



Course Description

PSB2041 | Behavioral Neuroscience | 3.00 credits

This course introduces the field of Biopsychology, presenting an approach to studying the biology of human behavior, and includes works from the Western canon. Students will gain a comprehensive understanding of the nervous system and its role in governing various behaviors, exploring topics such as neural communication, localization of brain function, neural systems, and behavioral control. Through critical analysis of scientific literature and case studies, learners will develop a solid foundation in the biological basis of behavior, preparing them for advanced studies and enabling them to apply these concepts to the analysis of past and present social, political, and economic issues.

Course Competencies:

Competency 1: The student will explore how the Central Nervous System (CNS) develops, matures and maintains itself by:

1. Using scientific terminology appropriately in reference to biology and behavior
2. Describing the various methods used to study the biological basis of behavior
3. Discussing the structure of neurons and how neural impulses are generated
4. Explaining the structure and functioning of synapses
5. Demonstrating an application and understanding of neuroplasticity
6. Demonstrating an understanding of neurophysiology principles to associate the effects of psychopharmacology on human development and pathological behavior

Competency 2: The student will demonstrate an understanding of the interdisciplinary nature of neuroscience by:

1. Identifying the disciplines that seek to clarify how the nervous system develops, its structure and what it does.
2. Discussing the usefulness of biological, cultural, psychological, and social perspective integration to understand the complexity of human behavior.
3. Analyzing how biopsychological knowledge can be used to address a wide range of behavioral and physiological problems.
4. Recognizing the interconnectedness and reciprocal relationships between cognitive neuroscience, computational neuroscience, social neuroscience, and artificial intelligence (AI).
5. Analyzing topics of neuroscience and its application/ implication in economics, education, humanities, and law.

Competency 3: The student will demonstrate an understanding of the human brain and how it functions by:

1. Classifying the divisions of the brain and nervous system and describe their functions
2. Identifying the major neurotransmitters and discuss the impact of each on behavior.
3. Discussing the role of the brain and nervous system in health and disease.
4. Applying the principles of biopsychology to better understand behavior.
5. Evaluating the impact and assessment of cognitive and neuropsychological disorders due to developmental factors, metabolic conditions, chemical exposure, and traumatic brain injury.
6. Demonstrating an understanding of functional biopsychology, neuropsychological basis of cognitive functions, and clinical implications.
7. Demonstrating an understanding of the human sensory system to understand the biology of sleep, the role of the visual system, and the functions of sustaining life.
8. Demonstrating an understanding of motivation and sexual behavior from a behavioral neuroscience perspective.
9. Demonstrating an understanding of memory and learning and other higher cortical functions from a biopsychological perspective.

Competency 4: The student will examine the discipline of neuroscience critically within a larger cultural, socio-historical, and ethical framework by:

1. Identifying major theories and the proponents of these perspectives.
2. Evaluating the relevance of selected theories to real-world phenomena.
3. Synthesizing the correlation between environmental and hereditary influences on various aspects of behavior.
4. Looking at a neurodevelopmental process of well-being versus psychopathology.
5. Applying the principles of biopsychology to better understand behavior and the conduct of one's own life.
6. one's own life.
7. Exploring neurodiversity and inclusion in society and the workplace.

Learning Outcomes:

- Communicate effectively using listening, speaking, reading, and writing skills.
- Use quantitative analytical skills to evaluate and process numerical data.
- Solve problems using critical and creative thinking and scientific reasoning.
- Formulate strategies to locate, evaluate, and apply information.
- Create strategies that can be used to fulfill personal, civic, and social responsibilities.
- Demonstrate knowledge of ethical thinking and its application to issues in society