PSY1101 MIDTERM 1 -- Review of all concepts

PROLOGUE

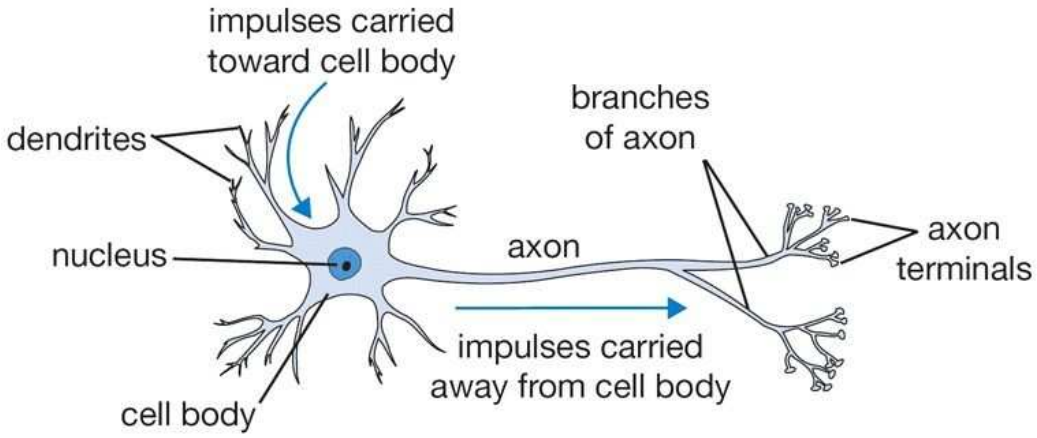
- Cognitive processes (reasoning, language, processing, memory, perception, etc.)
- Levels of analysis (biological, psychological, socio-cultural)
- Basic, general research VS applied research for practical problems
- Counseling and clinical psychology, and psychiatry
- SQ3R Testing effect
- Nativism (skills and knowledge are innate)
- Philosophical empiricism (mind as blank slate, experience gives knowledge -- Tabula Rasa)
- Structuralism (*) and Functionalism (look at mental processes & how behaviour allows adaptation)
- Freud's Psychoanalytic theory (unconscious shapes us)

CHAPTER ONE

- Traits of scientists (Skepticism to find certainty, humility to accept truth, curiosity to discover it)
- Scientific Method
- Descriptive methods (case studies, surveys, naturalistic observational studies -- predictions, don't explain cause & effect), correlation (positive and negative correlation coefficient; doesn't explain causation), and experimentation
- Experimental and Control groups
- Double Blind Experiment
- Placebo Effect
- Variables ([in]dependent, confounding)
- Central tendency measure (mean, median, mode)
- Variability (and association with accuracy), correlation (scatter plot graph)
- Standard deviation, range, and normal bell curve/normal distribution
- Inferential statistics (suggest meaning)
- Statistical significance
- Type 1 & 2 Errors (false positive; false negative)
- Hindsight Bias Phenomenon & Overconfidence
- Random Sequence
- Critical Thinking
- Theory
- Operational definitions (of i.e. variables)
- Replication
- Wording effects (words presented influence participant's behaviour)
- Sample bias
- Representative sample
- Correlation coefficient (analyze variables and predict results, -1 to +1) *
- Ethical considerations (concern humans and other animals)

CHAPTER TWO

- Mind as consciousness
- Interrelation of biology and psychology
- Phrenology, Localization of brain functions
- Integration learning
- Neural System
- Neurons/nerve cells



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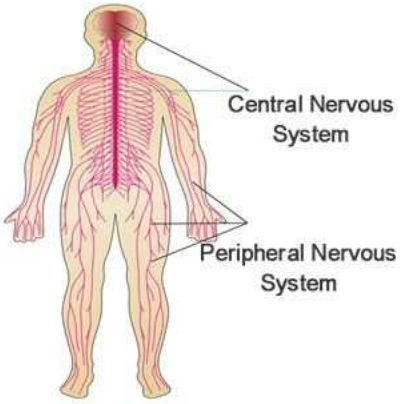
  - Info. receptor Dendrite Fibers communication with Axon Fibres (potentially insulated by Myelin Sheath) transporting Action Potential = ions changed as electricity is generated = Resting Potential -- Refractory Period
  - Selectively Permeable surface of axon opens when neuron fires at threshold (excitatory and inhibitory)
  - Synapse b/w nerve cell terminals -- Synaptic gap/cleft where neurotransmitters are triggered to bind (Reuptake//wander back, enzyme deactivation or disassembly)
  - Soma cell body
  - Concentration gradient, electrical gradient * (Na & K) -- ion balance
- Neural Pathways
- Endorphins
- Agonist drugs (mimic) / Antagonist (block site)
- Nervous System
- Central (decisions) and Peripheral Nervous Systems (info to CNS)



- Sensory Receptors
- Messages from Sensory Neurons (to brain & spinal cord) / Motor Neurons (to muscles)
- Spinal Interneuron processing (circuit closing)
- PNS somatic and autonomic components (muscle and gland control - sub conscious and voluntary)
- [Para]sympathetic Nervous Systems (Adrenaline and calmness)
- Role of spinal cord in CNS (info via fibres)
- Endocrine System
- Hypothalamus
- Glands: Pituitary (hormone; master gland), thyroid (metabolism), parathyroids (blood calcium level), adrenal (flight/fight), pancreas (blood sugar), testes and ovaries
- Lesion
- Electroencephalogram (EEG) -- neuron waves
- PET Scan -- glucose consumption
- MRI -- magnetic alignment of atoms shows brain structure (fMRI shows activity and function)
- Brainstem: medulla (heartbeat & breathing), pons (movement), reticular formation (neural network, enables arousal); thalamus (sensory, messenger), cerebellum (nonverbal learning & memory, time, emotional regulation, sound and texture recognition, voluntary movement -- affected by drugs)
    - Older brain sustains life (memory, emotion, basic drives)
    - Reticular formation “net” (active in veg. state)
    - Basil Ganlia directs movement
    - Striatum for posture and balance
- Newer brain regions: cerebral hemispheres (perceiving/thinking/speaking -- glial glve cells) -- cerebral cortex ‘bark’ (control & info processing, makes us human), limbic system border, amygdala (aggression & fear, emotion and attached meaning), hypothalamus (body maintenance and balance of hunger/sexuality/temp etc., reward & pleasure, sleep & wake -- malfunction = addiction), hippocampus (memories)
- Corpus callosum axon fibers
- Fissures separate four lobes -- frontal (personality, math, spatial reasoning, recognition)/parietal/occipital/temporal

- Motor [frontal] and Sensory Cortex, Visual [occipital] and Auditory Cortex [temporal]
- Association areas
- Experience + Genes
- Plasticity
- Neurogenesis
- Use it or lose it
- Brain hemisphere lateralization
- Right brain (perception, inference, clarification, self); Left brain (language, speaking, calculating)
- Biological Psychology
- Thinking makes human species psychologically slower
- Excitatory and Inhibitory Messages
- Emotion aids memory & stored learning

CHAPTER SIX

- Prosopagnosia (face blindness)
- Sensation -- enviro stimuli perceived (organization & interpretation) and represented by sensory & nervous systems
- Bottom up and Top down processing
- Transduction energy conversion from senses to brain
- Absolute threshold of stimulus
- Signal Detection Theory (against noise)
- Subconscious priming
- Minimum Noticeable Difference Threshold -- constant % (Weber's Law)
- Sensory adaptation
- Light energy (colour): wavelength (distance b/w peaks) > hue; amplitude (wave height) > brightness intensity
- Eye: cornea, pupil, iris, lens accommodation, retina, fovea rod (millions, dim light) & cone receptor cells, activated bipolar cells and ganglion cells, thalamus visual center
- Blind spot
- Feature detection
- Parallel Processing
- Young-Helmholtz Trichromatic theory
- Opponent Process theory
- Gestalt synergy
- Form perception -- figure and ground, grouping/continuity/closure
- Depth perception
- Binocular cues: monocular cues (long distance), relative height, relative motion and size
- Interposition depth perception, linear perspective, light and shadow
- Stroboscopic movement >> phi phenomenon
- Constancy of: perception, colour, shape, size
- Sensory restriction -- critical period
- Perceptual adaptation

- Audition
  - Vibrating air > nerve impulses
  - Piston (Hammer, anvil, stirrup) bring sound vibrations to snail cochlea's(≠ conductive hearing loss); oval window membrane vibrates fluid; basilar membrane ripples and hair cells bend (≠ sensorineural hearing loss/nerve deafness); neurons triggered > thalamus > temporal lobe auditory cortex
  - Sound waves > mechanical waves > fluid waves > electrical waves
- Absolute hearing threshold = 0 decibels
- Rise in teen hearing loss
- Bionic ear implants in cochlea
- Hermann Von Helmholtz Place Theory of High Pitch
- Frequency Theory of Low Pitch
- Volley Principle explains why we can hear louder than sound can travel
- Stereophonic 3D hearing
- Extraordinary senses (≠ hearing, sight)
- Touch: survival, love, pleasure, pain (nociceptor sensory receptors detect harm on skin) -- Wall's Gate Control Theory
- Phantom limbs/sounds
- Memory of pain's peak and ending
- Taste - salty, sweet, bitter, sour, umami (savory) molecules - detect dangerous food
- Sensory interaction (smell + taste = flavour -- chemical senses)
- McGurk Effect
- Embodied cognition
- Smell -- limbic system's memory and emotion; cultural conditioning -- nasal cavity receptor cells in nasal cavity -- affected by gender/health/drugs
- Kinesthesis sensors
- Embodiment -- position and movement
- Vestibular sense of balance -- head position/movement -- relates to ear
- Parapsychology -- ESP perception w/o sensation (telepathy, clairvoyance, precognition, psychokinesis) -- Mind rooted in scenes, not brain
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docs class