

**INTERAMERICAN UNIVERSITY OF PUERTO RICO
METROPOLITAN CAMPUS
SCIENCE AND TECHNOLOGY FACULTY
BS PROGRAM IN BIOPSYCHOLOGY**

SYLLABUS

I. OVERVIEW

Course Title	:	Neuroscience of Human Behavior.
Code and Number	:	BIPS 3900
Credits	:	Three (3)
Academic Term	:	
Professor	:	
Office Hours: Monday	:	
Office Phone	:	
Email	:	

II. DESCRIPTION

Discussion of the biological basis underlying human behavior with emphasis on neuroanatomy and neurochemistry. Analysis of neurophysiological processes related to vision, the auditory system, sleep, and language production. Emphasis on the influence of different brain structures on emotional states, learning, memory, and mental disorders. **Requirements: BIOL 2100, BIOL 3106, and PSYC 1051.**

III. OBJECTIVES

It is expected that, upon completion of the course, the student will be able to:

1. Identify the body of knowledge that defines and articulates behavioral neuroscience as a scientific discipline.
2. Identify the biological foundations of human behavior and psychological functions.
3. Examine the ethical aspects related to neuroscientific research.
4. Relate different structures of the nervous system with the main psychological processes.
5. Relate theory and research evidence to the knowledge produced by behavioral neuroscience.
6. Explain human behavior by integrating different psychological and neuroscientific perspectives.

7. Critically and scientifically examine the concepts of neuroscience and behavior.
8. Identify the different approaches to the study of the brain and behavior.
9. Describe sleep and understand it as an active process.
10. Analyze complex functions such as learning, memory, and intelligence from a neuroscientific perspective.
11. Explain how behavioral science contributes to the understanding of brain/behavior relationships.
12. Describe the neural basis of some neurological and psychological disorders.

The program is designed to develop the competencies that allow the student to:

Competencies of the graduate profile

Knowledge

C1- Demonstrate basic knowledge of concepts, principles, and theories related to biology and psychology.

C2- Integrate information from multiple sources in biology and psychology relevant to the study of human behavior problems.

Skills

D2- Properly use the equipment and materials relevant to the study of biopsychology.

D3- Apply the appropriate methodology in the solution of problem relations with biopsychology.

Attitudes

A1- Demonstrate ability to make and implement informed and responsible ethical decisions.

A2- Recognize how decisions affect and are affected by other individuals separated in time, space, and culture.

IV. THEMATIC CONTENT

Unit 1: Introduction to Neuroscience Behavior.

- 1.1. Conceptualization of behavioral neuroscience.
- 1.2. Research methods in Behavioral Neuroscience.

- 1.3. Integrative approach and socio-psycho-biological perspective of the brain.

Unit 2: Functional neuroanatomy and the evolution of the nervous system

- 2.1 Neuroplasticity of the brain.

Unit 3: Neurophysiology of behavior.

- 3.1 Structure and functions of the cells of the nervous system.

Unit 4: Genetics and human brain development.

- 4.1 Genetic basis of behavior.
- 4.2 Changes in the brain during development.

Unit 5: Visual System and Visual Perception.

- 5.1 From sensation to perception: elements of visual perception.
- 5.2 Structure and functions of the visual system.
- 5.3 Visual system disorders.

Unit 6: Movement

- 6.1 Neural Control of Muscles.
- 6.2 Reflex Control Movement.
- 6.3 Motor Systems of the Brain.
- 6.4 Movement disorders.

Unit 7: Hearing: Structure and function of the auditory system.

- 7.1 Auditory perception
- 7.2 Hearing disorders

Unit 8: Learning and Memory

- 8.1 Brain structures related to learning and memory.
- 8.2 Biochemistry of memory.

Unit 9: Language and Intelligence.

- 9.1 Hemispheric asymmetry and its correlation with behavior.
- 9.2 Brain mechanisms of language.
- 9.3 Most common language disorders.
- 9.4 Structural and functional correlates of the brain and intelligence.

Unit 10: Emotion, Motivation, and Stress.

- 10.1 Ebiological structures associated with emotions.
- 10.2 Genetics, environment, and epigenetics of aggression.
- 10.3 Biochemistry of aggression.
- 10.4 Stress, the immune system, and general health.

Unit 11: Neurocognitive disorders

- 11.1 Alzheimer
- 11.2 Vascular disease
- 11.3 HIV-associated neurocognitive disorders.
- 11.4 Treatment of neurocognitive disorders.

Unit 12: Psychopathology

- 12.1 Schizophrenia: genetic contribution.
- 12.1 Structure and functions of the brain in schizophrenia, disorder
Bipolar and depression.
- 12.3 Biochemistry of schizophrenia, bipolar disorder, and depression.

V. ACTIVITIES

The activities to be used for the development of the course are the following:

1. Conferences
2. Group presentations
3. Discussion of assigned readings.
4. Literature review work.

VI. EVALUATION

	Score	% of the Final Grade
Midterm exam I	100	25
Midterm Exam II	100	20
Midterm Exam III	100	20
Course topic monograph	100	30
Attendance and participation	100	5
Total	500	100

Note: Attendance will be provided at all meetings and absences will be graded as follows:

- 1 Absence - 95 %
- 2 Absences - 90 %
- 3 Absences - 85%

VII. SPECIAL NOTES

A. Auxiliary Services or Special Needs

Any student who requires auxiliary services or special assistance must request them at the beginning of the course or as soon as they acquire knowledge that they need them, by registering in the office in the Orientation Office with Dr. María de los Ángeles Cabello. mcabello@metro.inter.edu, ext. 2306.

B. Honesty, fraud, and plagiarism.

Dishonesty, fraud, plagiarism, and any other inappropriate behavior in relation to academic work constitute major infractions sanctioned by the General Student Regulations. Major infractions, according to the General Student Regulations, may result in the suspension of the University for a defined time of more than one year or permanent expulsion from the university, among other sanctions.

C. Use of electronic devices.

Cell phones and any other electronic devices that could interrupt teaching and learning processes or alter the environment conducive to academic excellence will be disabled. Urgent situations will be addressed, as appropriate. The operation of electronic devices that allow access, storage, or sending of data during evaluations or exams is prohibited.

D. Special Requirements for Internship Centers and Internships

It will be the responsibility of the student to comply with the requirements of the external center to be able to carry out their internship or internship. These requirements may be, depending on the practice center: doping tests, HIV tests, hepatitis immunization certificates, health certificates, negative criminal record certificates, or any other that the institution or practice center requires. The student refuses or cannot comply with any of them, could be unable to carry out his internship or internship, and, consequently, not pass the internship course or internship or meet the graduation requirements of his academic program (General Catalog).

E. Clinical areas in various scenarios

This course considers clinical practice in various settings such as hospitals, diagnostic and treatment centers (CDT), prenatal care clinics, and simulation laboratories, among others. It is established the need for at least four (4) weeks in the school laboratory to acquire skills before going to the clinical area in the various scenarios. An alternative plan will be contemplated in the event that clinical scenarios are not available due to special situations and beyond the control of the Nursing Department.

F. Compliance with the provisions of Title IX

The Federal Higher Education Act, as amended, prohibits discrimination on the basis of sex in any academic, educational, extracurricular, athletic, or any other program or employment, sponsored or controlled by an institution of higher education regardless of whether the activity is conducted on or off the premises of the institution if the institution receives federal funds.

In accordance with current federal regulations, our academic unit has appointed an Assistant Coordinator of Title IX who will provide assistance and guidance in relation to any alleged incident constituting discrimination by sex or gender, sexual harassment, or assault. You can contact the Assistant Coordinator, George Rivera, Director of Security, at 787-250-1912, extension 2147, or email grivera@metro.inter.edu.

The Normative Document entitled **Rules and Procedures for Dealing with Alleged Violations of the Provisions of Title IX** is a document that contains the institutional rules to channel any complaint that is presented based on this type of allegation. This document is available on the website of the Interamerican University of Puerto Rico (www.inter.edu).

VIII. EDUCATIONAL RESOURCES

Textbook

Freberg, L. (2019). *Discovering Behavioral Neuroscience: An introduction to biological psychology*. Cengage Learning: Boston. ISBN: 9781337570930.

Further reading

Carlson, N. R. (2006). *The Physiology of Behavior*, 9th Edition. Allyn and Bacon Publishers: Boston, Massachusetts

Ebert, B., Wafford, K. A. & Deacon, S. (2006). Treating insomnia: current and investigational pharmacological approaches. *Pharmacological Therapeutics* 112(3):612-629.

Watson, N. V. and Rosenzweig, M. R. (2010). *Biological Psychology*. Sixth Edition. S.M. Breedlove: New York.

Bear, M.F., Connors, B.W. & Paradiso, M. A. (2015). *Neuroscience – Exploring the Brain*, 3rd Edition.

Kolb, B. & Whishaw, I. Q. (2006). *An Introduction to Brain and Behavior*: Cap. 2: How is the brain organized?

Lyons, M., Harrison, N., Brewery, G. & Sanders, R. (2014). *Biological Psychology*. Learning Matters.

IX. BIBLIOGRAPHY

Structure and functioning of the Central Nervous System

<https://www.outube.com/watch?v=0+legH34r40>

Biological Basis of Behavior-the Brain

<http://www.educatina.com/psicología/bases-biológicas-de-la-conducta/la-neuropsychology-the-brain-video>

Psychophysiology: characteristics and functions of the peripheral nervous system

<http://www.educatina.com/psicología/bases-biológicas-de-la-conducta/psicofisiologia-características-y-funciones-del-sistema-nervioso-periférico-snp-video>

Genetics, evolution, and behavior.

<http://www.educatina.com/psicologia/bases-biologicas-de-la-conducta/genes-theevolution-and-the-behavior-of-the-people-video> .

Churchland, Patricia Smith. 1989. *Neurophilosophy: Toward a Unified Science of the Mind-Brain*. Cambridge: Massachusetts Institute of Technology.

Bickle. John. 2009. *The Oxford Handbook of Philosophy and Neuroscience*. Oxford: Oxford University Press.

McLaughlin, Brian P.; Beckermann, Ansgar and Walter, S. 2008. *The Oxford Handbook of Philosophy of Mind*.

Belichon Carmona, Mercedes; Igoa González, José and Rivière Gómez, Ángel. 1996. *Language psychology: Research and theory*. 3rd Edition. Madrid: Editorial

Trotta.

Armony, Jorge and Vuilleumier. 2013. The Cambridge Handbook of Human Affective Neuroscience. Cambridge: Cambridge University Press.

Corr, Philip J. 2006. Understanding Biological Psychology. Malden: Blackwell Publish.

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