

**PSY 3 - Introduction to Biological Psychology****Catalog Description****Transfer Status:** CSU/UC**Prerequisite:** PSYC C1000**Unit(s):** 3.00**Lecture:** 51.00 Contact hours/102.00 Out of class hours/153.00 Total hours/3.00 Unit(s)**Total:** 51.00 Contact hours/102.00 Out of class hours/153.00 Total hours/3.00 Unit(s)

**Course Description:** This course introduces the scientific study of the biological bases of behavior and its fundamental role in the neurosciences. Physiological, hormonal, and neurochemical mechanisms, and brain-behavior relationships underlying the psychological phenomena of sensation, perception, regulatory processes, emotion, learning, memory, and psychological disorders will be addressed. The course also notes historical scientific contributions and current research principles for studying brain-behavior relationships and mental processes. Ethical standards for human and animal research are discussed in the context of both invasive and non-invasive experimental research. (C-ID PSY 150).

**Objectives**

Upon successful completion of this course, the student should be able to:

1. Define and use basic biological, physiological, and psychological terminology of the neurosciences.
2. Differentiate among specialty areas within Biological Psychology and the related disciplines within the Neurosciences and the types of research that characterize the biopsychological approach.
3. Summarize the major issues in human evolution, genetics, and behavioral development that underlie the "biology of behavior."
4. Generate and explicate concrete examples of invasive vs. noninvasive research methods and the general principles of research ethics for the study of animals and human beings, including the research safeguards and the peer-review process in science.
5. Explain scientific approaches used in methodologies for the study of brain-behavior relationships.
6. Explain the general anatomy and physiology of the nervous system and its relationship to behavior.
7. Describe neural conduction and synaptic transmission.
8. Discuss the role of the neuroendocrine system as it relates to behavior.
9. Exemplify with concrete examples various brain-behavior relationships including ingestive behavior, motivation, sexual behavior, sleep, learning, memory, stress, drug dependence, and psychiatric disorders such as affective disorders and schizophrenia.

**Course Content**

| Topic Titles / Suggested Time Topic                                                                                                                            |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                | <u>Lecture</u> |
| <u>Topics</u>                                                                                                                                                  | <u>Lec Hrs</u> |
| Biological Psychology as a Course of Study                                                                                                                     | 3.00           |
| Genes and Behavior and Human Evolution                                                                                                                         | 3.00           |
| Research Methods and Ethical Considerations of Biological Psychology and Neuroscience: Invasive vs Non-invasive, Research Ethics Applied to Animals and Humans | 6.00           |
| The Nervous System: Anatomy, Development and Plasticity, Communication within the Nervous System                                                               | 6.00           |
| The Effects of Psychoactive Drugs                                                                                                                              | 3.00           |
| Mechanisms of Perception, Conscious Awareness, and Attention                                                                                                   | 3.00           |
| Wakefulness and Sleep                                                                                                                                          | 3.00           |
| Motivation                                                                                                                                                     | 3.00           |
| Ingestive Behavior                                                                                                                                             | 3.00           |
| Internal Regulation                                                                                                                                            | 3.00           |
| Hormones, Sexual Development and Sexual Behavior                                                                                                               | 4.50           |
| Learning and Memory                                                                                                                                            | 4.50           |
| Emotion and Stress                                                                                                                                             | 3.00           |
| Biological Bases of Affective Disorders and Schizophrenia                                                                                                      | 3.00           |
| <b>Total Hours: 51.00</b>                                                                                                                                      |                |

**Methods of Instruction**

- A. Class Activities
- B. Collaborative Group Work

- C. Demonstrations
- D. Discussion
- E. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- F. Lecture
- G. Reading Assignments

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## Methods of Evaluation

- A. Exams/Tests
- B. Oral Presentation
- C. Homework
- D. Journal
- E. Written Assignments
- F. Essays and research papers
- G. Class Discussion
- H. Group Participation

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## Examples of Assignments

### Reading Assignments

1. Read the chapter on the structure of neurons and their impulses and answer the following review questions with 2-3 sentences each: a. What is a neuron? b. What are the three main parts of a neuron and their functions? c. What is an action potential? d. What is the role of myelin in the transmission of nerve impulses? e. What is synaptic transmission and how does it work? Submit your answers in class or in Canvas.
2. Read the chapter on diseases and their effects to gain knowledge about the impact of diseases on behavior and write a short paragraph (100-150 words) summarizing the main points of the chapter. Submit the paper in class or in Canvas.

### Writing Assignments

1. Review the case study on neurochemicals and mood disorders and write a 1000-word essay summarizing the key points of the case study. Include an introduction, a summary of the case study, and a conclusion, citing any sources used in APA format. Submit your paper in class or in Canvas.
2. Read the chapter on neuroplasticity in the context of early child development and write a paragraph (300 words) summarizing the main points of the chapter. Submit the paper in class or in Canvas.

### Out-of-Class Assignments

1. Locate and explore a website on drugs of abuse and how they affect the neurochemicals of the brain. Complete the worksheet detailing drug actions and write a short paragraph (100 words) summarizing the main points of the chapter. Submit the paper in class or in Canvas.
2. Make a three dimensional model of a brain using the instructions provided in class and label each part outlined.

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## Recommended Materials of Instruction

Kalat, J. (2023). Biological Psychology. *Cengage*, 14th. 978-0357798126.

Higgs, Cooper, Lee & Harris. (2023). Biological Psychology. *SAGE*, 3rd. 9781529795141.

Dommett, Berni, Clifton and Hall. (2023). Introduction to Biological Psychology. *OER*, n/a.

<https://open.umn.edu/opentextbooks/textbooks/1353>.

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## Minimum Qualifications

Psychology (Masters Required)

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**Created/Revised by:** Valle, Heather

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