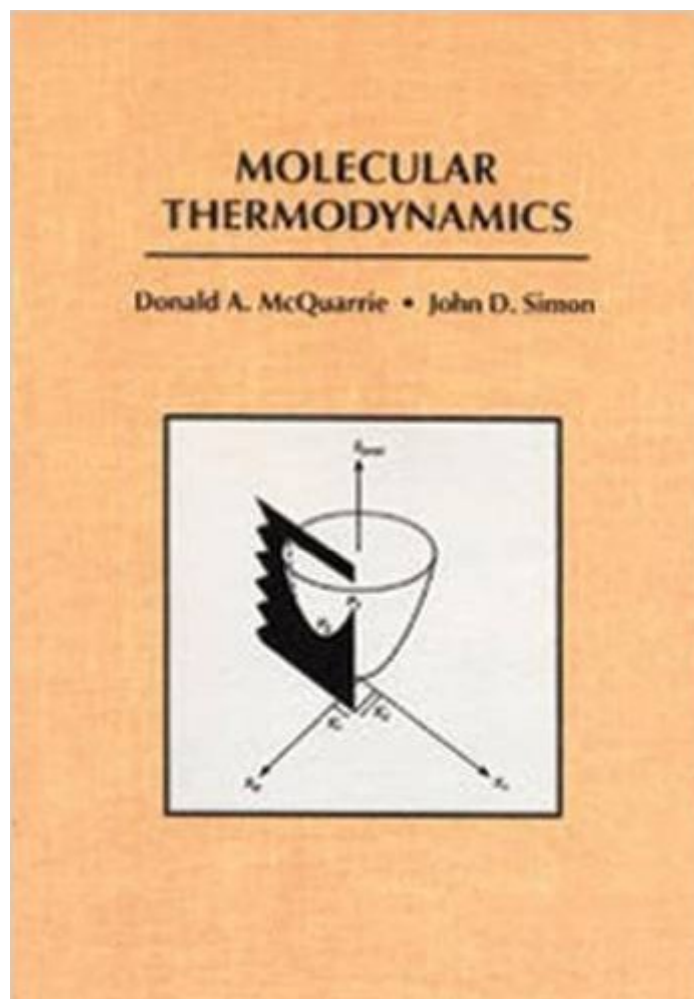


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# Molecular Thermodynamics



## Synopsis

Evolved from McQuarrie and Simon's best-selling textbook, *Physical Chemistry: A Molecular Approach*, this text focuses in on the thermodynamics portion of the course. Although many of the chapters in *Molecular Thermodynamics* are similar to chapters in the larger physical chemistry text, new material has been added throughout along with three entirely new chapters on "The Energy Levels of Atoms and Molecules," "Thermodynamics of Electrochemical Cells," and "Nonequilibrium Thermodynamics." The text also includes five short "MathChapters," each with a special set of problems that will help students review and summarize the mathematical tools required to master the material. Worked examples and chapter-ending problems with solutions are also included throughout the book.

## Book Information

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## Customer Reviews

First off, if you are looking for an engineering thermo text, look elsewhere. The whole book is based on the theories behind the key thermo equations and laws, and how to derive all sorts of corollaries and equations from the basic few equations, and it does an awesome job at that. Thus, if you were looking really small-scale, as in molecular-scale (the title does say "molecular thermo"), this book does a great job of teaching you the key concepts that you need to know. It covers a wide range of topics, starting off with four chapters on quantum mechanics and statistical thermodynamics before going on into three chapters on the three laws of thermo. The authors then spend the second half of the book looking at consequences and applications, which are mainly of importance to people

studying chemical processes (topics such as solutions, chemical equilibria, free energies). I'd say 85% of the book is math-based, so don't expect to make it through without thoroughly understanding vector calculus (although math chapters are included to provide crash courses in important mathematical concepts). If you do understand the math, this book is like a series of well-prepared lectures in paper form. The logic is clear and easy to follow, and problems provided are relevant and challenging enough to make you think and integrate concepts that are introduced. So if you're looking for a thorough look at molecular thermo, more specifically for chemical processes at that scale, look no further. If you want a comprehensive math-based book to help you understand key equations in thermo, this is also for you. However, if you're anything else, especially if you're an engineer, you need applications and other mentally imaginable stuff that you will not find here.

I am currently using this as a text book for a class in chemical thermodynamics and I feel fortunate to be using it. The author develops his topics in a very logical manner and is outstanding in connecting topics presented earlier in the book to later ones. I also like how in some of the example problems that the author uses it as a way to extend the topic with specifics rather than relying on the theoretical construct alone. Much recommended.

This book forms much of the basis for a free on-line course that I'm taking through CourseRA. The book has proved to be invaluable at countless times - the course lectures are fun and very clear, but it always helps to have a full-blown text to refer back to when something (e.g., a formula or crucial result) isn't quite that easy to recall. I wish this book had been around when I took thermodynamics - \*three times\* - as I'm sure I would have fared far better!

If your objective is finding a textbook that will teach you molecular thermodynamics then your search is over. Pchem 2 is a difficult subject so good luck. The author makes good use of the pages with examples and derivations. Have an enlightening semester.

Very good book if you want a simple explanation of how to correlate classical thermodynamics with statistical thermodynamics.

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