UNIVERSITY OF CALICUT

(Abstract)

B.Sc Programme in Psychology under Choice based Credit Semester System – modified syllabus of complementary course – Physiological Psychology-approved-implemented with effect from 2nd Semester 2009 Academic Year – Orders issued.

GENERAL AND ACADEMIC BRANCH – I 'J' SECTION

No. GA. I/J2/3153/07 Dated, Calicut University. P.O., 16.10.2009

Read : 1. U.O. No. GAI/J2/3601/08 (Vol. II) dated 19.06.2009.
2. U.O of even No: dated 26.06.2009
3. Item No.1. of the minutes of the meeting of the Board of Studies in Psychology (UG) held on 18.09.2009.

O R D E R

As per University Order read as 1st above the regulation for Choice based Credit Semester system was implemented with effect from 2009 admission for UG curriculum in affiliated Arts and Science Colleges. The syllabus for B.Sc programme in Psychology was implemented with effect from 2009 admission onwards vide paper read as 2nd above.

The Board of Studies in Psychology vide paper read as 3 above, discussed the modifications and corrections made in the syllabus of Physiological Psychology (complementary course for Psychology)-first, second, third and fourth semester syullabus and approved the modified syllabus. The Board of Studies also resolved that the modification will come into effect from the second semester 2009 onwards.

The Vice-Chancellor in view of exigency approved the minutes of the meeting of the Board of Studies in Psychology (UG) subject to ratification by the Academic Council.

Sanction has therefore been accorded for implementing the modifications in the syllabus of complementary course 'Physiological Psychology' for B.Sc Programme in Psychology under Choice based Credit Semester System, with effect from second semester 2009 academic year onwards.

Orders are issued accordingly . Modified syllabus appended.

Sd/-
DEPUTY REGISTRAR (G&A I)
For REGISTRAR

To : The Principals of affiliated colleges -
offering B.Sc Psychology Programme under Choice based Credit Semester

Copy to: Controller of Examination /EX Sn/EGI/DR B Sc/Enquiry/DR III/
System Administrator with a request to upload in the University website/
Tabulation Section/GA I 'A 'F' G'Sections/G&A II, III Branches

Forwarded / By order
Sd/-
SECTION OFFICER

B.Sc PSYCHOLOGY
Ps1C01 : PHYSIOLOGICAL PSYCHOLOGY (3 CREDIT)

OBJECTIVES
This course familiarizes the student of Psychology with the most essential fundamental Physiological processes underlying psychological events.

Module 1: Organization of living body:
1.1 Cell structure, plasma membrane (fluid mosaic model), cell organelles and other cell inclusions.
1.2 Cell theory, cell principle
1.3 Unicellular to multicellularity and differentiation of cells in multicellular organisms.

Module 2: Cell division
2.1 Mitosis.
2.2 Meiosis.

Module 3: Elements of heredity and variation
3.1 Mendel's work and laws of inheritance.
3.2 Brief explanation of the terms – alleles, homoxygosity, heterozygosity, genotype, phenotype, test cross, segregation and independent assortment.
3.3 Other patterns of inheritance and genotype expression – incomplete dominance, co-dominance, multiple alleles, epistasis, pleiotropy.

Module 4: Genes and Chromosomes
4.1 Structure of chromosomes.
4.2 Linkage and crossing over, sex linked chromosomes.
4.3 Mutation and Genetic variation .

Module 5: Chromosomal anomalies and disorders
5.1 Autosomal anomalies – Down's syndrome, Edward's syndrome, Cri du chat syndrome.
5.2 Sex chromosomal anomalies - Klinefelter's syndrome and Turner's syndrome.
5.3 Gene mutation disorderd - albinism, phenylketonuria, alkaptenuria, galactesuria, brachydactyli.

REFERENCE:
Essentials of Medical Physiology – K.Sembulingam and Prema Sembulingam Jaypee brothers-Medical Publishers Pvt Ltd
Cell Physiology- Giese- Saunders.
Biology of the cell- Dewitt- Saunders.
Genetics – Strickberger W.M – Mac Millon.
Human Genetics – Roothwell – Prentice Hall.

B Sc PSYCHOLOGY
Ps2CO1: PHYSIOLOGICAL PSYCHOLOGY (3 CREDITS)

OBJECTIVE:
This course familiarizes the student of psychology with the most essential fundamental physiological processes underlying psychological events.

Module 1: The Visual System
1.1 Structure of the human eye and visual pathways.
1.2 Functioning of the eye, visual coding, transduction in the retina, neural coding in the brain, coding for colour and theories of colour vision.
1.3 Visual defects.

Module2: Auditory system
2.1 Nature of sound – frequency, pitch, amplitude, harmonics.
2.2 Anatomy of the auditory system - Auditory pathways, hearing abnormalities.
2.3 Statoreceptors.

Module 3: Gustatory and olfactory systems
3.1 Primary sensations of taste, anatomy of taste buds and its function, transmission of signals into the central nervous system, taste preferences and control of the diet.
3.2 Sense of smell, olfactory membrane, stimulation of the olfactory cells, categorizing smell, transmission of smell signals into the central nervous system.

Module 4: Cutaneous senses (Somatic sensations)
4.1 Classification –the mechanoreceptive somatic senses (tactile and position) the thermoreceptive senses (heat and cold),the pain sense
4.2 Detection and transmission of tactile sensations –tactile receptors, detection of vibration, tickling and itch.
4.3 Sensory pathways for transmitting somatic signals into the central nervous system, somatosensory cortex, position senses, position sensory receptors.
4.4 Pain – purpose, types, pain receptors, pain suppressive system.
4.5 Thermal sensations - thermal receptors, their excitation and transmission of thermal signals.

Module 5: Endocrine system
5.1 Introduction to endocrinology, an overview of the importance of endocrine glands.
5.2 Major endocrine glands – their location, structure, hormones produced and its role (Hypothalamus, pituitary, thyroid, adrenal, gonads, thymus, pineal body, placenta)
5.3 Mode of action of hormones and influence on growth and behavior.

REFERENCE:
Essentials of Medical Physiology – K.Sembulingam and Prema Sembulingam – Jaypee brothers - Medical Publishers Pvt.Ltd.
Textbook of Medical Physiology – Guyton & Hall – Saunders.
Animal Physiology – Sebastian M.M – Madonna.
Biological Psychology – Kalat J.W – Wadsworth – CA.

B.Sc. PSYCHOLOGY
Ps3C01: PHYSIOLOGICAL PSYCHOLOGY (3 CREDIT)

OBJECTIVE;
This course familiarizes the student of Psychology with the most essential fundamental Physiological processes underlying psychological events.

Module 1: The nervous system
1.1 Functions, Divisions (CNS, PNS-Somatic and autonomic)
1.2 Neurons tissue (neurons, nerve fibres, nerves, synapse)
1.3 Non nervous tissue and other materials (neuroglia, meninges, cerebro-spinal fluid, Blood - CSF and blood – brain barriers)
1.4 Nerve impulse- generation, synaptic transmission, role of calcium ions, action of transmitter substances on postsynaptic neuron, types of transmitter substances.)

Module 2: The Central Nervous System
2.1 Brain –an overview (Forebrain, midbrain, hindbrain)
2.2 Spinal cord –an overview of its structure and organization
2.3 Reflex Action –monosynaptic reflex, multisynaptic reflex, crossed extension reflex, mass reflex)

Module 3: The Cerebellum and the Basal Ganglia
3.1 The Cerebellum and its motor functions
3.2 Anatomical functions, areas of the cerebellum
3.3 function of the cerebellum in overall motor control.
3.4 The basal ganglia-their motor functions, role of the basal ganglia for cognitive control, functions of neurotransmitters with basal ganglia.

Module 4: The Cerebral Cortex
4.1 Functions of the specific cortical areas –association areas (parieto-Occipitotemporal, prefrontral, and limbic association areas with special emphasis on Wernike's area and Broca's area), area for recognition of faces, concept of the dominant hemisphere.
4.2 Function of the brain in communication-sensory and motor aspects of communication.

Module5: States of brain activity and Techniques in neurophysiology
5.1 Sleep –Slow wave sleep and REM sleep ,Basic theories of sleep, physiological effects of sleep
5.2 Brain imaging –CT, MRI, PET, CBF, EEG, lesioning and stimulation

REFERENCE:
An introduction to Physiological Psychology – Schneider A.M & Tarshis B – Random House – New York
Textbook of Medical Physiology – Guyton & Hall – Saunders.
Human Physiology –Sherwood L – Thomson.
Biological Psychology – Kalat J.W – Wadsworth – CA.
Introduction to Physiological Psychology – Levinthal C.F – Prentice Hall, New Delhi.

B.Sc PSYCHOLOGY
Ps4C01 : PHYSIOLOGICAL PSYCHOLOGY (3 CREDIT)

OBJECTIVE;
This course familiarizes the student of Psychology with the most essential fundamental Physiological processes underlying psychological events.

Module 1: Physiological basis of eating:
1.1 Hunger and satiety centers in hypothalamus, other centers that influence feeding.
1.2 Effect of oral and gastrointestinal signals on food intake, Effect of hormones(Cholecystokinin, Glucagon and insulin)
1.3 The Glucostatic, Aminostatic and Lipostatic theories, interrelation between body temperature and food intake, effect of feedback signals from adipose tissue on food intake.
1.4 Obesity – causes and treatment.

Module 2: Physiological basis of drinking:
2.1 Peripheral factors in water regulation.
2.2 Central factors in water regulation (cellular dehydration thirst and hypovolemic thirst)

Module 3: Physiological basis of sexual behavior:
3.1 Hormones and sexual development – Fetal hormones and the development of reproductive organs, Sex differences in the brain, Perinatal hormones and behavioral development, Puberty: hormones and development of secondary sexual characteristics.
3.2 Effects of gonadal hormones on adults – Male reproduction related behavior and testosterone, Female reproduction related behavior and gonadal hormones.
3.3 Neural mechanisms of sexual behavior – Structural differences between the male hypothalamus and female hypothalamus, The hypothalamus and male sexual behavior, The hypothalamus and female sexual behavior,

Module 4: Neural basis of emotion:
4.1 Role of frontal lobes
4.2 Behavioral functions of the hypothalamus and associated limbic structures, Reward centers,
Rage – its association with punishment centers, placidity and tameness.
4.3 Functions of Amygdala.

Module 5: Physiology of learning:
5.1 Higher intellectual functions of the prefrontal association area – concept of a "working memory"
5.2 Role of corpus callosum and anterior commissure.
5.3 Memory – Classification(Declarative memory and long term memory), Consolidation of memory (role of rehearsal, codifying), Role of hippocampus, Reflexive learning.

REFERENCE:
An introduction to Physiological Psychology – Schneider A.M & Tarshis B – Random House – New York
Textbook of Medical Physiology – Guyton & Hall – Saunders.
Human Physiology –Sherwood L – Thomson.
Biological Psychology – Kalat J.W – Wadsworth – CA.
Introduction to Physiological Psychology – Levinthal C.F – Prentice Hall, New Delhi.
Biopsychology – Pinel P.J John – Pearson.