

Contents in Brief

Preface xv

To the Student xvii

PART I

Background to the Study of Evolution 1

CHAPTER 1

Evolutionary Biology 3

CHAPTER 2

A Short History of Evolutionary Biology 17

CHAPTER 3

Genetics and Development 31

CHAPTER 4

Ecology: The Environmental Context of Evolutionary Change 59

PART II

Patterns and History 85

CHAPTER 5

The Tree of Life: Classification and Phylogeny 87

CHAPTER 6

Evolving Lineages in the Fossil Record 127

CHAPTER 7

A History of Life on Earth 165

CHAPTER 8

The Geography of Evolution 201

PART III

Evolutionary Processes in Populations and Species 227

CHAPTER 9

Variation 231

CHAPTER 10

The Origin of Genetic Variation 267

CHAPTER 11

Population Structure and Genetic Drift 297

CHAPTER 12

Natural Selection and Adaptation 337

CHAPTER 13

The Theory of Natural Selection 365

CHAPTER 14

Multiple Genes and Quantitative Traits 397

CHAPTER 15

Species 447

CHAPTER 16

Speciation 481

PART IV

Character Evolution 517

CHAPTER 17

Form and Function 519

CHAPTER 18

The Evolution of Interactions among Species 539

CHAPTER 19

The Evolution of Life Histories 561

CHAPTER 20

The Evolution of Behavior 579

CHAPTER 21

The Evolution of Genetic Systems 605

CHAPTER 22

Molecular Evolution 625

PART V

Macroevolution: Evolution above the Species Level 647

CHAPTER 23

Development and Evolution 651

CHAPTER 24

Pattern and Process in Macroevolution 677

CHAPTER 25

The Evolution of Biological Diversity 703

CHAPTER 26

Human Evolution and Variation 727

Epilogue: Evolutionary Biology in the Future 753

Appendix I: Elementary Statistics 755

Appendix II: Contending with Creationism 759

Glossary G-1

Literature Cited L-1

Index I-1