I. Introduction
A. Psychology Definition: Scientific study of behavior and mental processes and how they are affected by an organism’s physical and mental state and external environment.
B. Goals: Describe, understand, predict, and control (or modify) behavior or mental processes
C. Psychology as a Science
   1. Descriptive Studies
      a. **Case History** - description of one individual
      b. Observation
         (1) **Naturalistic** - natural environment
         (2) **Laboratory** - setting controlled by researcher
      c. **Surveys** - questionnaires and interviews
      d. Tests - must be both
         (1) **Reliable** - produce consistent results; and
         (2) **Valid** - measure what they are designed to measure
   2. **Correlational Studies** - strength of relationship between variables; does not show causation
   3. Experiment - researcher controls variable(s) to discover its effect on other variables
      a. **Independent variable** - manipulated/controlled by researcher
      b. **Dependent variable** - measured by researcher (data)
      c. **Experimental and control group** - only experimental group exposed to independent variable, otherwise treated the same
      d. Change in dependent variable caused by independent variable, since all else remained the same

II. Biological Bases of Psychology
A. Structure of the Nervous System
   1. **Central** - brain and spinal cord
   2. **Peripheral** - sensory and motor nerves which transmit information
      a. **Somatic** - control skeletal muscles
      b. **Autonomic** - regulates internal organs and glands
         (1) **Parasympathetic** - conserves energy
         (2) **Sympathetic** - expends energy
   B. Communications within Nervous System
      1. Neuron - basic unit of the nervous system
         a. **Cell body** - keeps neuron alive
         b. **Dendrites** - receive information from the other neurons
         c. **Axons** - sends information to other neurons
            (1) **Myelin** - insulates axon to enable information to be transmitted faster
      2. Communications between Neurons
         a. **Synapses** - gaps between neurons
         b. Message travels through axon to to synaptic knob on axon’s tip
         c. Synaptic vesicles open and release neurotransmitter into synaptic gap
         d. Neurotransmitter fits into receptor sites on receiving dendrite, causing it to be more or less likely to fire
   C. The Brain
      1. Hindbrain
         a. **Medulla**, pons, reticular activating system, cerebellum
         b. Responsible for reflective automatic behavior
      2. **Midbrain** - information conduit
      3. **Forebrain**
         a. **Thalamus** - directs sensory messages
         b. **Hypothalamus** - emotion and survival drives
         c. **Pituitary gland** - controls many other endocrine glands
         d. **Cerebral cortex**
            (1) **Occipital lobes** - vision
            (2) **Parietal lobes** - sensory information
            (3) **Temporal lobes** - processes sounds
(4) **frontal lobes** - motor movements

4. Two brain hemispheres
   a. Each one controls opposite side of body
   b. Left hemisphere dominant for most people

III. Sensation and Perception

A. Sensation - awareness of physical changes

B. Measuring Sensation
   1. **Absolute threshold** - detection of signal 50% of the time
   2. **Difference threshold** - (j.n.d. - just noticeable difference)
      a. Difference in sensation detectable 50% of the time
      b. **Weber's law** - change necessary for j.n.d. is a proportion of original stimulus

C. The Eye
   1. Light enter through the **cornea**
   2. **Lens** focuses light on the retina
   3. **Retina** - at the back of the eyeball
      a. **Rods** - responds to dim light
      b. **Cones** - responds to color
      c. **Fovea** - center of retina, contains only cones, site where vision is sharpest

D. The Ear
   1. **Outer Ear** - collects sound waves
   2. **Middle Ear** - waves strike eardrum which passes them to three tiny bones which intensify the force of the vibrations
   3. **Inner Ear** - contains receptor cells (hair cells) located within the cochlea which initiate nerve impulses which travel to the brain

E. Taste
   1. Four basic tastes - **salty, sour, bitter, and sweet** - each associated with different receptors or taste buds

F. Smell
   1. Receptors in mucous membrane of nasal passage

G. Skin senses
   1. **Touch (pressure), warmth, cold, and pain**

H. Perception: Organization and interpretation of sensations
   1. World seen as constant, although the sensations may change
   2. Needs, beliefs, emotions and expectations all influence perception

IV. Consciousness

A. Sleep Rhythms
   1. REM - rapid eye movements
   2. Stages of brain waves
      a. **Alpha Waves** - regular high-amplitude, low frequency wave
      b. **Stage 1** - small, irregular brain waves: light sleep
      c. Stage 2 - bursts of sleep spindles
      d. Stage 3 - delta waves: deep sleep
      e. **Stage 4** - extremely deep sleep
      f. Entire cycle is 30-45 minutes and then reverses

B. Wakefulness
   1. Conscious processes
   2. Subconscious process - can be brought into consciousness when necessary
   3. Nonconscious process - remain outside awareness but influence behavior

C. Altered States
   1. **Meditation** - eliminate distracting thoughts
   2. Psychoactive drugs - influence perception, thinking or behavior amphetamines
      a. **Stimulants** - speed up nervous system activity - cocaine, amphetamines
      b. **Depressants** - slow central nervous system activity - alcohol, tranquilizers
      c. **Opiates** - relieve pain and produce euphoria - opium, morphine, heroin
      d. **Psychedelic drugs** - alter consciousness - LSD, mescaline
   3. **Hypnosis** - heightened state of suggestibility when subjects can sometimes control unconscious body functions
V. Learning

A. Classical Conditioning
   1. Pavlov’s Studies
      a. Unconditioned stimulus (UCS) - food - elicits an unconditioned response (UCR) - salivation
      b. Pair neutral stimulus - tone - with UCS - food
      c. Neutral stimulus becomes conditioned stimulus (CS) - tone - which elicits conditioned response (CR) - salivation
   2. Principles of classical conditioning
      a. Extinction - when the CS is not presented with the UCS, it will diminish
      b. Stimulus generalization - similar stimuli may elicit the same response as the CS
      c. Stimulus discrimination - different responses are made to stimuli which are similar to the CS

B. Operant Conditioning
   1. Reinforcer (reward) - increases response probability
      a. Positive reinforcement - response followed by presentation of reinforcing stimulus
      b. Negative reinforcement - response followed by removal of unpleasant stimulus
   2. Punishment - stimulus that follows response decreases probability response will occur
   3. Principles of Operant Conditioning
      a. Extinction - response no longer reinforced
      b. Stimulus generalization - response will occur to similar
      c. Stimulus discrimination - responses do not occur to different stimuli
      d. Timing of reinforcers - the sooner a reinforcer or punisher follows an action, the greater its effect
      e. Schedules of reinforcement
         (1) Continuous reinforcement - a particular response is always reinforced
         (2) Intermittent reinforcement - reinforcing only some responses
            (a) fixed ratio (FR) - reinforcement after a fixed number of responses, high rates of responding
            (b) variable ratio (VR) - reinforcement after a average number of responses: very high, steady rates of responding
            (c) variable interval (VI) - reinforcement after a variable amount of time: low, steady rate of response
            (d) fixed interval (FI) - reinforcement after fixed amount of time: scalloped response pattern
      f. Shaping - reinforce successive approximations to the desired response

VI. Memory - ability to retain and retrieve information

A. Information Processing Theory
   1. Information must be encoded to be processed by brain
      a. Storage - retention of information
      b. Retrieval - accessing information
   2. Three memory systems
      a. Sensory - literal copy of information - held for 1-2 seconds
      b. Short-term
         (1) limited capacity -7 or -2 items
         (2) information held for about 30 seconds when it is forgotten or further encoded and placed in long-term
      c. Long-term
         (1) unlimited capacity
         (2) information stored and retrieved by category
   3. Forgetting
      a. In sensory memory - through decay
      b. In short-term memory
         (1) limited capacity subject to “filling up”
         (2) can retain information through rehearsal
            (a) maintenance (rote) rehearsal
            (b) elaborative rehearsal - associating new with old information
      c. In long-term memory
         (1) decay - information fades if not used
         (2) retrieval difficulty
            (a) interference - similar items interfere
VII. Language, Thinking and Intelligence

A. Language - Rule governed system of symbols used to represent and communicate information

1. Understanding language
   a. **Phonology** - knowledge of sounds
   b. **Semantics** - knowledge of word meanings
   c. **Syntax** - knowledge of grammatical structure
      (1) deep structure - meaning
      (2) surface structure - organization of words
   d. **Psycholinguistics** - the study of the ability to produce and understand language

2. Acquiring language
   a. Rules and strategies are innate
      (1) basic timing and sequence of language development is similar across cultures
      (2) children learn the rules of their native language, i.e., overgeneralization
   b. Particular language acquired is based on experience

3. Language and thought - language has an impact on how easily we process information

B. Thinking

1. Using concepts - apply past experiences to present thoughts
   a. **Concept** - a mental grouping of a set of objects or events on the basis of important common features
   b. Must be learned through definition or example
   c. Concepts aid in prediction and interpreting events and organizing experiences

2. Problem solving - set of information used to achieve goal
   a. Strategies
      (1) define the problem
      (2) use **algorithms** (systematic methods guaranteed to produce a solution) or
      (3) use **heuristics** (a rule that may or may not produce a solution), i.e. simplification, reasoning by analogy
   b. **Insight** - sudden understanding of solution

C. Intelligence - Capacity to acquire and use knowledge

1. Measuring intelligence
   a. **Binet** - IQ tests - mental age (as determined by a test) divided by chronological age = IQ
   b. **Wechsler** - tests include verbal, mathematical and nonverbal thinking skills
   c. Average score is 100; scores describe a bell-shaped (normal) distribution

2. Uses of IQ tests
   a. As a predictor of school success
   b. Concerns about being “culture fair”

3. Nature of intelligence - one ability or many?

4. Influence of the environment
   a. Heritability
   b. Experiences determines point within genetics range

5. Extremes of intelligence
   a. Mental retardation (IQ below 70)
      (1) Biologically based - downs syndrome, fetal alcohol syndrome
      (2) Psychosocial - disease, malnutrition, lack of intellectual stimulation
   b. Intellectually gifted - skills on one or more intellectual domains

VIII. Development

A. Definitions

1. **Learning** - influence of experience (nurture)
2. **Maturation** - unfolding of biological patterns (nature)
3. **Critical periods** - early development periods during which particular early experiences are essential
4. **Stages** - organization of behaviors and thoughts during particular early periods of development - defined by relatively abrupt change

B. Cognitive development

1. **Piaget**
   a. **Assimilation** - fit new information into what is known
b. **Accommodation** - change existing beliefs in response to new knowledge

c. Stages of development
   (1) **sensory-motor stage** (birth - 2) - object permanence
   (2) **preoperational stage** (2-7) - use of symbols and language; egocentric, lack the principles of conservation
   (3) **concrete operational stage** (7-11) - understand conservation, identity, grounded in concrete experiences
   (4) **formal operations stage** (12 - adult) - abstract reasoning

2. Language development
   a. Acquisition depends on biological readiness and experience

C. Social Development
   1. **Attachment** - emotional tie between infant and caretaker - Harlow’s monkey studies
   2. Sex typing - learning “masculine” or “feminine”
      a. Identification with the same sex parent
      b. Rewards and punishments for sex appropriate behavior

D. Moral Development
   1. **Preconventional morality** - obey because ordered to or will be punished
   2. **Conventional morality** - based on trust, loyalty or understanding social order
   3. **Postconventional morality** - laws are situational and can be changed

E. Chronological Development
   1. Newborn child
      a. **Reflexes** - automatic behaviors, rooting, sucking, swallowing, startle, etc.
      b. **Vision** - nearsighted, interested in novelty
      c. **Social skills**
         (1) smile at 4-6 weeks in response to faces
         (2) rhythmic “conversations”
   2. Adolescence
      a. **Biological development** - increased hormone production; sex organs mature, growth spurt
      b. **Intellectual development** - formal operational (abstract reasoning), independence, questioning
   3. Aging
      a. **Transition Theories** - unanticipated, anticipated, nonevent, chronic hassle
      b. **Major Milestones** - starting out, marriage or living alone, parenthood, empty nest, midlife crises, retirement, widowhood

IX. Personality - Distinctive patterns of behavior, thoughts and emotions that characterize individual’s patterns of adaptation

A. The Origins of Personality
   1. Biological and genetic influences
   2. Experience - Cultural and unique
   3. Stability and change
      a. Genetic characteristics relatively stable through life
      b. Less active, hostile and impulsive with age
      c. Personality changes as a result of life experiences

B. **Freud**
   1. Personality consists of three parts
      a. **Id** - basic biological urges; unconscious
      b. **Ego** - gratifies urges within acceptable bounds; conscious
      c. **Super ego** - conscience, values and ideals of society
   2. Psychosexual development
      a. **Oral stage** (0-1) - sucking, feeding, etc.
      b. **Anal stage** (2-3) - defecation
      c. **Phallic stage** (3-5) - sexual attraction to the opposite sex parent produces the Oedipus complex
      d. **Latency period** (5-puberty) - sexual feelings forgotten; child concentrates on skill development
      e. **Genital stage** - adult sexual relationships
   3. Anxiety - unjustified fears resolved by ego through use of defense mechanisms
      a. **Repression** - active exclusion of unconscious impulses from consciousness
      b. **Projection** - attribute to others our thoughts and feelings
c. **Reaction formation** - behavior patterns opposite to our anxiety producing urges

d. **Displacement** - redirects anxiety producing behaviors to a more acceptable target

e. **Rationalization** - substitute “good” reasons for real reasons for behavior

C. Humanistic Theories - people are rational, capable of choice and desire to achieve personal growth
   1. **Carl Rogers** - Self-concept directs behavior, conflict between real and ideal self
   2. **Abraham Maslow** - individual strives for self-actualization - fulfillment of potential

D. Social Cognitive Theory - how and under what situations thoughts and behaviors are learned

E. Consistency in Personality
   1. Trait - relatively enduring quality or characteristic
   2. Cross-situational - most central to self-concept

F. Personality Assessment
   1. Assessment methods must be:
      a. **Reliable** - same results over time
      b. **Valid** - measure what it is supposed to measure
   2. Interview
      a. Advantage - tailored to individual’s previous answers
      b. Disadvantage - low reliability
   3. Observation - times particular behavior occurs
      a. Good reliability
   4. Self-report
      a. MMPI - to diagnose psychological disorders
      b. Tem primary scales measure personality dimensions
   5. Projective techniques - individual provides an interpretation of ambiguous material
      a. **Rorschach inkbloths**
      b. **Thematic Apperception Test (TAT)**
      c. Concerns about reliability and validity since interpretations are subjective

X. Motivation and Emotion

A. Motivation - need or desire to act a certain way to achieve a goal
   1. Range of motives
      a. Physiological - hunger, thirst, pain avoidance
      b. Social - learned
      c. **Maslow** - motives organized in a hierarchy or needs - **physiological, safety, love and belonging, esteem, self-actualization**
   2. Motivational system - set of motives and behaviors that operate in a particular life area
      a. Hunger and eating
         (1) hunger signals - stomach contractions, hypothalamus, environment
         (2) food preferences - cultural, personal and biological origins
      b. Sexual motivation - hormones
      c. Work
         (1) **extrinsic motivation** - working for external reward
         (2) **intrinsic motivation** - working for pleasure of activity itself

B. Emotion
   1. Defining features of emotions - subjective experience, physiological arousal, expressive behavior, changes in cognition
   2. Inborn - people from different cultural backgrounds can identify emotions as shown in photo
   3. **James-Lange Theory** - emotion is a result of a perception of bodily changes and behaviors
   4. **Cannon-Bard Theory** - emotion is a result of perception of a stimulus which causes both physiological changes and subjective feelings
   5. **Cognitive labeling theory** - emotion is a result of the interpretation of the causes of physiological arousal
   6. **Frustration-aggression hypothesis** - aggression results from blocking of efforts to achieve a goal

XI. Stress and Health

A. Stress - Emotional and Physical Responses to Stimuli
   1. Caused by stimuli and the way those stimuli are perceived
   2. Biological reaction
      a. Fight or flight - increase heart rate, breathing, tense muscles
      b. Increased activity in the sympathetic nervous system
c. Adrenal glands secrete epinephrine (adrenalin) and norephrine

3. Coping with stress
   a. Reappraise situation
   b. Maintain control over the stressful situation

B. Psychology and Illness
   1. Heart disease
      a. Type A personalities - hard-working competitive, increased incidence of heart disease
      b. Type B personalities - easy going
   2. Cancer
      a. Exposure to carcinogens increases the risk
      b. Psychological factors influence functioning of immune system

C. Health and Social Relationships
   1. Friends - assisted coping
      a. Emotional, cognitive and tangible support
      b. Cultural differences in the value placed on friendships
   2. Friends as stress producers
      a. Contagion effect - others can exaggerate stress
      b. Friend under stress can increase your stress level
      c. Burden of caring for others can increase stress

XII. Abnormal Behavior
A. Types
   1. Statistical deviation
   2. Violation of cultural standards
   3. Maladaptive behavior
   4. Emotional distress
   5. Legal (impaired judgement and lack of self-control)

B. Anxiety Disorders
   1. Generalized anxiety disorder - chronic anxiety
   2. Phobia - fear of specific situation, activity or thing
   3. Obsessive-compulsive disorder
      a. Obsessions - recurrent thoughts
      b. Compulsions - repetitive behaviors

C. Mood Disorders (Depression and Mania)
   1. Causes
      a. Biological (brain chemistry)
      b. Social (life situations)
      c. Attachment (disturbed relationships)
      d. Cognitive (maladaptive thoughts)

D. Personality Disorder
   1. Paranoid - excessive suspiciousness
   2. Narcissistic - exaggerated sense of self-importance
   3. Antisocial - lack of social emotions

E. Dissociative Disorders - Amnesia, Multiple personalities
F. Somatoform Disorders - take the form of physical disorders

G. Psychotic Disorders
   1. Schizophrenia - bizarre delusions, hallucinations, severe emotional problems, withdrawal
      a. Family dynamics - distorted patterns of communication
      b. Biological - brain disease(s) or abnormalities in neurotransmitters
      c. Stress - combination of heredity and stress
   2. Organic brain disorders - i.e. diseases, brain injury

XIII. Treatment and Therapy
A. Medical Treatment
   1. Antipsychotic drugs (major tranquilizers) - schizophrenia
   2. Antidepressant drugs (stimulants) - mood disorders
   3. Surgery - to destroy brain areas believed responsible for emotional disorders
   4. Electroconvulsive Therapy - induces seizures used to treat major depression
B. Psychotherapy
   1. **Psychodynamic (insight) therapies** - explore the unconscious dynamics of personality
      a. **Freud**: understanding past produces insight
         (1) free association and transference
      b. **Neo-Freudians** - use Freud’s techniques, usually time limited
   2. **Behavioral therapies**
      a. **Systematic desensitization** - exposure to a hierarchy of stimuli while relaxing to decrease fears
      b. **Aversive conditioning** - punishment for unwanted behavior
      c. **Flooding** - exposure to the most feared situation
   3. **Cognitive therapy** - to correct unrealistic thinking
   4. **Humanistic therapy**
      a. **Client-centered** - Carl Rogers
         (1) build self esteem
         (2) critical qualities of the therapist - warm, genuine and honest
      b. **Gestalt - Frederick Perls** - self-actualization
   5. **Family and group therapies** - theorize that problems develop in a social context and must be dealt with in that context

C. Evaluating Therapies
   1. Therapies are less effective with serious disorders
   2. Relationship between client and therapist is critical
   3. Certain therapies are effective for certain specific problems

XIV. Social Psychology

A. **Roles** - a Social position governed by norms
   1. **Norms** - conventions by which we live
   2. Zimbardo’s Prison Study
      a. Students assigned to “guard” or “prisoner” roles
      b. Student behavior reflected their assigned roles
   3. **Milgram’s Obedience Study**
      a. Participants thought they were part of an experiment in learning
      b. “Teacher” was instructed to shock “learner” for wrong answer
      c. Majority of “teachers” complied with the instructions to administer shock

B. Social Cognition - how the social environment influences thoughts, perception and belief
   1. **Attribution** - motivation to explain behavior
      a. **Situational** - caused by the environment
      b. **Disposition** - caused by something within individual
      c. **Fundamental attribution error** - overestimate dispositional and underestimate situational causes
      d. **Self-serving bias** - use dispositional attributions for good behaviors and situational attributions to excuse our own behaviors
   2. **Stereotypes** - summary of impressions when all members of a group share common traits
   3. **Attitude** - a relatively enduring opinion including both cognitive and emotional components
      a. Attitudes and behavior influence each other
      b. **Cognitive dissonance** - when an attitude and behavior conflict we are motivated to make them consistent
   4. **Prejudice** - unjustified negative attitudes toward a group

C. **Conformity** - behavior that occurs as a result of real or imagined group pressure

D. **Obedience** - following orders from an authority

E. Individuals and Groups
   1. **Groupthink** - tendency for all group members to think alike and suppress dissent
   2. **Group polarization** - tendency of a group to take a more extreme position than those of individual members
   3. Responsibility
      a. **Diffusion of responsibility** - avoidance
      b. **Social loafing** - individual slows down to let the group shoulder the load
      c. Bystander apathy will not occur when:
         (1) perceives the need to help
         (2) decides to take responsibility
         (3) weighs the costs of helping
         (4) knows how to help