

Contents

Systemic Study Program
To the Student

ANATOMY OF AMPHIOXUS

Exercise 1. Morphology 3

- A. External Morphology 4
- B. Internal Morphology 4
- C. Cross-sectional Morphology 4

ANATOMY OF THE LAMPREY

Exercise 1. Morphology 11

- A. External Morphology 12
- B. Sagittal Section Morphology 12
- C. Cross-sectional Morphology 14
- D. The Ammocoete Larva 14

ANATOMY OF THE DOGFISH SHARK

Exercise 1. External Morphology 21

- A. Integument 21
- B. External Features 22

Exercise 2. Skeletal System 27

- A. Axial Skeleton 28
- B. Appendicular Skeleton 30

Exercise 3. Muscular System 35

- A. Trunk and Tail Musculature 35
- B. Appendicular Musculature 36
- C. Branchiomeric Musculature 36
- D. Hypobranchial Musculature 36

Exercise 4. Digestive and Respiratory Systems 39

- A. Digestive System 40
- B. Respiratory System 40

Exercise 5. Circulatory System 45

- A. Heart 45
- B. Arterial System 46
- C. Venous System 50

Exercise 6. Urogenital System 55

- A. Male Urogenital System 56
- B. Female Urogenital System 56

Exercise 7. Sense Organs 59

- A. Ampullae of Lorenzini 59
- B. Lateral Line System 59
- C. Olfactory Organ 60
- D. Eye 60
- E. Ear 62

Exercise 8. Nervous System 65

- A. Brain 66
- B. Cranial Nerves 68
- C. Occipital and Spinal Nerves 70

ANATOMY OF THE MUD PUPPY NECTURUS

Exercise 1. External Morphology 73

- A. Integument 74
- B. External Features 74

Exercise 2. Skeletal System 77

- A. Axial Skeleton 77
- B. Appendicular Skeleton 80

Exercise 3. Muscular System 83

- A. Axial Musculature 84
- B. Appendicular Musculature 84

Exercise 4. Digestive and Respiratory Systems 89

- A. Digestive System 89
- B. Respiratory System 92

Exercise 5. Circulatory System	93	G. Muscles of the Upper Arm	132
A. Heart	93	H. Muscles of the Forearm	134
B. Arterial System	94	I. Muscles of the Thigh	136
C. Venous System	96	J. Muscles of the Leg	138
Exercise 6. Urogenital System	99	Exercise 4. Digestive and Respiratory Systems	147
A. Male Urogenital System	100	A. Digestive System	147
B. Female Urogenital System	100	B. Respiratory System	152
Exercise 7. Sense Organs and Nervous System	103	Exercise 5. Circulatory System	155
A. Sense Organs	103	A. Heart	155
B. Nervous System	104	B. Arterial System	158
ANATOMY OF THE CAT		C. Venous System	162
Exercise 1. External Morphology	109	D. Lymphatic System	166
A. Integument	110	Exercise 6. Urogenital System	177
B. External Features	110	A. Excretory System	177
Exercise 2. Skeletal System	113	B. Male Reproductive System	178
A. Axial Skeleton	114	C. Female Reproductive System	180
B. Appendicular Skeleton	122	Exercise 7. Endocrine System and Sense Organs	183
Exercise 3. Muscular System	127	A. Endocrine System	183
A. Cutaneous Muscles	128	B. Sense Organs	184
B. Shoulder Muscles	128	Exercise 8. Nervous System	187
C. Muscles of the Back	128	A. Spinal Cord	187
D. Thoracic Muscles	130	B. Brain	188
E. Abdominal Muscles	130	C. Cranial Nerves	190
F. Muscles of the Neck and Head	132	D. Spinal Nerves	192
		E. Autonomic Division	194