

Sensation and perception

- ✓ Sensation = stimulus detection & transduction; perception = interpretation (bottom-up vs top-down)
- ✓ **Thresholds:** absolute threshold (detected at least 50% of the time) and JND (Weber's law). Sensory adaptation occurs with constant stimulation
- ✓ **Vision:** retina (rods = low light; cones = color); trichromatic (3 cones) + opponent-process (afterimages). Blind spot where the optic nerve exits; prosopagnosia and blindsight possible with occipital damage
- ✓ **Hearing:** pitch theories — place, frequency, volley; localization by timing/intensity differences. Conduction vs sensorineural loss
- ✓ **Smell & taste:** smell bypasses the thalamus; taste = sweet, sour, salty, bitter, umami (plus oleogustus). Flavor = taste + smell
- ✓ **Touch/pain:** gate control theory; phantom limb pain from cortical representation
- ✓ **Perception principles:** Gestalt (figure-ground, closure, proximity, similarity), depth cues (binocular: disparity/convergence; monocular cues), constancies, attention (selective/cocktail-party; change/inattentional blindness)

Cognition, problem solving, and biases

- ✓ Concepts, prototypes, schemas; assimilation vs accommodation (schema change)
- ✓ **Problem solving:** algorithms (guaranteed) vs heuristics (fast, error-prone). Functional fixedness and mental set can block solutions
- ✓ **Heuristics/biases:** availability, representativeness, gambler's fallacy, sunk cost, framing/priming effects, overconfidence, confirmation bias

Learning (conditioning and reinforcement)

- ✓ **Classical conditioning:** UCS → UCR; pair CS with UCS → CS → CR
- ✓ **Concepts:** acquisition, extinction, spontaneous recovery, generalization, discrimination, higher-order conditioning, taste aversion, counterconditioning
- ✓ **Operant conditioning:** behavior shaped by consequences. Reinforcement (+/-) increases behavior; punishment (+/-) decreases it. Primary vs secondary reinforcers
- ✓ **Schedules:** continuous vs partial (fixed/variable ratio & interval) — VR = high steady rates, FI = scalloped responding
- ✓ **Other:** shaping, instinctive drift, learned helplessness, superstitious behavior; habituation (non-associative)

Memory

- ✓ **Memory systems:** sensory (iconic/echoic) → short-term/working (central executive, phonological loop, visuospatial sketchpad) → long-term (explicit: episodic/semantic; implicit: procedural)
- ✓ **Encoding:** shallow → deep (semantic = best); LTP = physiological basis of strengthening. Use mnemonics, chunking, the spacing effect
- ✓ **Serial position:** primacy (long-term) & recency (short-term)
- ✓ **Retrieval:** recall vs recognition; context/state/mood-dependent memory; the testing effect & metacognition boost retention
- ✓ **Forgetting causes:** encoding failures, decay, interference (proactive/retroactive), retrieval failure, misinformation effect, source amnesia