

Contents

Front Matter	i
Fundamental 1: Measurable Properties	3
Extension 1.1: Kinetic Molecular Theory	11
Extension 1.2: Microscopic Gas Models	21
Fundamental 2: Counting Configurations	29
Fundamental 3: Driving Force	39
Fundamental 4: Heat Transfer	47
Fundamental 5: Entropy	55
Extension 5: Temperature	65
Fundamental 6: Work	75
Fundamental 7: Variable Changes	85
Extension 7: Path Dependence	93
Fundamental 8: Energy Transformations	101
Fundamental 9: Microscopic Energy Changes	111
Fundamental 10: Processes	123
Extension 10: Cycles	133
Fundamental 11: Boundary Changes	141
Extension 11: Legendre Transforms	149
Fundamental 12: Laboratory Conditions	157
Extension 12: Working Equations	167
Fundamental 13: Composition Changes	175

Extension 13: More Cycles	183
Fundamental 14: Reaction Equilibrium	191
Extension 14: Temperature Dependence of Equilibrium	199
Fundamental 15: Phase Equilibrium	205
Extension 15: Phase Rule	213
Fundamental 16: Solution Equilibrium	219
Extension 16: Vapor-Solution Phase Diagrams	227
Fundamental 17: Colligative Properties	235
Extension 17: Solid-Solution Phase Diagrams	243
StatMech 1: Entropy & Probability	253
Extension SM1: Boltzmann Distribution	259
StatMech 2: Partition Function	265
StatMech 3: Translational Partition Function	275
StatMech 4: Molecular Partition Function	283
Kinetics 1: Introduction to Chemical Kinetics	295
Kinetics 2: Activation Energy	303
Kinetics 3: Transition Theory	311
Appendix	317