PSYC 101
REVIEW SESSION
AMS X AUS
outline.

▷ memory and learning
▷ consciousness
▷ sensation and perception
▷ research methods
▷ genes and heredity
▷ Q and A session (30 minutes)
DIVISIONS OF THE NERVOUS SYSTEM

Nervous System

CNS

Brain

Spinal Cord

PNS

Autonomic

Somatic

Sympathetic

Parasympathetic
MEMORY AND LEARNING

- types of memory
- working memory
- memory strategies
- memory loss
- some principles of memory
  - consolidation, retrieval, encoding specificity
TYPES OF MEMORY

Human Memory

- Sensory Memory
- Short-Term Memory
- Long-Term Memory
  - Explicit Memory (Declarative Memory)
    - Semantic Memory
    - Episodic Memory
  - Implicit Memory (Procedural Memory)
    - Autobiographical Memory
REHEARSAL VS CHUNKING
Retrograde Amnesia
Cannot remember events prior to brain damage

Brain damage occurs

Anterograde Amnesia
Cannot later remember events that occur after brain damage

Time
Some bonus ideas...

- serial position effect → recency vs primacy
- encoding specificity principle
- state dependent retrieval
- consolidation and reconsolidation
BRAIN BREAK

or

TRY QUESTION 1
LEARNING

▷ conditioning
  ○ extinction and recovery
  ○ generalization and discrimination
  ○ reinforcement vs punishment
  ○ reinforcement schedules

▷ habituation and sensitization
CLASSICAL VS OPERANT

**Before Conditioning**
- Unconditioned stimulus
- Unconditioned response
- Neutral stimulus
- No response

**During Conditioning**
- Unconditioned stimulus
- Unconditioned response

**After Conditioning**
- Conditioned stimulus
- Conditioned response

**Operant Conditioning**
- Specific consequences are associated with a voluntary behavior
- Rewards introduced to increase a behavior
- Punishment introduced to decrease a behavior
Acquisition, Extinction, Recovery

Acquisition (CS + UCS)  Extinction (CS alone)  Spontaneous recovery of CR

Pause

Strength of CR
High
Low

Time
Generalization vs Discrimination

A conditioned response to one object is exhibited in the presence of similar stimuli.
Reinforcement vs Punishment

- reinforcement: strengthens the response
- punishment: weakens the response
- positive: adds a stimulus
- negative: removes a stimulus
Reinforcement Schedules

- fixed interval
- variable interval
- fixed ratio
- variable ratio*
Habituation and Sensitization
BRAIN BREAK
or
TRY QUESTION 2
CONSCIOUSNESS

▶ what is consciousness?
▶ minimal vs full consciousness
▶ brain waves & consciousness
QUICK REST

or

TRY QUESTION 3
Sensation vs. Perception

**Sensation**
“The process by which our sensory receptors and nervous system receive and represent stimulus energies from our environment.”

**Perception**
“The process of organizing and interpreting sensory information, enabling us to recognize meaningful objects and events.”

- The brain receives input from the sensory organs.
- The brain makes sense out of the input from sensory organs.
Absolute Threshold and JND

-Absolute Threshold: Minimum stimulation required for a stimulus to be detected at least 50% of the time. Eg: a bird’s feather on your cheek.

-Just Noticeable Difference: Minimum difference between 2 stimuli required for detection 50% of the time. Eg: Smallest difference in weight that you can notice at least half the times.
Weber’s Law

- States that ratio of increment threshold to the background intensity is a constant.
- In simple words, the size of just noticeable difference is a constant proportion of the original stimulus value.
- In simpler words, as stimulus intensity increases, JND increases proportionately, as stimulus intensity decreases, JND decreases proportionately.
Signal Detection Theory

- States that the detection of a stimulus depends on both intensity of the stimulus and the physical/physiological state of the individual.
- The response of a stimulus depends both on a person’s sensitivity to the stimulus in the presence of noise and on a person’s decision criterion.

Basically, you perceive things based on how strong they are and how much attention we are paying to it.
Sensory Adaptation

**Sensory adaptation** is the process whereby sensitivity to prolonged stimulation tends to decline overtime as an organism adapts to current conditions.

Getting used to the loud buzzing noise of an AC overtime is an example of sensory adaptation.
QUICK REST

or

TRY QUESTION 4
VISUAL SYSTEM

cones, rods, fovea, blindspot
Perception Of Visual Information

- Perceptual Constancy
- Theories of Object Recognition
- Perceiving depth and cues
- Perceiving motion and change
Perceptual Constancy

The tendency to see familiar objects as having standard shape, size, colour, or location regardless of changes in the angle of perspective, distance, or lighting.

Even if sensory signals change, perception remains constant.
Theories of Object Recognition

- **Image Based Recognition Theory**
  - an object you have seen before is stored in your memory as a template which can be compared to a viewed shape.

- **Parts Based Object Recognition Theory**
  - the brain deconstructs objects we see into a collection of parts.
  - acts as a geometric alphabet that combines to make objects.
Perceiving Depth and Size

- **Monocular Depth Cues**
  - Aspects of a scene that yield information about depth when viewed with only one eye. Relies on relationship between distance and size.

- **Binocular Depth Cues**
  - Binocular disparity: The difference in the retinal images of the two eyes that provides information about depth.
Perceiving Motion and Change

- **Motion perception**
  - As an object moves across a visual field it stimulates different areas of the retina at different times. Your brain takes the viewer's motion into account by monitoring your head and eye movements and subtracting them from the retinal image.

- **Perceiving Change**
  - Focused attention is critical for binding together the features of objects and necessary for detecting changes to objects and scenes.
The auditory system pathway of the neural signal:

- Auditory nerve → thalamus → primary auditory cortex

- Frequency = pitch
- Amplitude = loudness
- Complexity = timbre
QUICK REST
or
TRY QUESTION 5
RESEARCH METHODS

▷ Types of studies
▷ Some key terms
▷ Correlational Design and Experimental Design
▷ Internal and External validity
Types of studies

Non-Experimental
- Case Studies
- Observation
- Correlation

Experimental

Quasi-Experimental
Some Key Terms

- **Operational Definition**: Concrete way to measure an abstract concept.

- **Independent Variable**: The variable that is manipulated.

- **Dependent Variable**: The variable that is measured.
Correlational Design

- No manipulation, just measurement of variables.
- **Correlation ≠ Causation** (use terms like 'associated', not 'caused').
- ‘r’- Correlation Coefficient. Ranges from -1 to +1. Only for linear relationships.
- Indicates the magnitude and direction of the relationship.
Basic Experimental Design

**Sample** (Random Selection for external validity)

- **Condition 1** (Control group)
  - No manipulation of IV

- **Condition 2** (Experimental group)
  - IV Manipulated

**Experimental Control:** Every variable except the IV is kept constant.

- Experimental designs can make causal claims!

- **No Confounds!**
Internal Validity

- **Internal Validity**: Ability to infer that the IV *causes* the DV.

  - Covariation, temporal precedence and elimination of other explanations.

**HOW TO ACHIEVE INTERNAL VALIDITY??**

- Experimental Control and Random Assignment.

**THREATS TO INTERNAL VALIDITY**

- Experimenter Expectancy Effect
- Demand Characteristics
External Validity

-External Validity/ Generalisability: The extent to which the results of a study can be generalized to and across other situations, people, stimuli, and times.

-Random Selection is key for external validity. It is a technique for choosing participants that ensures every member of a population has an equal chance of being included in the sample.
Quasi Experimental Design

- Similar to experimental design as IV is manipulated and DV is measured.
- Different from experimental design as RANDOM ASSIGNMENT is not done. (leads to lesser internal validity).
- Used when random assignment is not possible.
BRAIN BREAK

or

TRY QUESTION 6
GENES AND HEREDITY

▷ heritability coefficient
▷ nature and nurture interaction
ANY QUESTIONS?
THANK YOU

& GOOD LUCK
WELLNESS RESOURCES

- Student Health Services
- UBC Wellness Centre
- UBC Counselling Services
- UBC Psychology Clinic
- SVPRO- 604-822-1588
- AMS SASC- (604) 827-5180
- BC Crisis Centre - 1-888-784-2433 (1-800-SUICIDE)
- Here2Talk
Diagrams and infographics