

Unit 3 – Topics to Know for Lecture

***Note: This is by NO means a comprehensive list, but it does emphasize the main topics for each chapter AND it tells you if there are any sections of the chapter that you may SKIP. We always skip “Developmental Aspects” Sections due to time constraints.

Chapter 11 - Nervous Fundamentals and Tissues:

- Use the **outcomes** listed at the start of each section as a guide to things that you should be looking for in each section of this chapter.
- 11.1: Learn the divisions of the nervous system...know them well because we will be studying them all in depth the rest of the semester!! Also learn how signaling works in the nervous system.
- 11.2: What are glial cells? Know the different types, compare them, and know their functions. Also, learn whether they are found in the PNS or CNS (See PowerPoint for abbreviations).
 - Also, know how neurons are repaired and where repair of neurons is most likely to happen because it is covered in the PowerPoint.
- 11.3: Know the parts of a neuron as well as how each part functions. Know the different types of neurons and where they are most likely to be found (which division of the nervous system?).
- 11.4, 11.5, & 11.6: This section is going to be difficult if you do not understand chemistry and the cell (might need to review portions of Chapters 2 and 3 to understand this section).
 - What is a resting membrane potential and what creates it?
 - Which ions are most prevalent inside the cell? What about outside the cell?
 - What will allow the ions to move across the plasma membrane?
 - What controls the DIRECTION of movement for ions?
 - Compare and contrast Graded Potentials and Action Potentials.
- 11.6: This section is going to be difficult if you do not understand chemistry and the cell (might need to review portions of Chapters 2 and 3 to understand this section).
 - Compare and contrast Depolarization and Hyperpolarization...what ions typically move to generate these two changes?
 - Understand how graded potentials help to generate an action potential.
 - Know the phases of an Action Potential and what causes them!
 - What does the Sodium Potassium Pump/Symporter have to do with membrane potentials AND how does it specifically function.
 - How does the Action Potential move in the neuron? How is it propagated?
 - What is threshold? How do different stimulus strengths affect the Action Potential?
 - What is a refractory period and why are they important?
 - Compare and contrast continuous vs. saltatory conduction.
 - Nerve fiber classification (focus mostly on PowerPoint details here).
- 11.7: Synapses
 - Understand the different types of synapses...where are they likely to be found and how do they function? Why are these different functions important?

- 11.8: Learn about the different types of post synaptic potentials (PSP's)...what typically moves to create them? How do they affect the Action Potential?
- 11.9: Look at Table 11.4 for bonus material for the next exam.
- 11.10: Interesting information, but WE WILL NOT be discussing this section in class so you will not be tested on it.
- Use the "Check Your Understanding" questions at the end of each section within the book to break up your video watching and to determine if you are getting anything out of the time you are spending with the videos. If you cannot answer these without the book and your notes, you may need to take a break before going back to the videos.
- If you are having trouble understanding the YouTube video or knowing what is MOST important, go to the book and use the "Learning Outcomes" at the start of each section as questions that the videos should answer.

Chapter 12 – Central Nervous System (CNS):

- Use the **outcomes** listed at the start of each section as a guide to things that you should be looking for in each section of this chapter.
- We do a LOT of picking and choosing in this chapter so be sure to focus on what the PowerPoint focuses on...skip bold terms not in the PowerPoint.
- 12.1: Development and the Adult Brain
 - SKIP embryology/development of the brain... Interesting information, but WE WILL NOT be discussing this information in class so you will not be tested on it.
 - What are the ventricles filled with and why is this important?
 - Learn the 4 major regions of the brain as well as information related to the ventricles.
 - How is the arrangement of white and gray matter different in the brain vs. spinal cord?
- 12.2: Cerebrum
 - Know the hemispheres, lobes, and where white vs. gray matter are found.
 - Know all areas discussed in the PowerPoint as well as general information related to cortical function (Fig 12.7).
- 12.3: Diencephalon
 - Know the parts, their locations, and their functions.
- 12.4: Parts of the Brain Stem
 - Know the parts, their locations, and their functions.
- 12.5: The Cerebellum
 - Know the hemispheres, lobes, and where white vs. gray matter are found.
 - What is the name for the white matter here?
 - Study function as well.
- 12.6 & 12.7: Interesting information, but WE WILL NOT be discussing these sections in class so you will not be tested on it.

- 12.8: Protection of the Brain
 - Pay close attention to details related to the meninges, CSF (Cerebrospinal Fluid), and Blood-Brain Barrier.
 - Know location, layers, and functions of meninges as well as composition.
 - Know location and function of CSF. Also, learn where and how it is made.
 - Why is the blood-brain barrier important? Is it continuous? If not, why?
- 12.9: Interesting information, but WE WILL NOT be discussing these sections in class so you will not be tested on it.
- 12.10: The Spinal Cord
 - Know all anatomy and protection discussed in the PowerPoint.
 - General information about spinal nerves.
 - Know what is found in different areas of white vs. grey matter.
- 12.11: Interesting information, but WE WILL NOT be discussing this section in class so you will not be tested on it.
- Use the “Check Your Understanding” questions at the end of each section within the book to break up your video watching and to determine if you are getting anything out of the time you are spending with the videos. If you cannot answer these without the book and your notes, you may need to take a break before going back to the videos.
- If you are having trouble understanding the YouTube video or knowing what is MOST important, go to the book and use the “Learning Outcomes” at the start of each section as questions that the videos should answer.