PSG A190: INTRODUCTION TO POLYSOMNOGRAPHY ANATOMY AND PHYSIOLOGY

Item	Value
Curriculum Committee Approval Date	10/19/2022
Top Code	121200 - Electro-Neurodiagnostic Technology
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

An introduction to the anatomy of the central and peripheral nervous system with correlation to related symptoms and pathology as needed by a Polysomnography Technologist. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Identify key anatomy within the brain and brain stem and the correlation related symptoms and pathology as it relates to the electrophysiology generation of polysomnography activity and predict the typical neuromuscular activation needed to understand sleep study acquisitions.

Course Objectives

- 1. Identify structures in the nervous system, describe their function and predict the symptoms of pathology within each structure during wake and sleep.
- 2. Acquire procedural knowledge related to the electrophysiology generation of polysomnography activity.
- 3. Identify the pattern of arterial supply to the major areas of the cerebrum.
- 4. Describe the unique blood delivery system called the Blood Brain Barrier.
- 5. Verbalize a general understanding of the clinical correlation of Cerebrovascular Accident (Stroke).
- 6. Recall the four supporting cell types found in the nervous system and understand their basic functions.
- 7. Relate the electrophysiology to the generation of polysomnography activity and with typical neuromuscular activation.
- 8. Recall the functional characteristics of the cerebral structures identified.
- 9. Correlate common clinical conditions associated with the cerebrum during wake and sleep.
- 10. Illustrate of the external aspect and sectional brainstem identify the cranial nerves, major sections of the brainstem, and key anatomy within the brainstem and function during wake and sleep.
- 11. List the clinical correlations effecting the brainstem and cranial nerves during wake and sleep.
- 12. Identify the functional and anatomical differences between the sympathetic and parasympathetic control of the autonomic functions.
- 13. Describe the role of the hypothalamus in the autonomic nervous system during wake and sleep.
- 14. Describe the functional and anatomical differences of the anterior and posterior lobe of the pituitary gland during wake and sleep.
- 15. Learn the detailed description of how pupils, sleep, and respiration are controlled by the central nervous system.
- 16. Have a general understanding of the clinical conditions which effect the autonomic nervous system.
- 17. Illustrate written definitions, identify the major structures of the Visual System, and recall the functional characteristics and common clinical conditions associated with structures identified.
- 18. Identify the major Peripheral nerves and recall the functional characteristics and common clinical conditions associated with structures identified during wake and sleep.
- 19. Apply general understanding of Neuroembryology to the clinical conditions which can affect the development of the nervous system.

Lecture Content

LESSONS AND READINGS Introduction, Gross Anatomy, and Neuroembryology Bones of the Vertebrae and Skull, Arteries, and Vein Ventricles, Meninges, and Cerebrospinal Fluid Microscopic Anatomy and Electrophysiology and PSG Generation Peripheral Nerves and Neuromuscular Function Spinal Cord and Pathways Cranial Nerves and Brainstem Cerebral Cortex Visual System and Vestibulocochlear System Autonomic System, Hypothalamus, and Pituitary

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)

Instructional Techniques

This course is divided into major sections in which anatomy will be presented primarily with diagrams, their functions will be discussed as well as common symptoms and pathology. The course instruction will include lecture, video, slide presentations, and anatomical models and examples.

Reading Assignments

Required Textbook reading (2 - 2.5 hours/week) Required supplemental reading including journal articles and online research. (1 - 2 hours/week)

Writing Assignments

Short answer/fill-in on exams and two "current issues" article reviews. (1.5 - 2.5 hours / week)

Out-of-class Assignments

Supplemental reading including journal articles and online research. (2 - 2.5 hours/week)

Demonstration of Critical Thinking

Students will be expected to identify structures from diagrams and answer multiple choice, matching, and/or true false questions. All exams

will focus on section topics from exam to exam. Only the final exam is comprehensive. In addition a "current issue" report will be required. To obtain the credit for the report, review an article from a professional journal write a two - three page summary with your comments and opinions.

Required Writing, Problem Solving, Skills Demonstration

Short answer/fill-in on exams and two "current issues" article reviews.

Eligible Disciplines

Diagnostic medical technology-diagnostic medical sonography, neurodiagnosti...: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required by Laurie Lundy-Ekman PhD PT. Neuroscience, 6th Edition ed. Saunders, 2022