Owner's Manual New to This Edition 21 Acknowledgments 23



## **Basic Cell Processes: Integration** and Coordination

- Introduction to Physiology 25
- 2 Molecular Interactions 52
- Compartmentation: Cells and Tissues 82
- 4 Energy and Cellular Metabolism 116
- 5 Membrane Dynamics 146
- Communication, Integration, and Homeostasis 189

### **Homeostasis and Control**

- Introduction to the Endocrine System 220
- Neurons: Cellular and Network Properties 250
- 9 The Central Nervous System 298
- 10 Sensory Physiology 333
- 11 Efferent Division: Autonomic and Somatic Motor Control 382
- 12 Muscles 401
- 13 Integrative Physiology I: Control of Body Movement 441

# **WITS** Integration of Function

- Cardiovascular Physiology 459
- Blood Flow and the Control of Blood Pressure 501 15
- 16 Blood 535
- Mechanics of Breathing 558 17
- Gas Exchange and Transport 588 18
- 19 The Kidneys 613
- Integrative Physiology II: Fluid and Electrolyte Balance 642 20

# Metabolism, Growth, and Aging

- The Digestive System 678 21
- 22 Metabolism and Energy Balance 717
- Endocrine Control of Growth and Metabolism 753 23
- The Immune System 777 24
- Integrative Physiology III: Exercise 810
- 26 Reproduction and Development 824

### APPENDICES

APPENDIX A

Answers A-1

APPENDIX B

Physics and Math A-36

APPENDIX C

Genetics A-39

PHOTO CREDITS C-1

**GLOSSARY/INDEX** GI-1