

BRIEF CONTENTS

Preface xii
Online Learning Center xvi
Guided Tour xviii

PART ONE

BIOLOGICAL PRINCIPLES 1

- 1 Zoology: An Evolutionary and Ecological Perspective 2
- 2 Cells, Tissues, Organs, and Organ Systems of Animals 9
- 3 Cell Division and Inheritance 31
- 4 Evolution: History and Evidence 51
- 5 Evolution and Gene Frequencies 67
- 6 Ecology: Preserving the Animal Kingdom 80

PART TWO

ANIMAL-LIKE PROTISTS AND ANIMALIA 95

- 7 Animal Classification, Phylogeny, and Organization 96
- 8 Animal-like Protists: The Protozoa 111
- 9 Multicellular and Tissue Levels of Organization 127
- 10 The Triploblastic, Acoelomate Body Plan 148
- 11 The Pseudocoelomate Body Plan: Aschelminths 164
- 12 Molluscan Success 179
- 13 Annelida: The Metameric Body Form 199
- 14 The Arthropods: Blueprint for Success 214
- 15 The Hexapods and Myriapods: Terrestrial Triumphs 234
- 16 The Echinoderms 251
- 17 Hemichordata and Invertebrate Chordates 265
- 18 The Fishes: Vertebrate Success in Water 276

- 19 Amphibians: The First Terrestrial Vertebrates 296
- 20 Reptiles: The First Amniotes 312
- 21 Birds: Feathers, Flight, and Endothermy 326
- 22 Mammals: Specialized Teeth, Hair, Endothermy, and Viviparity 342

PART THREE

FORM AND FUNCTION: A COMPARATIVE PERSPECTIVE 359

- 23 Protection, Support, and Movement 360
- 24 Communication I: Nervous and Sensory Systems 379
- 25 Communication II: The Endocrine System and Chemical Messengers 406
- 26 Circulation and Gas Exchange 424
- 27 Nutrition and Digestion 443
- 28 Temperature and Body Fluid Regulation 464
- 29 Reproduction and Development 483
- 30 The Chemical Basis of Animal Life*
- 31 Energy and Enzymes: Life's Driving and Controlling Forces*
- 32 How Animals Harvest Energy Stored in Nutrients*
- 33 Embryology*
- 34 Animal Behavior*

Glossary 502

Credits 531

Index 535

*This chapter is available at www.mhhe.com/zoology (click on this book's cover).