Major Fields of Contemporary Psychology — Study Notes

Overview

Contemporary psychology is a diverse discipline unified by the scientific study of behavior and mental processes. It is typically divided into **basic research fields** (discovering fundamental principles) and **applied fields** (solving practical problems). The APA recognizes numerous divisions, but introductory courses (like PSYC 1101) focus on the core areas below.

I. Basic Research Fields

1. Biological Psychology / Neuroscience

- **Focus**: Physiological bases of behavior — brain, nervous system, hormones, genetics.
- **Key topics**: Neuron structure, neurotransmitters, brain regions (frontal lobe, hippocampus, amygdala), split-brain research.
- **Example question**: How does the amygdala contribute to fear responses?

2. Cognitive Psychology

- **Focus**: Internal mental processes — attention, memory, thinking, language, decision-making.
- **Key topics**: Information-processing model, problem-solving, cognitive biases (e.g., framing effects), working memory.
- **Example question**: Why do people rely on mental shortcuts (heuristics) when making decisions?

3. Developmental Psychology

- **Focus**: Physical, cognitive, and social changes across the lifespan.

- **Key topics**: Piaget's cognitive stages, Erikson's psychosocial stages, attachment, aging.
- **Example question**: How does object permanence develop in infancy?

4. Social Psychology

- **Focus**: How individuals' thoughts, feelings, and behaviors are influenced by others.
- **Key topics**: Conformity, obedience, attitudes, prejudice, group influence, the fundamental attribution error.
- **Example question**: Why do people conform to group pressure even when they know the group is wrong?

5. Personality Psychology

- **Focus**: Individual differences in enduring patterns of thinking, feeling, and behaving.
- **Key topics**: Trait theories (Big Five), psychodynamic perspectives, humanistic approaches, personality assessment.
- **Example question**: What are the stable traits that predict behavior across situations?

6. Learning Psychology (often grouped with Cognition)

- **Focus**: How behavior changes through experience.
- **Key topics**: Classical conditioning (Pavlov), operant conditioning (Skinner), observational learning (Bandura).
- **Example question**: How do reinforcement and punishment shape behavior?

II. Applied and Professional Fields

7. Clinical Psychology

- **Focus**: Assessment, diagnosis, and treatment of psychological disorders.
- **Key topics**: Psychopathology (depression, schizophrenia, anxiety disorders), psychotherapy, DSM diagnostic criteria.
- **Note**: One of the largest and most visible applied fields.

8. Counseling Psychology

- **Focus**: Helping typically healthy individuals with emotional, social, and career issues.
- **Difference from clinical**: Generally addresses less severe problems and emphasizes personal growth and adjustment.

9. Industrial-Organizational (I/O) Psychology

- **Focus**: Workplace behavior and organizational effectiveness.
- **Key topics**: Employee selection, training, motivation, leadership, job satisfaction.

10. Health Psychology

- **Focus**: Interaction between psychological factors and physical health.
- **Key topics**: Stress and illness, health behaviors, coping strategies, disease prevention.

11. Forensic Psychology

- **Focus**: Psychology within the legal and criminal justice system.
- **Key topics**: Competency evaluations, eyewitness testimony, jury decision-making.

12. Sport and Exercise Psychology

- **Focus**: Psychological factors in athletic performance and physical activity.
- **Key topics**: Motivation, anxiety management, team dynamics, performance enhancement.

Other Specialized Fields

- **Educational Psychology** — learning and teaching processes in schools
- **Environmental Psychology** — how environments shape behavior and well-being
- **Quantitative Psychology** — research methods, statistics, and measurement

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III. Key Distinctions to Remember

Distinction	Description
Basic vs. Applied	Basic research seeks knowledge for its own sake; applied research solves practic problems.
Clinical vs. Counseling	Clinical typically deals with severe disorders; counseling addresses adjustment a growth issues.
Psychology vs. Psychiatry	Psychologists hold PhD/PsyD and provide therapy/testing; psychiatrists are MD who can prescribe medication.

IV. Study Tips

- **Group by function**: Memorize basic research fields first (bio, cognitive, developmental, social, personality), then applied fields.
- **Use one example per field**: Attach a concrete question or case to each field (e.g., amygdala → fear) to aid recall.
- **Watch for overlaps**: Learning is often taught within cognitive psychology; clinical and counseling are frequently confused — know the distinction.
- **Exam focus**: Be able to match a research question to its correct field (e.g., "How does peer pressure affect risk-taking?" → social psychology).

Fundamental Principles of Psychology — Study Notes

Overview

The emphasis of PSYC 1101 is on psychology as a **science** — understanding the fundamental principles that govern behavior and mental processes. These principles rest on the scientific method, the biological bases of behavior, and core psychological processes. Below are the foundational principles organized by module.

I. Psychology as a Science: Core Principles

Principle 1: Psychology Relies on Empirical Evidence

- Knowledge comes from **systematic observation and experimentation**, not intuition or common sense.
- **Scientific method steps**: Formulate a hypothesis → design the study → collect and analyze data → draw conclusions → replicate.
- **Theory vs. hypothesis**: A theory is a broad explanation; a hypothesis is a testable prediction derived from it.

Principle 2: Research Design Determines What Can Be Concluded

- **Experiment**: Manipulates an **independent variable (IV)** to measure its effect on a **dependent variable (DV)**; uses **random assignment** to establish causation.
- **Correlational study**: Measures the relationship between variables; **correlation does not imply causation**.
- **Random assignment vs. random sampling**: Assignment = placing participants into conditions; sampling = selecting participants from a population.
- **Key principle**: Only well-controlled experiments support causal claims.

Principle 3: Ethics Govern Psychological Research

- Informed consent, confidentiality, minimizing harm, debriefing, and institutional review (IRB) approval.

II. Biological Principles of Behavior

Principle 4: Behavior Has a Biological Basis

- **Neurons** transmit signals via electrical impulses and **neurotransmitters** across synapses.
- Key neurotransmitters: dopamine (reward/movement), serotonin (mood), acetylcholine (memory/muscle).
- **Principle**: All thoughts, feelings, and behaviors arise from nervous system activity.

Principle 5: Brain Structure Relates to Function

- **Frontal lobe** — planning, decision-making, motor control
- **Parietal lobe** — somatosensory processing
- **Temporal lobe** — hearing, language comprehension
- **Occipital lobe** — vision
- **Limbic system**: amygdala (emotion/fear), hippocampus (memory formation), hypothalamus (motivation/regulation)
- **Principle**: Localized brain damage produces predictable functional deficits (evidence from lesion and imaging studies).

III. Principles of Sensation and Perception

Principle 6: Sensation and Perception Are Distinct Processes

- **Sensation** = detection of physical energy by sensory receptors.
- **Perception** = brain's organization and interpretation of sensory input.
- **Absolute threshold**: minimum stimulus detectable 50% of the time; **difference threshold (JND)**: smallest detectable change.

Principle 7: Perception Is Constructive

- **Bottom-up processing** starts from sensory data; **top-down processing** uses experience, context, and expectations.
- **Principle**: Perception is an active construction, not a passive recording — demonstrated by illusions and perceptual sets.

IV. Principles of Learning

Principle 8: Behavior Is Shaped by Experience

- **Classical conditioning (Pavlov)**: A neutral stimulus paired with an unconditioned stimulus becomes a conditioned stimulus, eliciting a conditioned response. Concepts: acquisition, extinction, spontaneous recovery, generalization, discrimination.
- **Operant conditioning (Skinner)**: Behavior is shaped by consequences — **reinforcement** increases behavior; **punishment** decreases it. Positive = adding a stimulus; negative = removing one.
- **Observational learning (Bandura)**: Learning occurs by watching models — demonstrated by the Bobo doll experiment.
- **Principle**: Consequences and associations are the mechanisms of learned behavior.

V. Principles of Memory

Principle 9: Memory Is a Multi-Stage Process

- **Information-processing model**: Sensory memory → short-term/working memory → long-term memory.
- **Encoding, storage, retrieval** are distinct stages; failure at any stage produces forgetting.
- **Principle**: Memory is reconstructive, not a perfect recording — evident in false memories and the misinformation effect.

VI. Principles of Motivation and Emotion

Principle 10: Behavior Is Motivated

- Motivation arises from biological needs (hunger, thirst) and psychological needs (achievement, affiliation).
- **Drive-reduction theory**: Departure from homeostasis creates a drive that motivates behavior to restore balance.

Principle 11: Emotion Involves Physiological, Cognitive, and Behavioral Components

- Major theories: **James-Lange** (physiology → emotion), **Cannon-Bard** (simultaneous), **Schachter-Singer two-factor** (arousal + cognitive label → emotion).
- **Principle**: Emotion is not reducible to a single component — physiology, cognition, and expression interact.

VII. Principles of Thinking and Intelligence

Principle 12: Thinking Relies on Concepts and Heuristics

- Concepts and prototypes organize knowledge; **heuristics** (mental shortcuts) enable fast but error-prone decisions (availability, representativeness).
- **Principle**: Human cognition is efficient but systematically biased (e.g., confirmation bias, framing effects).

Principle 13: Intelligence Is Multidimensional

- Theories: Spearman's *g*, Gardner's multiple intelligences, Sternberg's triarchic theory.
- **Principle**: Intelligence is measured statistically (IQ) but reflects multiple abilities; test reliability and validity are essential.

VIII. Principles of Development

Principle 14: Development Is Lifespan, Sequential, and Multidimensional

- **Piaget**: cognitive development proceeds through invariant stages (sensorimotor, preoperational, concrete operational, formal operational).
- **Erikson**: psychosocial development continues across eight stages through the lifespan.
- **Principle**: Development results from interaction of biology and environment (nature × nurture), and early experiences matter but are not destiny.

IX. Principles of Personality

Principle 15: Personality Is Relatively Stable Yet Situationally Influenced

- **Trait theory (Big Five: OCEAN)** — openness, conscientiousness, extraversion, agreeableness, neuroticism.
- **Principle**: Individual differences are measurable, stable over time, and predict behavior, but situations also shape expression.

X. Principles of Psychopathology and Intervention

Principle 16: Psychological Disorders Are Patterns of Dysfunction

- Defined by **deviance, distress, dysfunction, and danger**; diagnosed via standardized criteria (DSM).
- **Principle**: Disorders reflect biological, psychological, and social factors (**biopsychosocial model**), not personal weakness.

Principle 17: Interventions Are Evidence-Based

- Major approaches: **psychodynamic, cognitive-behavioral (CBT), humanistic, biological (medication)**.
- **Principle**: Treatment effectiveness is evaluated empirically; psychotherapy and medication are often combined.

XI. Principles of Stress and Health

Principle 18: Stress Affects Physical and Mental Health

- **General Adaptation Syndrome (Selye)**: alarm → resistance → exhaustion.
- Chronic stress impairs immune function and increases disease risk.
- **Principle**: Psychological states influence physiological health (mind–body connection); coping strategies moderate effects.

XII. Principles of Social Psychology

Principle 19: Behavior Is Shaped by Social Context

- **Fundamental attribution error**: overestimating personal traits, underestimating situational factors.
- **Conformity (Asch)** and **obedience (Milgram)** demonstrate situational power over behavior.
- **Principle**: The situation often predicts behavior better than personality — social influence is powerful and often underestimated.

Summary Table: The Big Principles

Domain	Core Principle

Domain	Core Principle
Science	Empirical evidence and research design determine valid conclusions
Biology	Behavior arises from nervous system activity; brain structure → function
Sensation/Perception	Perception is an active, constructive interpretation
Learning	Consequences and associations shape behavior
Memory	Memory is multi-stage and reconstructive
Motivation/Emotion	Behavior is motivated; emotion integrates physiology + cognition
Cognition	Thinking uses heuristics; intelligence is multidimensional
Development	Lifespan change results from nature × nurture interaction
Personality	Traits are stable but situationally moderated
Psychopathology	Disorders are biopsychosocial patterns; treatment is evidence-based
Health	Mind and body interact; stress affects health
Social	Situations powerfully shape behavior

Study Tips

- **Master the "big principles" first** (science, biology, learning, memory, social influence) — exam questions often test application, not definition recall.
- **Attach one classic study to each principle** (Pavlov → classical conditioning; Milgram → obedience; Piaget → stages) for stronger recall.
- **Distinguish concept pairs**: sensation vs. perception; classical vs. operant conditioning; correlation vs. causation; random assignment vs. random sampling.

- **Practice application**: For each principle, write a real-life example — this is the most common exam format in PSYC 1101.

Research Design, Organization and Operation of the Nervous System, and Sensation — Study Notes

Overview

This module covers three foundational areas: (1) how psychologists design research to draw valid conclusions, (2) the structure and function of the nervous system, and (3) how sensory systems detect environmental stimuli. These topics form the scientific and biological backbone of PSYC 1101.

I. Research Design

1. The Scientific Method

Psychology is a science because it relies on **systematic observation, testable hypotheses, and replication**.

Steps:

1. Formulate a research question
2. Develop a **hypothesis** (testable prediction)
3. Design the study
4. Collect and analyze data
5. Draw conclusions
6. Replicate and report

Theory vs. Hypothesis:

- **Theory** — a broad explanation of phenomena (e.g., working memory model)
- **Hypothesis** — a specific, testable prediction derived from a theory

2. Types of Research Designs

Design	Purpose	Key Feature	Limitation
Descriptive (case study, observation, survey)	Describe behavior	Rich detail	No causation; observer bias
Correlational	Measure relationship between variables	Correlation coefficient (r: −1 to +1)	**Correlation ≠ causation**
Experimental	Establish cause and effect	Manipulation + random assignment	Artificial settings

3. Key Experimental Concepts

- **Independent variable (IV)** — manipulated by the researcher
- **Dependent variable (DV)** — measured outcome
- **Experimental group** — receives treatment; **control group** — baseline comparison
- **Random assignment** — placing participants into conditions by chance (controls confounding variables, enables causal claims)
- **Random sampling** — selecting participants from a population (affects generalizability)
- **Confounding variable** — an uncontrolled factor that may explain results
- **Placebo effect** — improvement due to expectation, not treatment
- **Double-blind procedure** — neither participants nor researchers know condition assignment

4. Correlation

- **Positive correlation**: variables move in the same direction
- **Negative correlation**: variables move in opposite directions
- **Zero correlation**: no relationship
- **Critical principle**: Correlation does not establish causation — a third variable may underlie both.

5. Ethics in Research

- Informed consent
- Confidentiality
- Minimizing harm
- Debriefing
- IRB (Institutional Review Board) approval

II. Organization and Operation of the Nervous System

1. Levels of Organization

Central Nervous System (CNS) — brain and spinal cord
Peripheral Nervous System (PNS) — all nerves outside CNS

- **Somatic nervous system** — voluntary movement, sensory input
- **Autonomic nervous system** — involuntary functions
  - **Sympathetic** — arousal, "fight or flight"
  - **Parasympathetic** — calming, "rest and digest"

2. The Neuron

The basic unit of the nervous system.

Structure:

- **Dendrites** — receive signals
- **Cell body (soma)** — integrates information
- **Axon** — transmits electrical impulse
- **Myelin sheath** — insulates axon, speeds transmission
- **Axon terminals** — release neurotransmitters
- **Synapse** — gap between neurons

Operation:

- **Resting potential** — neuron at rest (inside negative relative to outside)

- **Action potential** — electrical impulse triggered when threshold is reached ("all-or-none")
- **Neurotransmitters** — chemical messengers crossing the synapse
  - Dopamine — reward, movement
  - Serotonin — mood, sleep
  - Acetylcholine — memory, muscle contraction
  - Norepinephrine — arousal
  - GABA — inhibition
- **Reuptake** — reabsorption of neurotransmitters by the sending neuron

3. Brain Structures and Functions

Hindbrain:

- **Medulla** — breathing, heart rate
- **Pons** — sleep, arousal
- **Cerebellum** — coordination, balance, motor learning

Midbrain:

- **Reticular formation** — arousal, alertness

Forebrain:

- **Thalamus** — sensory relay station
- **Hypothalamus** — motivation, temperature, hunger, endocrine regulation
- **Limbic system:**
  - **Amygdala** — emotion, especially fear
  - **Hippocampus** — memory formation
- **Cerebral cortex** — higher-order processing
  - **Frontal lobe** — planning, decision-making, motor control, personality
  - **Parietal lobe** — somatosensory processing
  - **Temporal lobe** — hearing, language comprehension
  - **Occipital lobe** — vision
- **Corpus callosum** — connects the two hemispheres

4. Hemispheric Specialization

- **Left hemisphere** — language, logic, sequential processing (in most people)
- **Right hemisphere** — spatial ability, emotion, holistic processing
- **Split-brain research (Sperry)** — revealed lateralized functions when the corpus callosum is severed

5. Key Principles

- All behavior arises from nervous system activity.
- Localized brain damage produces predictable deficits (lesion and imaging evidence).
- The nervous system operates through electrochemical transmission.

III. Sensation

1. Sensation vs. Perception

- **Sensation** — detection of physical energy by sensory receptors (bottom-up, raw data)
- **Perception** — organization and interpretation of sensory input by the brain (top-down, meaning)
- **Principle**: Sensation is the input; perception is the constructed experience.

2. Thresholds

- **Absolute threshold** — minimum stimulus intensity detectable 50% of the time
- **Difference threshold (just noticeable difference, JND)** — smallest detectable change between two stimuli
- **Weber's law** — the JND is a constant proportion of the original stimulus intensity
- **Signal detection theory** — detection depends on both stimulus strength and the observer's state (attention, motivation)
- **Sensory adaptation** — diminished sensitivity with constant stimulation

3. The Sensory Systems

Vision:

- **Stimulus**: light waves
- **Receptors**: rods (dim light, black/white) and cones (color, detail) in the retina
- **Pathway**: retina → optic nerve → thalamus → occipital lobe
- **Key concepts**: trichromatic theory (color via three cone types), opponent-process theory (red-green, blue-yellow pairs)

Hearing (Audition):

- **Stimulus**: sound waves (frequency = pitch; amplitude = loudness)
- **Receptors**: hair cells in the cochlea
- **Pathway**: ear → auditory nerve → thalamus → temporal lobe
- **Theories**: place theory (high frequencies), frequency theory (low frequencies)

Touch (Somatosensation):

- Receptors in skin for pressure, temperature, pain
- **Gate-control theory of pain** — pain signals can be modulated by neural "gates" (explains why distraction reduces pain)

Chemical Senses:

- **Taste (gustation)** — taste buds; basic tastes: sweet, sour, salty, bitter, umami
- **Smell (olfaction)** — olfactory receptors; direct pathway to the limbic system (explains strong emotional memories tied to smells)

Balance (Vestibular sense):

- Semicircular canals and vestibular sacs in the inner ear — detect head position and movement

4. Key Principles

- Sensory receptors are **stimulus-specific** (transduction converts energy into neural signals).
- Sensation follows **threshold principles** (absolute threshold, JND, adaptation).
- Sensory input is **encoded** — different systems extract different features (color, pitch, pressure).
- Bottom-up sensory data are combined with top-down expectations in perception.

Summary Table

Area	Core Concept	Must-Know
Research design	Causation requires manipulation + random assignment	IV vs. DV; correlation ≠ causation
Nervous system	Electrochemical transmission	Neuron parts; sympathetic vs. parasympathetic
Brain	Localization of function	Frontal lobe, hippocampus, amygdala, thalamus
Sensation	Transduction of stimulus energy	Absolute threshold, JND, rods/cones, ga control theory

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Study Tips

- **Research design**: Practice identifying IV and DV in sample scenarios — this is heavily tested.
- **Nervous system**: Draw and label a neuron from memory; create a brain-region → function matching table.
- **Sensation**: Use the "stimulus → receptor → pathway → brain area" template for each sense (vision, hearing, touch, taste, smell).
- **Distinguish pairs**: sensation vs. perception; absolute vs. difference threshold; sympathetic vs. parasympathetic; rods vs. cones.
- **Application focus**: Exams often present a scenario and ask which brain region, research design, or sensory principle applies — practice this format.

Perception, Learning and Memory, and Motivation — Study Notes

Overview

This module covers four interconnected areas: how we organize and interpret sensory information (**perception**), how experience changes behavior (**learning**), how information is encoded and retrieved (**memory**), and what drives behavior (**motivation**). Together they explain how organisms take in information, adapt, remember, and pursue goals.

I. Perception

1. Perception vs. Sensation

- **Sensation** — detection of physical energy by sensory receptors (raw input)
- **Perception** — the brain's organization and interpretation of sensory information (meaningful experience)
- **Principle**: Perception is an active construction, not a passive recording.

2. Processing Approaches

- **Bottom-up processing** — starts with sensory data; builds perception from features
- **Top-down processing** — uses experience, expectations, context, and knowledge to interpret input
- **Principle**: Most perception involves both simultaneously.

3. Perceptual Organization (Gestalt Principles)

The brain organizes stimuli into meaningful wholes ("the whole is greater than the sum of its parts"):

- **Figure–ground** — distinguishing object from background
- **Proximity** — near objects grouped together
- **Similarity** — similar objects grouped together
- **Continuity** — perceived as continuous lines/patterns
- **Closure** — filling in gaps to perceive complete forms

- **Common fate** — objects moving together grouped together

4. Depth Perception

- **Binocular cues** (require both eyes):
  - **Retinal disparity** — slight difference between images on each retina
  - **Convergence** — eye muscles turn inward for near objects
- **Monocular cues** (one eye):
  - **Linear perspective** — parallel lines converge in distance
  - **Relative size**, **interposition (overlap)**, **texture gradient**, **height in visual field**
- **Visual cliff** research — depth perception appears in infancy

5. Perceptual Constancies

- **Size constancy** — objects appear the same size despite distance
- **Shape constancy** — objects appear the same shape despite angle
- **Color constancy** — colors appear stable under different lighting
- **Principle**: Perception stabilizes the world despite changing sensory input.

6. Perceptual Set and Illusions

- **Perceptual set** — expectations and context bias what we perceive
- **Illusions** (e.g., Müller-Lyer) demonstrate that perception is constructive and can be systematically wrong

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II. Learning

1. Definition

Learning — a relatively permanent change in behavior or mental processes resulting from experience.

2. Classical Conditioning (Pavlov)

Learning through **association** between stimuli.

Key terms:

- **Unconditioned stimulus (US)** — naturally elicits a response (food)
- **Unconditioned response (UR)** — natural reaction (salivation)
- **Conditioned stimulus (CS)** — neutral stimulus paired with US (bell)
- **Conditioned response (CR)** — learned reaction to CS (salivation to bell)

Processes:

- **Acquisition** — learning the association
- **Extinction** — CR fades when CS is repeatedly presented without US
- **Spontaneous recovery** — CR reappears after a pause
- **Generalization** — responding to similar stimuli
- **Discrimination** — responding only to the specific CS
- **Application**: fear conditioning, taste aversion (Garcia effect)

3. Operant Conditioning (Skinner)

Learning through **consequences** of behavior.

Key concepts:

- **Reinforcement** — increases behavior
  - **Positive reinforcement** — adding a pleasant stimulus (reward)
  - **Negative reinforcement** — removing an unpleasant stimulus (escape/avoidance)
- **Punishment** — decreases behavior
  - **Positive punishment** — adding an unpleasant stimulus
  - **Negative punishment** — removing a pleasant stimulus (e.g., taking away privileges)
- **Shaping** — reinforcing successive approximations of a target behavior
- **Schedules of reinforcement**:
  - **Continuous** — every response reinforced (fast learning, fast extinction)
  - **Partial/intermittent** — some responses reinforced (slower learning, greater resistance to extinction)
  - **Ratio** (based on responses) vs. **interval** (based on time); **fixed** vs. **variable**

Principle: Consequences shape behavior; reinforcement strengthens, punishment suppresses.

4. Observational Learning (Bandura)

- Learning by watching **models** — demonstrated by the **Bobo doll experiment**
- **Four processes**: attention → retention → reproduction → motivation
- **Principle**: We learn without direct reinforcement through modeling.

5. Cognitive Learning

- **Latent learning (Tolman)** — learning without reinforcement, revealed when needed
- **Insight learning** — sudden problem-solving understanding
- **Principle**: Learning can be cognitive and internal, not only behavioral.

III. Memory

1. The Information-Processing Model

- **Encoding** — converting information into a form stored in memory
- **Storage** — maintaining information over time
- **Retrieval** — accessing stored information
- **Principle**: Forgetting can result from failure at any of the three stages.

2. Memory Stores

Store	Duration	Capacity	Encoding
Sensory memory	< 1–3 seconds	Large	Sensory (iconic/echoic)
Short-term/working	~15–30 seconds	7 ± 2 items	Mostly acoustic

Store	Duration	Capacity	Encoding
memory		(Miller)	
Long-term memory	Relatively permanent	Essentially unlimited	Semantic (meaning-based)

Working memory — active manipulation of information (Baddeley's model: phonological loop, visuospatial sketchpad, central executive)

3. Types of Long-Term Memory

- **Explicit (declarative)** — conscious recall
  - **Episodic** — personal events
  - **Semantic** — facts and concepts
- **Implicit (nondeclarative)** — unconscious
  - **Procedural** — skills and habits
  - **Priming** — prior exposure facilitates processing

4. Encoding Strategies

- **Levels of processing** — deeper (semantic) processing produces better memory than shallow (structural/phonemic)
- **Elaborative rehearsal** — linking new information to existing knowledge
- **Maintenance rehearsal** — repetition (weaker)
- **Chunking** — grouping items into meaningful units
- **Mnemonics** — memory aids (acronyms, imagery)
- **Spacing effect** — distributed practice beats massed practice

5. Retrieval

- **Recall** — retrieving without cues
- **Recognition** — identifying from options
- **Retrieval cues** — reminders that aid access
- **Context-dependent memory** — better recall in the same context
- **State-dependent memory** — better recall in the same physiological state

- **Serial position effect** — primacy (first items) and recency (last items) remembered best

6. Forgetting

- **Encoding failure** — information never stored
- **Storage decay** — memory traces fade (Ebbinghaus forgetting curve)
- **Retrieval failure** — information stored but inaccessible
- **Interference**:
  - **Proactive** — old memories interfere with new
  - **Retroactive** — new memories interfere with old
- **Motivated forgetting** — repression (Freudian concept, debated)
- **Memory is reconstructive** — false memories and the **misinformation effect (Loftus)** show memory is not a perfect recording

7. Biology of Memory

- **Hippocampus** — crucial for forming new explicit memories (case of H.M.)
- **Amygdala** — emotional memories
- **Cerebellum and basal ganglia** — procedural memory
- **Long-term potentiation (LTP)** — strengthening of synaptic connections, cellular basis of learning

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IV. Motivation

1. Definition

Motivation — the forces that initiate, direct, and sustain behavior toward goals.

2. Theories of Motivation

- **Instinct theory** — behavior driven by innate, fixed patterns (limited explanatory power)
- **Drive-reduction theory (Hull)** — biological needs create **drives** that push behavior to restore **homeostasis** (balance)

- **Arousal theory** — we seek an optimal level of arousal (Yerkes-Dodson law: moderate arousal optimizes performance; optimal level varies by task difficulty)
- **Incentive theory** — external stimuli (rewards) pull behavior
- **Maslow's hierarchy of needs** — physiological → safety → belonging → esteem → self-actualization (order debated, but useful framework)
- **Self-determination theory** — intrinsic motivation (autonomy, competence, relatedness) vs. extrinsic motivation

3. Biological Motives

- **Hunger** — regulated by hypothalamus (lateral: hunger; ventromedial: satiety), glucose levels, hormones (insulin, leptin, ghrelin)
- **Thirst** — regulated by hypothalamic osmoreceptors
- **Sexual motivation** — influenced by hormones and psychological factors

4. Psychological Motives

- **Achievement motivation** — drive to succeed and meet standards
- **Affiliation** — need for social connection
- **Intrinsic vs. extrinsic motivation** — intrinsic (internal satisfaction) often produces more sustained engagement; extrinsic rewards can undermine intrinsic motivation (overjustification effect)

5. Emotion and Motivation

- Emotions have physiological, cognitive, and behavioral components
- **Theories**: James-Lange (physiology → emotion), Cannon-Bard (simultaneous), Schachter-Singer two-factor (arousal + cognitive label)
- **Principle**: Emotion and motivation are linked — emotions energize and direct behavior.

Summary Table

Area	Core Principle	Must-Know

Area	Core Principle	Must-Know
Perception	Active construction from sensory input + expectations	Gestalt principles, depth cues, constancie
Learning (classical)	Association between stimuli	US, UR, CS, CR; extinction
Learning (operant)	Consequences shape behavior	Reinforcement vs. punishment; schedule
Memory	Multi-stage, reconstructive process	Encoding/storage/retrieval; STM vs. LTM interference
Motivation	Behavior is initiated and directed toward goals	Drive-reduction, arousal, Maslow, intrins vs. extrinsic

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Study Tips

- **Perception**: Use the "Gestalt + depth cues + constancies" trio; practice identifying which principle explains an illusion.
- **Learning**: Build a 2×2 table for reinforcement/punishment (positive/negative) — this is the most commonly tested confusion.
- **Memory**: Trace a piece of information through sensory → short-term → long-term memory; attach the case of H.M. to hippocampal function.
- **Motivation**: Memorize drive-reduction and arousal theory first, then connect Maslow as an organizing framework.
- **Cross-topic application**: Exams often combine topics (e.g., "How does reinforcement affect memory?"). Practice linking modules.

Emotion, Thinking and Intelligence, Lifespan Development, Personality, and Psychopathology — Study Notes

Overview

This module covers five core areas: the nature and components of **emotion**, how people **think and decide** under cognitive limits, how **intelligence** is conceptualized and measured, how people change across the **lifespan**, enduring patterns of **personality**, and the nature of **psychopathology**. Together they address what moves us, how we reason, how we differ, how we develop, and what goes wrong.

I. Emotion

1. Definition and Components

Emotion is a brief, event-focused, multi-component response involving:

- **Elicitation** — appraisal of a stimulus as relevant to goals
- **Response components** — action tendencies, autonomic reactions, expression, and subjective feeling

2. Major Theoretical Families

Different theories emphasize different components :

- **Basic emotion theory** — emphasizes **expression**; a small set of innate, universal emotions (e.g., happiness, sadness, fear, anger, surprise, disgust) with distinct facial expressions
- **Appraisal theories** — emphasize **cognition** in emotion elicitation; emotions arise from evaluations of events relative to goals
- **Bodily/interoceptive theories** — emphasize **autonomic reactions** (e.g., James-Lange: physiological arousal precedes and constitutes emotion)

- **Motivational theories** — emphasize **action tendencies** (what the emotion prepares you to do)
- **Constructionist theories** — emphasize **feeling** as constructed from core affect plus conceptual knowledge

3. Universal versus Cultural Aspects

- **Seven universal facial expressions** with substantial cross-cultural evidence: happiness, surprise, sadness, fear, disgust, contempt, and anger
- **Cultural display rules** govern when and how emotions are expressed; collectivist cultures often suppress negative emotional displays in public
- **Facial feedback hypothesis** — facial expressions can influence emotional experience (e.g., smiling can increase happiness)

4. Key Brain Structures

- **Amygdala** — detects motivationally relevant stimuli (not merely a "fear center"); involved in appraising relevance
- **Hippocampus** — linked to emotional processing and stress-related disorders (reduced volume in PTSD)

II. Thinking and Intelligence

1. Thinking: Judgment and Decision-Making

Human thinking is efficient but systematically biased.

Key heuristics and biases :

- **Representativeness heuristic** — judging probability by similarity to a prototype (leads to conjunction fallacy)
- **Availability heuristic** — judging likelihood by ease of recall
- **Anchoring and adjustment** — starting from an initial value and adjusting insufficiently
- **Prospect theory (Kahneman & Tversky)** — people evaluate gains and losses relative to a reference point; losses loom larger than gains; framing effects influence choices

- **Confirmation bias** — seeking information that confirms existing beliefs
- **Bounded rationality** — cognitive limits constrain optimal decision-making

Principle: Thinking relies on mental shortcuts that are often adaptive but produce predictable errors.

2. Intelligence: Definitions and Theories

Intelligence — the capacity to acquire knowledge, reason abstractly, and adapt to the environment .

Major theories:

- **Spearman's *g*** — a single general factor underlies performance on all cognitive tasks
- **Cattell-Horn-Carroll (CHC) model** — hierarchical: general ability (*g*) → broad abilities (fluid intelligence, crystallized intelligence, processing speed, etc.) → narrow abilities; the most empirically supported contemporary framework
- **Gardner's Multiple Intelligences** — at least eight independent intelligences (linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, naturalistic); influential in education but criticized for weak empirical support
- **Sternberg's Triarchic Theory** — analytical, creative, and practical intelligence; later expanded to include wisdom-based ability (successful intelligence)

Key distinction:

- **Fluid intelligence (Gf)** — ability to reason and solve novel problems (declines with age)
- **Crystallized intelligence (Gc)** — accumulated knowledge and skills (stable or increases with age)

Measurement: IQ tests are standardized, reliable, and valid predictors of academic achievement; test bias and cultural fairness remain important concerns.

III. Lifespan Development

1. Core Principles

- Development is **lifelong** — not completed at adulthood (Baltes)

- Development results from **nature × nurture interaction**
- Development is **multidimensional** (physical, cognitive, social) and **multidirectional**

2. Major Developmental Theories

Piaget's Cognitive Development — invariant stages:

- Sensorimotor → Preoperational → Concrete operational → Formal operational
- Key mechanisms: assimilation, accommodation, equilibration

Erikson's Psychosocial Development — eight sequential stages across the lifespan, each defined by a crisis between two opposing tendencies (e.g., trust vs. mistrust in infancy; identity vs. role confusion in adolescence)

Attachment Theory (Bowlby & Ainsworth) — early infant–caregiver attachment provides a "secure base"; secure attachment predicts more favorable long-term outcomes, insecure attachment predicts adverse outcomes

Bronfenbrenner's Ecological Systems Theory — development occurs within nested systems (microsystem, mesosystem, exosystem, macrosystem, chronosystem)

3. Key Themes

- **Critical/sensitive periods** — certain experiences have stronger effects at specific times
- **Continuity vs. discontinuity** — gradual change vs. stage-like change
- **Stability vs. change** — which traits persist and which shift across the lifespan

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IV. Personality

1. Definition

Personality — relatively enduring patterns of thinking, feeling, and behaving that distinguish individuals.

2. Major Theoretical Perspectives

Trait Theory (Big Five / Five-Factor Model) — the dominant contemporary framework :

- **O**penness to experience
- **C**onscientiousness
- **E**xtraversion
- **A**greeableness
- **N**euroticism
- Each factor has facets (e.g., Extraversion includes warmth, gregariousness, assertiveness, activity, excitement-seeking, positive emotions)
- Traits are stable over time and predict important life outcomes

Psychodynamic Theory (Freud) — personality shaped by unconscious conflicts and early psychosexual stages

Humanistic Theory — emphasizes growth, self-actualization, and subjective experience

Social-Cognitive Theory (Bandura, Mischel) — personality emerges from reciprocal interaction between person, behavior, and environment; Mischel's CAPS theory emphasizes person-situation interaction

Biological/Evolutionary Theories — genetic and adaptive bases of traits; twin studies show substantial heritability for extraversion and neuroticism

3. Integrative Perspective

Modern approaches favor the **biopsychosocial model**, recognizing that personality arises from interacting biological, psychological, and social factors .

V. Psychopathology

1. Definition

Psychopathology — the manifestation of a mental disorder, involving **significant impairment, deviance, and distress** that negatively impacts personal, social, occupational, or academic functioning .

2. Key Concepts

- **Symptoms** — subjective experiences reported by the person (e.g., sadness, hallucinations)
- **Signs** — objectively observed and documented (e.g., flat affect, agitation)
- **Diagnosis** — using standardized criteria (DSM) to classify disorders

3. Major Diagnostic Categories

- **Mood disorders** (e.g., major depressive disorder, bipolar disorder)
- **Anxiety disorders** (e.g., generalized anxiety, panic disorder, phobias)
- **Schizophrenia and other psychotic disorders**
- **Substance-related disorders**
- **Somatoform disorders**
- **Factitious disorders**

4. Theoretical Models

- **Biopsychosocial model** — disorders result from interacting biological, psychological, and social factors
- **Diathesis-stress model** — genetic/biological vulnerability (diathesis) interacts with environmental stressors to produce disorder
- **Cognitive model (Ellis)** — psychopathology results from illogical, self-defeating thought patterns

5. Treatment Approaches

- **Biological** — medication (antidepressants, antipsychotics)
- **Cognitive-behavioral therapy (CBT)** — targets dysfunctional thoughts and behaviors
- **Psychodynamic** — explores unconscious conflicts
- **Humanistic** — promotes growth and self-acceptance
- **Principle**: Treatment should be evidence-based; combined approaches are often most effective.

Summary Table

Area	Core Principle	Must-Know
Emotion	Multi-component, brief, event-focused response	Basic emotion vs. appraisal theories; universal expressions
Thinking	Heuristics enable fast but biased judgments	Availability, representativeness, prospe theory
Intelligence	Multidimensional; CHC model is empirically dominant	*g*, fluid vs. crystallized, Gardner vs. Sternberg
Lifespan	Development is lifelong and multidimensional	Piaget stages, Erikson stages, attachme Bronfenbrenner
Personality	Stable traits + situational interaction	Big Five (OCEAN), trait vs. social-cognit
Psychopathology	Patterns of dysfunction with impairment/distress	Biopsychosocial model, DSM categorie diathesis-stress

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Study Tips

- **Emotion**: Focus on the five theoretical families and match each to its central component (expression, cognition, physiology, action, feeling).
- **Thinking/Intelligence**: Distinguish the heuristics from each other; know CHC as the consensus model and Gardner/Sternberg as alternatives.
- **Lifespan**: Memorize Piaget's four stages and Erikson's eight crises — these are the highest-yield exam items.
- **Personality**: Know Big Five (OCEAN) cold; be able to contrast trait theory with social-cognitive and biological perspectives.
- **Psychopathology**: Use the "4 Ds" (deviance, distress, dysfunction, danger) to identify disorder; connect each disorder category to a brief exampl