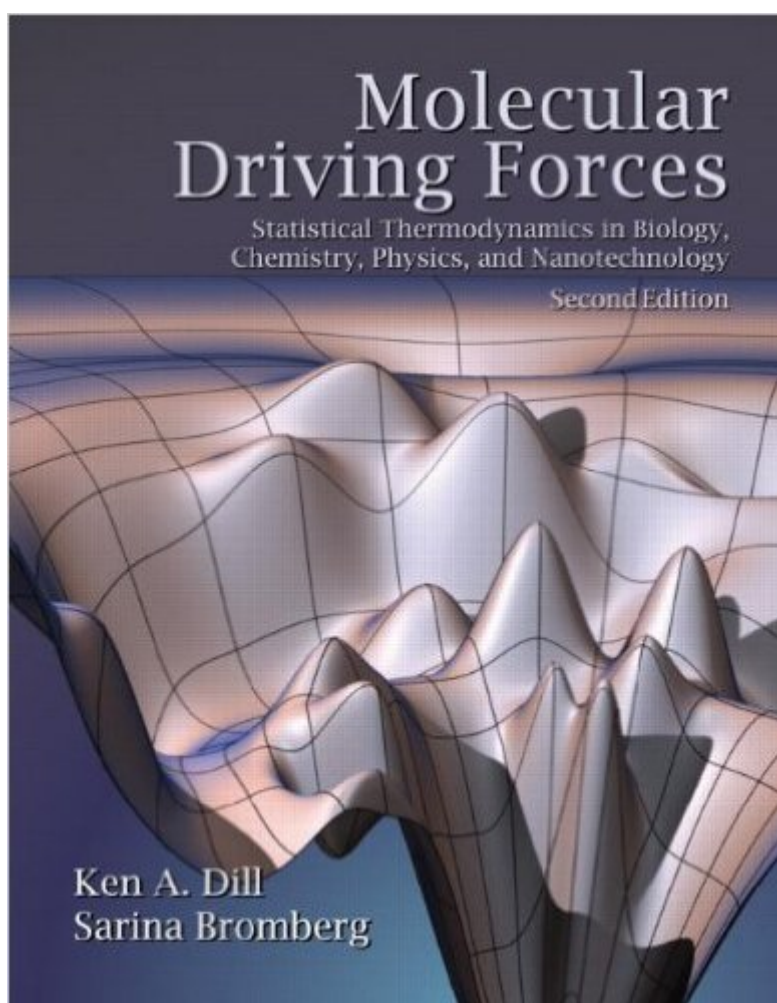


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# Molecular Driving Forces: Statistical Thermodynamics In Biology, Chemistry, Physics, And Nanoscience, 2nd Edition



## Synopsis

Molecular Driving Forces, Second Edition is an introductory statistical thermodynamics text that describes the principles and forces that drive chemical and biological processes. It demonstrates how the complex behaviors of molecules can result from a few simple physical processes, and how simple models provide surprisingly accurate insights into the workings of the molecular world. Widely adopted in its First Edition, Molecular Driving Forces is regarded by teachers and students as an accessible textbook that illuminates underlying principles and concepts. The Second Edition includes two brand new chapters: (1) "Microscopic Dynamics" introduces single molecule experiments; and (2) "Molecular Machines" considers how nanoscale machines and engines work. "The Logic of Thermodynamics" has been expanded to its own chapter and now covers heat, work, processes, pathways, and cycles. New practical applications, examples, and end-of-chapter questions are integrated throughout the revised and updated text, exploring topics in biology, environmental and energy science, and nanotechnology. Written in a clear and reader-friendly style, the book provides an excellent introduction to the subject for novices while remaining a valuable resource for experts.

## Book Information

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## Customer Reviews

Dill and Bromberg's effort is extraordinary. I don't think there are other text books out there that explain complex matters in such a rigorous but accessible way. I would recommend this book to anyone who's taking an undergrad or grad course in thermodynamics, statistical thermodynamics or anything remotely similar, as this book will really enlighten you. It may happen because of the main

text, the examples or the exercises, but it will happen. I've had the chance to read both the first and second edition. Information has been reorganized a little bit and the new chapters are great. Go get this book.

This book is very easy to understand and has plenty of examples imbedded within the text. Perfect for upper division physical chemistry classes. I bought this specifically for a class but found that I enjoyed reading it. Dill (the author) lays out the facts of physical chemistry almost like a story that is fascinating to read.

The book illustrated important concepts very well without having to go through lengthy mathematical derivations. I say this coming from a life science background with minimal exposure to mathematics beyond calculus. I recommend this book for anyone in the sciences (and engineering) due to the broad applicability of the topics covered in the text. Great read and goes well with Israelachvili's Intermolecular and Surface Forces.

The author does a great job in explaining complicated topics in a simple straight-forward manner.

Clearly written, brings you through statistics to molecular mechanics.

Helpful in course work, easy to follow

I tried to like this book, I really did. As a grad student in an advanced thermodynamics course, I found the text lacking in both derivations and caliber. It didn't go into depth on more important topics but did fixate on areas that weren't all that relevant.

To say Dill and Bromberg is one of the worst textbooks I've been assigned for a college level class (Statistical Mechanics in Chemical Engineering) is putting it lightly. While one can commend DBs efforts at explaining a notoriously difficult subject in "easily accessible terminology," they overcompensate, making their explanations muddy and ineffective. Tables are sparse and information is not clearly displayed. Rather than separating equations and constants needed for understanding the material from the example problems they give, DB integrates everything into a single jumbled mess. The unfortunate result on the reader's end is the need to filter through a mass of text in order to access information that most other textbook authors would table or separate in

appendices. If you are assigned this textbook for a class, I would highly encourage you to identify a suitable alternative to learn the material. DB should not be bought by any well-meaning physics or engineering student.

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