##### Gross Anatomy: (Mostly material from Chapter 3): A good way to study here and for Chapter 3 is to take key figures / diagrams from the text, hide the labels, and do the labels yourself. Another good way to learn the material is to re-draw and label the figures by hand on your own.

* Know the main overall divisions and subdivisions of the nervous system (CNS vs. PNS – Somatic vs. Autonomic – Sympathetic vs. Parasympathetic) --- Fig. 3.19.
* Be able to identify and apply all of the directional terms and anatomical planes from lecture (see also Fig 3.9).
* Know the main divisions and general functions of the brain: forebrain, midbrain, and hindbrain (see also Fig 3.3).
* Know what the myelencephalon is, what it contains, where it is located, and what overall functions it serves.
* Know the two main areas of the metencephalon, their characteristics, where they are located, and what overall functions they serve.
* Know the two main overall areas contained within the mesencephalon (also called the midbrain) and the major structures within in each area, as well as key functions of these major structures (e.g., the PAG is implicated in pain processing and pain relief).
* Be able to identify the main structures and functions of the diencephalon, the limbic system, the basal ganglia, and the forebrain.
* Know the locations and overall “functions” of the four lobes of the cerebral cortex (see also Fig 3.8).
* Know what major structures the lobes contain.
  + For example, we talked a lot about the pre- and post-central gyri, the sensory and motor homunculus, the primary motor cortex and primary somatosensory cortex. Pay close attention to where they are and what they do—see also Fig 3.10.
* Know what the corpus callosum is (Fig 3.13), as well as the anterior commissure.
  + Think about what the 2 sides of the brain would not be able to do if they were cut/severed.
  + What is the best method to visualize the corpus callosum with brain imaging? How about cell staining?
  + What is the general idea of contralateral control?
  + What are some functions that might be lateralized to some degree?
* Know where the main fissures are located, as covered in class (e.g., lateral fissure, central fissure, etc.). What lobes or areas do they separate?
* Know about cortical cell layering - as it was discussed in lecture (see also Fig. 3.6).
* Also: Closely study Table 3.2 – if you see structures in there that you don’t recognize from class, don’t worry about it!
* Know how the nervous system is chemically and physically protected—see also Fig 3.18.
* Know the meninges! Know what CSF does for the brain and spinal cord, as well as where it is produced.
* Know what hydrocephalus is and what it looks like on a brain scan.
* Know the material on cranial and spinal nerves as emphasized in class, I don’t expect you to know the names of all the cranial nerves in Fig 3.20.
* Know these terms and how they are usually used in gross neuroanatomy: nerve, ganglion, tract, nucleus (see Table 3.1).
* Know the functions and overall organization of the 2 main branches of the autonomic nervous system – sympathetic and parasympathetic (know also the take home messages of Fig 3.21 [I don’t expect you to know effects on specific organs]).
* Know the main stages of nervous system development, and the general ordering of the stages. What exactly is involved in each stage – can you connect figures, processes, and events discussed in class and in the text to each stage?
  + Cell Birth
  + Cell Migration
  + Cell Differentiation
  + Cell Maturation
  + Synaptogenesis
  + Cell Death & Synaptic Pruning
  + Myelogenesis
* Be able to identify and understand the major causes and classes of brain damage emphasized in class.
  + Tumors – know the names and differences between the kinds covered in the lectures. Does benign always mean harmless? Be able to explain your answer.
  + Cerebrovascular Disorders – know the names of the different kinds of strokes, and know the differences between their causes; know about exocytosis (p. 72).
  + Closed-head Injuries – know how to use and identify and distinguish these terms especially: hematoma, coup, counter coup, concussion.
  + Know the differences between compensation and reorganization.

##### Methods and Ethics: (Mostly material from Chapter 4)

* Know what was discussed in lecture about the 2 main dimensions along which research approaches in biopsychology differ: subjects and designs.
* Understand the advantages and disadvantages of studying human vs. nonhuman subjects and know the 2 main ethical positions taken by scientists on animal research (mostly lecture material).
* Understand the difference between experiments and non-experiments (correlational studies), and be able to identify the kinds of conclusions you can and can’t draw from them (mainly lecture material).
* Know what these terms mean and be able to identify examples: case studies, case series, field studies, and quasi-experimental studies.
* Be familiar with the terms: independent variable, dependent variable, and confounding (extraneous) factor. If a study in biopsychology were described to you, be able to point these things out.
* Know what these methods entail, and the kinds of questions in general you can answer with them: staining and imaging nervous system cells; microscopy; electrophysiology; brain imaging; brain stimulation; brain lesions; genetic approaches; and field research.
  + Be able to identify examples of these methods, too.
    - In particular: Be able to distinguish between the main uses of computerized tomography (CT), structural magnetic resonance imaging (MRI), electroencephalography (EEG), positron emission tomography (PET), functional magnetic resonance imaging (fMRI), diffusion tensor imaging (DTI), magnetoencephalography (MEG), and transcranial magnetic stimulation
* Know the differences between single and multiple-unit recording.
* Know the main assumption behind doing lesion studies (lecture), and be familiar with how different kinds of lesions can be induced invasively and non-invasively. Know the purpose and principles of stereotaxic surgeries (as emphasized in class, but also discussed beginning on p. 93.
* Be able to distinguish between the various genetic research study approaches appearing in both lecture and the text – familiarize yourself especially with Table 4.2

*Remember: For your studying emphasize material appearing in both the lecture and in the text. After that, prioritize lecture material. If something appears only in the text and not in lecture, that should be the least prioritized in studying.*