



El Camino College
COURSE OUTLINE OF RECORD – Official

Course Acronym:	PSYC
Course Number:	107
Descriptive Title:	Physiological Psychology
Division:	Behavioral and Social Sciences
Department:	Psychology and Human Development
Course Disciplines:	Psychology
Catalog Description:	This course focuses on physiological factors in human development, behavior, and experience. Fundamental topics include consciousness, language, emotion, memory, and sensation/perception. Clinical topics include Sexual Disorders, Bipolar Disorder, Schizophrenia, Post- Traumatic Stress Disorder, Autism, Alzheimer's disease, and traumatic brain injury. Studies of both humans and other animals are evaluated and organized by scientific and clinical standards.
Prerequisite:	Psychology C1000 or Psychology C1000H with a minimum grade of C
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
Hours Lecture (per week):	3
Hours Laboratory (per week):	0
Outside Study Hours:	6
Total Course Hours:	54
Course Units:	3
Grading Method:	Letter Grade only
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	Prior to July 1992
Transfer UC:	Yes
Effective Date:	prior to fall 1992
General Education: ECC	Area 1 - Natural Sciences, Area 2C - Social and Behavioral Science
Term:	
Other:	
CSU GE:	Area B2 - Physical Universe and its Life Forms: Life Science
Term:	
Other:	
IGETC:	Area 5B - Biological Science
Term:	
Other:	
CalGETC:	
Term:	

Other:	
Student Learning Outcomes:	SLO #1 Logic of the Scientific Method On examination (e.g., m/c, T/F, fill-in, matching, essay), written essay, research paper, and/or oral presentation, students will be able to explain and evaluate various types of data relevant to the biological basis of behavior (e.g., experimental versus nonexperimental, human versus infrahuman, basic versus applied). SLO #2 Fundamental Principles On examination (e.g., m/c, T/F, fill-in, matching, essay), written essay, research paper, and/or oral presentation, students will be able to identify and explain basic nervous system structures (e.g., neural and glial cells; brain stem and forebrain; meninges and blood-brain barrier) and functions (e.g., resting and action potentials; excitatory and inhibitory postsynaptic potentials; sensory transduction; agonistic and antagonistic drug effects). SLO #3 Everyday Application On examination (e.g., m/c, T/F, fill-in, matching, essay), written essay, research paper, and/or oral presentation, students will be able to apply fundamental psycho-psychological principles in their efforts to understand everyday life experiences (e.g., weight control, sexual behavior, insomnia, coping with cognitive decline).
Course Objectives:	1. Evaluate the historical roots of physiological psychology, including topics from philosophy, evolution, and genetics. 2. Categorize the structures and functions of nervous system cells. 3. Analyze the relevant factors in the pharmacology of psychoactive drugs. 4. Identify and distinguish basic neuroanatomical structures and concepts. 5. Organize and explain the psychophysical, physiological, and phenomenological details pertaining to vision. 6. Recognize and describe the most basic details of at least one nonvisual sensory system. 7. Recognize and evaluate the nervous system structures and neurotransmitters most relevant to the control of movement. 8. Distinguish and analyze sleep and wakefulness, theories of sleep and dreaming, and sleep disorders. 9. Analyze the social, neural, and hormonal factors relevant to reproductive behavior. 10. Distinguish and assess the phenomenological, behavioral, physiological, and social factors relevant to emotions such as fear and aggression. 11. Contrast and explain the specific environmental, neural, and hormonal factors relevant to hunger and thirst.

	12. Explain and analyze learning and memory in terms of the neural mechanisms of synaptic plasticity. 13. Evaluate the concepts and data relating to cerebral lateralization, especially as they are applied to language and its disorders. 14. Differentiate between the symptoms and pathophysiologies of brain tumors, dementias, cerebrovascular accidents, pervasive developmental disorders, and infectious disease disorders. 15. Differentiate and describe the symptoms and pathophysiologies of psychotic, mood, sexual, and anxiety disorders.
Major Topics:	I. Historical Roots of Physiological Psychology (3 hours, lecture) A. Philosophy 1. Epistemology 2. The Mind/Body Problem 3. Ethics in Research B. Evolution and Genetics II. Nervous System Cells: Structures and Functions (4 hours, lecture) A. Neural Structure 1. Dendrite, Soma, Axon, Terminal Button 2. Membrane, Myelin Sheathing, Protein Channel B. Neural Function 1. Resting, Graded, and Action Potentials 2. Saltatory Conduction and Neurotransmission C. Glial Cells in the CNS and PNS III. Pharmacology of Psychoactive Drugs (3 hours, lecture) A. Agonistic and Antagonistic Effects, Affinity B. Addiction and Withdrawal IV. Neuroanatomy (6 hours, lecture) A. Central Nervous System Structures and Functions 1. Hindbrain (Myelencephalon and Mesencephalon) 2. Midbrain (Metencephalon) 3. Forebrain (Diencephalon and Telencephalon) B. Protective Structures of the Central Nervous System 1. Ventricles 2. Meninges 3. Cerebrospinal Fluid

4. Blood/Brain Barrier
C. Peripheral Nervous System Structures and Functions
1. Somatic Branch
2. Autonomic Branch
D. Directional Nomenclature
V. Vision (5 hours, lecture)
A. Psychophysics of Light
B. Neuroanatomy of Visual Pathways
1. Straight Line
2. Lateral
C. Cortical Analysis of Visual Information
1. Dorsal Stream
2. Ventral Stream
D. Aspects of Visual Experience
1. Form
2. Color
3. Movement
4. Location
5. Identity
VI. Nonvisual Sensory Systems (2 hours, lecture)
A. Audition
B. Gustation
C. Olfaction
D. Somatosensation
VII. Control of Movement (2 hours, lecture)
A. CNS Structures and Functions
1. Primary Motor Cortex
2. Basal Ganglia
3. Cerebellum
4. Pons
B. PNS Structure and Functions
1. Ventral Spinal Roots
2. Neuromuscular Junctions

3. Acetylcholine

VIII. Sleep and Wakefulness (3 hours, lecture)

A. Circadian Rhythms and Zeitgebers

B. Central Nervous System Structures and Functions: Results from Cerveau Isole and Encephalo Isole Studies

C. Theories of Sleep

1. Evolutionary
2. Restorational

D. Theories of Dreaming

1. Classical Freudian Theory
2. Modern Physiological Theory

E. Sleep Disorders

1. Insomnia: Onset, Fitful, and Early Termination
2. Narcolepsy
3. REM Behavior Disorder
4. Apnea

IX. Reproductive Behavior (4 hours, lecture)

A. Sexual Identity Versus Orientation

B. Development of Sexual Dimorphism

1. Prenatal (Organizational) and Postpubescent (Activational) Hormonal Effects
2. Brain, Internal Organs, and Genitalia

C. Exceptional Cases of Human Sexuality

1. Congenital Adrenal Hyperplasia
2. Androgen Insensitivity Syndrome
3. 5-Alpha Reductase Insufficiency

X. Emotions (3 hours, lecture)

A. Aspects of Emotions

1. Phenomenology
2. Behavior: Aggression, Stress, and Fear
3. Physiology
4. Facial Expressions

B. Theories of Emotional Phenomenology and Physiology

XI. Ingestive Behavior (4 hours, lecture)

A. Physiological Regulatory Systems: Fluids and Thirst

	B. Neural and Hormonal Control of Eating 1. Hypothalamic Nuclei: Lateral, Ventromedial, and Paraventricular 2. Pancreatic Hormones: Insulin and Glucagon XII. Learning and Memory (2 hours, lecture) A. Types of Learning and Memory B. Synaptic Plasticity C. Long-Term Potentiation and Depotentiation XIII. Lateralization and Language (4 hours, lecture) A. Hemispheric Specialization B. Language Production and Comprehension C. Comparing Data from Human and Infrahuman Studies D. Brain Structures and Functions in Language 1. Broca's Area 2. Wernicke's Area 3. Arcuate Fasciculus E. Language Disorders 1. Broca's Aphasia 2. Wernicke's Aphasia 3. Conduction Aphasia XIV. Neurological Disorders (5 hours, lecture) A. Tumors and Trauma B. Cerebrovascular Accidents C. Pervasive Developmental Disorders D. Dementias E. Infectious Diseases XV. Mental Disorders (4 hours, lecture) A. Psychotic Disorders B. Mood Disorders C. Anxiety Disorders D. Sexual Disorders
Total Lecture Hours:	54
Total Laboratory Hours:	0
Total Hours:	54

A.1. Primary Methods of Evaluation (Part 1 - CCN courses only):	
A.2. Primary Method of Evaluation (Part 2 - all courses; choose one):	1) Substantial writing assignments
Typical Assignment Using Primary Method of Evaluation:	Individual cones and rods work essentially the same way in the retina. In a one- page paper, explain how it is nonetheless true that cones, not rods, contribute to color vision.
Critical Thinking Assignment 1:	In a one- to two-page paper, distinguish between monism and dualism in the context of physiological psychology, and then explain why only dualism is hopelessly saddled with the mind/body problem.
Critical Thinking Assignment 2:	In a two- to three-page essay, compare and evaluate the Freudian and the Activation-Synthesis theories on the function of dreaming. From the viewpoint of scientific psychology, the latter is considered superior; state whether you agree with this assessment and explain your reasoning.
Other Evaluation Methods:	Completion, Essay Exams, Matching Items, Multiple Choice, Objective Exam, Reading Reports, True/False, Written Homework
Instructional Methods:	Discussion, Lecture, Multimedia presentations
If other:	
Work Outside of Class:	Answer questions, Required reading, Study, Written work (such as essay/composition/report/analysis/research)
If Other:	
Up-To-Date Representative Texts:	John P.J. Pinel. Biopsychology. 11th ed. Pearson, 2021.
	Bryan Kolb and Ian Whishaw. An Introduction to Brain & Behavior. Macmillan, 2023.
	James W. Kalat. Biological Psychology. 14th ed. Cengage, 2024.
Alternative Texts:	
Required Supplementary Readings:	
Other Required Materials:	
Requisite:	Prerequisite
Category:	sequential
Requisite course(s): List both prerequisites and corequisites in this box.	Psychology C1000 Psychology C1000H
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	Ability to apply the basic knowledge of the scientific method to specific research questions in the field of physiological psychology. PSYC C1000 - Outline the steps of the scientific method, identify common research methods, and discuss ethical considerations of psychological research. PSYC C1000H - Outline the steps of the scientific method, identify common research methods, and discuss ethical considerations of psychological research. Ability to apply basic knowledge of neural structure and functioning to more in depth examination of membrane and action potentials, synaptic transmission, postsynaptic activation, and pharmacology. PSYC C1000 - Describe the different functions of the neural and hormonal systems, emphasizing the functions of brain structures.

	PSYC C1000H - Describe the different functions of the neural and hormonal systems, emphasizing the functions of brain structures. Ability to apply basic knowledge of sensation and perception to more in depth examination of structures and functions of the visual, auditory, body, and chemical senses. PSYC C1000 - Differentiate between sensation and perception and identify the processes by which organisms recognize, organize, and make sense of stimuli in their environment. PSYC C1000H - Differentiate between sensation and perception and identify the processes by which organisms recognize, organize, and make sense of stimuli in their environ
Requisite Skill:	
Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	
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Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	D. Fridley
Date:	03/01/1973
Original Board Approval Date:	
Last Reviewed and/or Revised by:	Amy Himself
Date:	09/20/2025
Last Board Approval Date:	12/16/2025
Effective Term:	FA 2026