**Exam 4 Study Guide**

Chapter 27

**What makes an animal an animal?**

Type of life cycle

Reproduction

Organ systems

**Animal Kingdom Clades**

Porifera, Placazoa, Ctenophores, Cnidarian, Bilateria

**Zygote cleavage and development**

Germ layers (ectoderm, endoderm, mesoderm)

*Hox* genes – how are they master controllers?

**Animal body plans**

Different types, which clades possess which body type

Presence or absence of Coelom

**Protostomes and Deuterostomes**

What is the difference between them?

Which animal clades are protostomes? Which are deuterostomes?

Chapter 28

**What are invertebrates?**

What separates them from vertebrates?

8 Phyla

For each Phylum you should know:

Tissues, body plan, Digestive system, protostome/deuterostome, diploblast/triploblast, coelomate/pseudo/acoelomate, reproduction, cephalization

Chapter 29

**What is a vertebrate?**

What separates them from invertebrates?

Triploblastic, deuterostomes

Five defining characteristics

Two primitive chordates

Subphylum Craniata

Jaws/no jaws

Tetrapods

Amphibians/Amniotes

**Fishes**

Agnathastomes

No hinged jaw

ancient

Lampreys, hagfishes

Gnathastomes

Hinged jaw

Paired fins

Active feeders

Chondrichthyes

Sharks, skates, rays

General characteristics

Reproduction

Osteichthyes

Bony fish

General characteristics

Reproduction

**Amphibians**

Aquatic and Terrestrial life stages

Metamorphosis

General characteristics

Reproduction

**Reptiles**

Novel adaption of amniotic egg (know about amniotic eggs)

Ectotherms

General characteristics

**Birds**

Feathers

Endotherms (Homeotherms with high body temp)

General characteristics

Reproduction

Adaptations for flight

**Mammals**

Novel adaptations: Hair and mammary glands

Endotherms

General characteristics

Reproduction

Three groups (monotremes, marsupials, placentals)

Chapter 33

Animal body plan (again)

Exoskeleton/Endoskeleton

Body cavities

Body size and bioenenergetics

BMR/SMR

Torpor

Primary tissues

Epithelial (squamous, cuboidal, columnar, transitional)

Connective (collagen, elastic, reticular)

Muscle (smooth, skeletal, cardiac)

Nervous (neuron structure)

Homeostasis

Set point, how maintained

Negative/Positive Feedback mechanisms

Homeothermic vs. Poikilothermic

Chapter 34

Food 🡪ATP

Neural response to food

Phases of digestion (cephalic, gastric, intestinal)

Hormonal response to food

Appetite regulation

Chapter 35/36

Neuron structure (again)

Stimulus mechanism

Resting potential

Action potential

Depolarizing

Signal transmission through neuron

Synapses

Central Nervous System

Brain and spinal cord

Brain

Cerebral cortex

Frontal lobe (smell, decision making, attention, planning, etc.)

Parietal lobe (speech, reading, touch)

Temporal lobe (memory, interpreting sound)

Occipital lobe (vision)

Basal Ganglia (movement)

Thalamus (input from body)

Hypothalamus (endocrine system, homeostasis)

Limbic (fear and motivation)

Cerebellum (movement and balance)

Brainstem (controls physiology)

Peripheral Nervous System

Autonomic System

Not under voluntary control

Parasympathetic (rest and digest)

Sympathetic (fight or flight)

Motor System

Under voluntary control

Movement