El Camino College
COURSE OUTLINE OF RECORD – Approved

I. GENERAL COURSE INFORMATION

Subject and Number: Psychology 107
Descriptive Title: Physiological Psychology
Course Disciplines: Psychology
Division: Behavioral and Social Sciences

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.

Conditions of Enrollment:
Prerequisite: Psychology 101 or Psychology 101H with a minimum grade of C

Course Length:	**X Full Term**	**Other (Specify number of weeks):**
Hours Lecture:	**3.00 hours per week**	**TBA**
Hours Laboratory:	**0 hours per week**	**TBA**
Course Units:	**3.00**	

Grading Method: Letter
Credit Status: Associate Degree Credit

Transfer CSU: X Effective Date: Prior to July 1992
Transfer UC: X Effective Date: Prior to July 1992

General Education:
El Camino College:
1 – Natural Sciences
Term: **Other:**

2C – Social and Behavioral Sciences – General
Term: **Other: Approved**

CSU GE:
B2 - Life Science
Term: Fall 1991 **Other:**

IGETC:
5B - Biological Science without a Lab
Term: Fall 1991 **Other:**

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

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).

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).

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).

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below)

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.

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	3	I	**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
Lecture	4	II	**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
Lecture	3	III	**III. Pharmacology of Psychoactive Drugs (3 hours, lecture)** A. Agonistic and Antagonistic Effects, Affinity B. Addiction and Withdrawal
Lecture	6	IV	**IV. Neuroanatomy (6 hours, lecture)** A. Central Nervous System Structures and Functions 1. Hindbrain (Myencephalon 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
Lecture	5	V	**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
Lecture	2	VI	**VI. Nonvisual Sensory Systems (2 hours, lecture)** A. Audition B. Gustation C. Olfaction D. Somatosensation
Lecture	2	VII	**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
Lecture	3	VIII	**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
Lecture	4	IX	**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 Reductace Insufficiency
Lecture	3	X	**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

Lecture	4	XI	**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
Lecture	2	XII	**XII. Learning and Memory (2 hours, lecture)** A. Types of Learning and Memory B. Synaptic Plasticity C. Long-Term Potentiation and Depotentiation
Lecture	4	XIII	**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
Lecture	5	XIV	**XIV. Neurological Disorders (5 hours, lecture)** A. Tumors and Trauma B. Cerebrovascular Accidents C. Pervasive Developmental Disorders D. Dementias E. Infectious Diseases
Lecture	4	XV	**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	

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION:
Substantial writing assignments

B. 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.

C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:

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.

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.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:

Essay exams
Objective Exams
Reading reports
Written homework
Multiple Choice
Completion
Matching Items
True/False
Other (specify):
Short Essay
Presentation

V. INSTRUCTIONAL METHODS

Discussion
Lecture
Multimedia presentations

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Study
Answer questions
Required reading
Written work

Estimated Independent Study Hours per Week: 6

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

John P.J. Pinel. Biopsychology. 9th ed. Pearson, 2014.
Bryan Kolb and Ian Whishaw . Introduction to Brain & Behavior. 3 ed. Worth, 2011.
James W. Kalat. Biological Psychology. 11 ed. Wadsworth Cengage, 2015.

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Course Prerequisite Psychology-101	Sequential
Course Prerequisite Psychology-101H	Sequential

B. Requisite Skills

Requisite Skills
Ability to apply the basic knowledge of the scientific method to specific research questions in the field of physiological psychology. PSYC 101 Outline the steps of the scientific method, identify common research methods, and discuss ethical considerations of psychological research. PSYC 101H 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 101 Describe the different functions of the neural and hormonal systems, emphasizing the functions of brain structures. PSYC 101H 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 101 Differentiate between sensation and perception and identify the processes by which organisms recognize, organize, and make sense of stimuli in their environment. PSYC 101H Differentiate between sensation and perception and identify the processes by which organisms recognize, organize, and make sense of stimuli in their environ

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification

D. Recommended Skills

Recommended Skills

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact

Course created by D. Fridley on 03/01/1973.

BOARD APPROVAL DATE:

LAST BOARD APPROVAL DATE: 03/23/2020

Last Reviewed and/or Revised by Richard Mascolo on 01/30/2020