

CONTENTS

PART 1 The Study of Life	
Chapter 1 The Scientific Background	3
Chapter 2 The Biological Background	19
PART 2 The Organization of Life	
Chapter 3 Cells: Chemical Foundations	43
Chapter 4 Molecule to Cell	58
Chapter 5 Cells: Structure and Function	78
Chapter 6 Cell to Organism: The Plant Pattern	113
Chapter 7 Cell to Organism: The Animal Pattern	141
Chapter 8 Organism to Ecosystem	158
Chapter 9 Ecosystem to Biosphere	190
Chapter 10 People and the Organization of Life	218
PART 3 The Operations of Life: Metabolism	
Chapter 11 Nutrition	255
Chapter 12 Respiration	287
Chapter 13 Synthesis	312
Chapter 14 Genetic Codes, Proteins	331
PART 4 The Operations of Life: Steady States	
Chapter 15 Cellular Control	349
Chapter 16 Hormonal Control in Plants	375
Chapter 17 Hormonal Control in Animals	397
Chapter 18 Intercellular Control	417
Chapter 19 Nervous Control	451
Chapter 20 Behavioral Control: The Individual	491
Chapter 21 Behavioral Control: The Society	512
PART 5 The Operations of Life: Reproduction	
Chapter 22 Reproductive Patterns	531
Chapter 23 Reproduction: The Plant Pattern	562
Chapter 24 Reproduction: The Animal Pattern	584
Chapter 25 Human reproduction	605
Chapter 26 Aging, Death	621
PART 6 The Operations of Life: Adaptation	
Chapter 27 Heredity	643
Chapter 28 Genetic Intervention	674
Chapter 29 Evolution	688
PART 7 The World of Life	

Chapter 30 The Earliest Organisms	715
Chapter 31 Protists and Fungi	743
Chapter 32 Plants	766
Chapter 33 Animals: Noncoelomates	795
Chapter 34 Coelomates: Protosomes	820
Chapter 35 Coelomates: Deuterostomes	861
Chapter 36 Animals and People: Evolutionary Perspectives	897
Appendix A Metric Conversion Table	938
Appendix B Temperature Conversion Scale	939
Appendix C The Electromagnetic Spectrum, Including Action and Absorption Spectra for <i>Ulva taeniata</i>	940
Glossary	941
Illustration Credits	977
Index	983