

Anatomy and Physiology 1 Comprehensive Final Exam Review Guide

Comprehensive questions will be designed to test over the lecture material from the first four Unit Exams in a broad fashion. The goal of the comprehensive final exam is to determine how much information you have retained from the course. That does mean that some level of detail is necessary. It does NOT imply that comprehensive questions will be easy. I plan to continue to ask critical thinking questions, scenarios, etc as in the past. Be prepared for questions that integrate knowledge across systems in ways that were not done in the previous exams. For example, the neural physiology material had not been covered before muscle system or homeostasis. The final exam will be 100 questions: 20-30 questions from new lecture material (neurophysiology, somatic nervous system, motor and sensory pathways, and autonomic nervous system) and 70-80 questions from comprehensive material covered in Units 1-4. You obviously can not study all the comprehensive material in less than a week, so some type of strategy is in order to focus your efforts. I recommend that you **REVIEW topics** that you performed well on previously and **RELEARN topics** you missed on the old exams. If you have attended class regularly taking good notes, if you did NOT CRAM for exams, and if you have reviewed your Unit Exams, you should be fine with the comprehensive part of the final exam. **If you attend class irregularly (often missing Fridays), don't take good notes, cram for exams, and have NOT reviewed your old exams, you will likely be overwhelmed with the material for the final exam.** Dr. Surmacz or I look forward to welcoming you back in another semester!

In each unit below, I indicate materials that are important for the comprehensive part of the final exam. I know this is nearly everything we covered BUT an outline will help you with a framework for the semester.

Unit 1: Introduction, Chemistry, & Cell Biology

- Hierarchy of biological organization
- Organ systems
- Mechanisms of homeostasis and control (hormonal, nervous, autoregulation)
- Acid-Base chemistry
- Water chemistry & properties
- Organic compounds
- Cell membrane structure & function
- Transport mechanisms
- Organelle Structure and Function
- Central dogma processes (but not the details of transcription or translation)
- Cell cycle & mitosis
- Tissues, Integument, Osseous Tissues & Axial Skeleton
- Tissue nomenclature and function
- Gland types
- Membranes

Unit 2: Structure and function of the skin and accessory structures

Skin color

Functions & classification of bones

Bone anatomy

Microscopic structure of bone

Bone development, ossification, & growth

Axial skeleton - know bones but not special features.

Appendicular Skeleton & Muscular System

Appendicular skeleton - know bones but not special features

Unit 3: Joints, Muscular system, and muscle physiology

Articulations: classification, structure, movements

Muscular System - know muscle names, location, action

Muscle types and characteristics

Skeletal Muscle anatomy and organization

Physiology of muscle contraction - (know three phases of muscle contraction and overall process but do not memorize events of each phase (i.e., you will not have to order the events on the final))

Physiology of muscle relaxation

Whole muscle function - twitch, treppe, tetanus, summation, motor unit control

Unit 4: Neural Tissue

Neuroanatomy - know basic parts of a neuron and functions

Neurophysiology - know about resting membrane and action potentials

Nervous system anatomy - brain and spinal cord parts and functions

Given the short time we have, prioritize your reviewing for the comprehensive part of the final exam. Look over old exams, identify questions that you missed on previous exams and give those topics a high priority. Also give a high priority to topics you lack confidence in. A quick way of testing your memory is to test yourself using a blank sheet of paper. If you can recall the information, move on to the next topic! Study in small blocks of time (about 2 hours), then break and do something else physical (duties that you need to do such as clean your apartment, pack, etc.). Come back to studying when you're fresh for another 2 hours. Plan your days with study times and breaks and adhere to your schedule.

New material: Neurophysiology

Neural pathways (sensory, motor)

SNS

ANS (comparison of sympathetic & parasympathetic pathways, NTs, receptors)

motor and sensory homunculus

HOMEWORK on p. 266.