## Introduction and Research Methods

### Introduction: What is Psychology
- **Psychologist’s Origins:** The Influence of Philosophy and Physiology
  - Wilhelm Wundt: The Founder of Psychology
  - Edward B. Titchener: Structuralism
  - William James: Functionalism
  - Sigmund Freud: Psychoanalysis
  - John B. Watson: Behaviorism
  - Carl Rogers: Humanistic Psychology

### Contemporary Psychology
- Major Perspectives in Psychology
- Specialty Areas in Psychology

### The Scientific Method
- The Steps in the Scientific Method
- Systematically Seeking Answers
- Building Theories: Integrating the Findings from Many Studies

### Descriptive Research
- Naturalistic Observation: The Science of People- and animal-Watching
- Case Studies: Details, Details, Details
- Surveys: (a) Always (b) Sometimes (c) Never (d) Huh?
- Correlational Studies: Looking at relationships and making Predictions: Can Eating Curly Fries Make you Smarter?

### Experimental Research
- Experimental Design: Studying the Effects of Testing
- Experimental Controls
- Limits of Experimental and Variations in Experimental Design

### Ethics in Psychological Research
- Psych for your Life: Successful Study Techniques

### Broad Learning Objectives

In addition, you should be able to give examples and elaborate on the major concepts from the chapter.

1. Define psychology, and discuss the issues that shaped psychology’s evolution over the past century and a half, including the influence of philosophy and physiology.
2. List the four goals of psychology, and explain the scientific assumptions and attitudes of psychologists.
3. Describe the roles played by Wilhelm Wundt and William James in the establishment of psychology as a separate scientific discipline.
4. Identify the founders of structuralism and functionalism, and compare and contrast their key ideas and goals.
5. Identify four early American psychologists who were students of William James or Edward Titchener, and list their contributions to the development of psychology.
6. Identify the founder of psychoanalysis, and describe the key ideas of this school of psychological thought.
7. List three key scientists in the development of behaviorism, and describe behaviorism’s basic assumptions and goals.
8. Identify two advocates of humanistic psychology, and note how humanistic psychology differs from behaviorism and psychoanalysis.
9. List and describe the eight major perspectives in contemporary psychology.
10. Explain how cross-cultural psychology, and distinguish between individualistic and collectivistic cultures.
11. Explain the basic assumptions of the evolutionary perspective.
12. List the specialty areas in contemporary psychology, describe the focus of each, and distinguish between psychology and psychiatry.
13. Describe the scientific method, list the four steps involved, and explain what empirical evidence is. Specify the difference between a hypothesis and a theory, and explain the importance of operational definitions, replication, and statistics. Define meta-analysis, state what it is used for, and explain what a statistically significant finding is.
14. Define the term pseudoscience, and explain how to recognize and evaluate pseudoscientific claims.
15. Define descriptive research, and describe how naturalistic observation and case studies are conducted. Describe survey research, and list the criteria that must be met for survey results to be valid.
16. Define correlation coefficient, explain the difference between positive and negative correlations, and describe the functions and limitations of correlational research.
17. Discuss the process in the experimental method. Define and explain the function of the independent variable, dependent variable, confounding variable, experimental controls, experimental group, and control group in an experiment.
18. Define placebo, placebo effect, and main effect and explain the purpose of random assignment, the double-blind technique, the control group or control condition, and how demand characteristics and practice effects can influence experimental results.
19. Describe and discuss the variations and limitations of the experimental method, and describe a natural experiment (How to Think Like a Scientist) Understand the importance of being able to engage in critical thinking both inside and outside the classroom—actively questioning claims, rather than blindly accepting them. Define critical thinking.
20. Describe and discuss the major provisions of the APA’s code of ethics for research with human participants and nonhuman animal subjects. List and discuss the issues related to the use of animals in psychological research.
21. Discuss and apply the various study techniques that are based on empirical data.

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**Grey = not on any exam**  
**Bold = prepare for the final exam**

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<td>1. Define biological psychology and neuroscience, and explain why psychologists study the biological basis of behavior.</td>
<td>2. Describe the functions of neurons and glial cells, and distinguish among the three types of neurons.</td>
<td>8. Describe the functions of the two major components of the central nervous system, and explain how spinal reflexes work.</td>
<td>12. Discuss how the pseudoscience called “phrenology” evolved, and how it ultimately helped advance the idea of cortical localization.</td>
<td>19. (Critical Thinking) Describe the differences in male and female brains, and explain what these differences do and do not mean.</td>
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<td>3. Identify characteristics of the neuron, describe the action potential, and explain the processes that take place within the neuron when it is activated.</td>
<td>9. Identify the divisions and subdivisions of the peripheral nervous system, and describe their functions.</td>
<td>10. Describe the general functions of the endocrine system, and explain how hormones influence human behavior.</td>
<td>13. (Focus on Neuroscience) Describe the goals of the Human Connectome Project, the diffusion-spectrum imaging technique, and the challenges faced by the project.</td>
<td>20. State what cortical localization is, and explain how the findings of Broca and Wernicke provided early clinical evidence for lateralization of function, the development of different types of aphasia, and language specialization in the left hemisphere.</td>
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<td>4. Explain how information is communicated between neurons, and distinguish between excitatory and inhibitory messages.</td>
<td>11. Identify the functions of the major endocrine glands, and explain the relationship between the hypothalamus and the endocrine glands.</td>
<td>14. Discuss the importance of neural pathways in the brain, distinguish between functional and structural plasticity, and explain neurogenesis.</td>
<td>15. (Focus on Neuroscience) Summarize the research involving juggling and brain plasticity, and explain how learning a new motor skill affects the adult brain.</td>
<td>21. Describe the work of Roger Sperry, discuss the split-brain operation, and explain how it provided evidence for the differing abilities of left and right hemispheres.</td>
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<td>5. Describe how neurotransmitters affect synaptic transmission, identify seven important neurotransmitters, and explain their effects on behavior.</td>
<td>16. Identify the structures of the brainstem, and describe their functions.</td>
<td>17. Identify the four lobes of the cerebral cortex and discuss the functions of each. Discuss the influence of the brain’s association areas on behavior.</td>
<td>18. Identify the structures that comprise the limbic system, discuss the specialized roles of each and their impact on behavior.</td>
<td>22. (Science Versus Pseudoscience) Identify and discuss the myth about how much of our brain we use, explain left and right hemisphere functioning, and list the facts related to being left-handed or right-handed.</td>
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<td>6. Explain what is meant by “runner’s high,” and discuss the role of endorphins in this phenomenon.</td>
<td>19. Identify and explain several ways in which drugs can affect brain activity by interfering with synaptic transmission.</td>
<td>20. (Focus on Neuroscience) Describe the goals of the Human Connectome Project, the diffusion-spectrum imaging technique, and the challenges faced by the project.</td>
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Sensation and Perception

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<td>6. Explain the electromagnetic spectrum and its relationship to human vision.</td>
<td>7. Describe the visual process, identifying each key structure of the eye and its function, and contrast the functions of rods and cones.</td>
<td>8. Explain how visual information is transmitted to and processed in the brain, including the role of the blind spot, optic nerve, optic chiasm, ganglion and bipolar cells, feature detectors, and visual pathways.</td>
<td>10. Describe the process of sensation, listing the sensory receptors, neurotransmitters, and nerve pathways that are involved in the sensation of pain, distinguishing between the fast and slow pain systems.</td>
<td>15. Describe the process of olfaction, including the transmission of olfactory information to the brain.</td>
<td>18. Discuss the school of Gestalt psychology, figure–ground relationships, and the Gestalt principles of organization.</td>
<td>19. Discuss the role of the kinesthetic and vestibular senses in body position, balance, and equilibrium.</td>
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<td>11. Describe the nature of sound, and list the physical properties of sound waves.</td>
<td>12. Explain the process of hearing, noting the role played by different parts of the ear, and describe how auditory sensations are transmitted from the inner ear structures to the brain.</td>
<td>13. Distinguish between place and frequency theory and describe how each theory explains the sensation of pitch.</td>
<td>19. Explain the gate-control theory of pain, listing factors that influence pain “gates,” and describe the effects of pain sensitization and its relationship to phantom limb pain.</td>
<td>21. Explain how taste sensations are produced and identify the basic taste categories.</td>
<td>24. Describe the school of Gestalt psychology, figure–ground relationships, and the Gestalt principles of organization.</td>
<td>27. Discuss two forms of perceptual constancy.</td>
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<td>14. Describe the process of olfaction, including the transmission of olfactory information to the brain.</td>
<td>15. In Focus: Define pheromones, and discuss the research evidence for the existence of human chemosignals or pheromones.</td>
<td>16. Explain how taste sensations are produced and identify the basic taste categories.</td>
<td>17. Discuss the role played by the skin in the sensation of touch, including the types and distribution of sensory receptors in the skin.</td>
<td>18. Define pain and identify the sensory receptors, neurotransmitters, and nerve pathways that are involved in the sensation of pain, distinguishing between the fast and slow pain systems.</td>
<td>19. Discuss the role of the kinesthetic and vestibular senses in body position, balance, and equilibrium.</td>
<td>31. Identify and describe several strategies to help control pain, discuss the role of complementary and alternative medicines, and discuss the use of magnets, biofeedback, and acupuncture in pain relief.</td>
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Broad Learning Objectives

In addition, you should be able to give examples and elaborate on the major concepts from the chapter.

1. Distinguish between sensation and perception, giving examples of each.
2. Explain the process of transduction.
3. Discuss the idea of sensory thresholds, defining absolute and difference thresholds and explaining the significance of Weber’s law.
4. Science Versus Pseudoscience: Define subliminal perception and the mere exposure effect, and discuss research on the effects of subliminal presentations on perception.
5. Explain the process of sensory adaptation.
6. Explain the process of transduction.
7. Describe the visual process, identifying each key structure of the eye and its function, and contrast the functions of rods and cones.
8. Explain how visual information is transmitted to and processed in the brain, including the role of the blind spot, optic nerve, optic chiasm, ganglion and bipolar cells, feature detectors, and visual pathways.
9. Focus on Neuroscience: Describe Mike’s surgery, identify what he is now capable of seeing and what visual problems he experiences, what functional magnetic resonance imaging (fMRI) scans of his brain revealed, and what conclusions can be drawn.
10. Compare the trichromatic and opponent-process theories of color vision, and discuss how each theory explains different aspects of color vision.
11. Describe the nature of sound, and list the physical properties of sound waves.
12. Explain the process of hearing, noting the role played by different parts of the ear, and describe how auditory sensations are transmitted from the inner ear structures to the brain.
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19. Explain the gate-control theory of pain, listing factors that influence pain “gates,” and describe the effects of pain sensitization and its relationship to phantom limb pain.
20. Discuss the role of the kinesthetic and vestibular senses in body position, balance, and equilibrium.
21. Distinguish between bottom-up and top-down processing, and explain the role each plays in perception.
22. Critical Thinking: Define ESP and parapsychology, identify different forms of ESP, and summarize what research has shown about ESP claims.
23. Culture and Human Behavior: Describe the research on culture and perception and explain how people from individualistic and collectivistic cultures perceive the world.
24. Describe the school of Gestalt psychology, figure–ground relationships, and the Gestalt principles of organization.
25. List and describe the monocular and binocular cues used in depth perception, and give examples of each.
26. Identify the sources of information that influence motion perception, and describe induced and stroboscopic motion.
27. Discuss two forms of perceptual constancy.
### Consciousness and Its Variations

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#### Broad Learning Objectives

1. **Define consciousness, and discuss the history of psychological research on consciousness.**
2. **Define attention, describe how attention is limited in capacity and how attention is selective and indicate how selectivity can lead to inattentional blindness and change blindness.**
3. **Define circadian rhythms, and explain the roles of melatonin and the suprachiasmatic nucleus (SCN) on sleep and wakefulness patterns.**
4. **Explain the role of sunlight and darkness, clocks, and other environmental time cues, in regulating the sleep–wake cycle.**
5. **Discuss the influence of environmental cues, like sunlight, on sleep patterns. Discuss what happens when these patterns are disrupted, (i.e., jet lag).**
6. **Discuss the significance of the electroencephalogram on modern sleep research.**
7. **Distinguish between REM sleep and NREM sleep, and describe the typical sequence of sleep stages, including sleep onset.**
8. **In Focus: List six of the most commonly asked questions about sleep, and discuss the answers to each.**
9. **Describe how sleep patterns change over the lifespan.**
10. **Focus on Neuroscience: Discuss the research on the effects of sleep deprivation, including the results of MRI scans of sleep-deprived and -non-sleep-deprived participants.**
11. **Compare and contrast the characteristics associated with dreams and sleep thinking.**
12. **Focus on Neuroscience: Describe what neuroscientists have discovered about the nature of dreams, identify the areas of the brain and the neurotransmitters that are active and inactive during REM sleep.**
13. **Explain the role of different stages of sleep in the formation and consolidation of memories.**
14. **Describe the role of REM and NREM sleep seen to play in memory consolidation of episodic, procedural, and spatial memories.**
15. **Describe common themes of dreams and nightmares.**
16. **Compare and contrast Freud’s theory of dreams as wish fulfillment, the activation–synthesis model of dreaming, and the neurocognitive theory of dreaming.**
17. **In Focus: List six commonly asked questions about dreams, and discuss the answers to each.**
18. **Define dyssomnia; list and describe the characteristics of the three dyssomnias discussed (insomnia, sleep apnea and narcolepsy).**
19. **Define parasomnia; list and describe the characteristics of the five parasomnias discussed.**
20. **Define hypnosis, describe the characteristics of the hypnotic state, and list the characteristics of people who are most responsive to hypnosis.**
21. **Explain the effects of hypnosis, describe posthypnotic suggestion, and explain the relationship between hypnosis and memory.**
22. **Describe the applications and limitations of hypnosis.**
23. **Critical Thinking: Compare and contrast state and non-state theories of hypnosis, discuss the evidence for and against the neodissociation, social–cognitive, and imaginative suggestibility theories.**
24. **List and describe the most common techniques used in meditation, and explain their effects on brain functioning.**
25. **Focus on Neuroscience: Describe the research on meditation and structural neuroplasticity, including both correlational and experimental studies.**
26. **Identify the common properties of psychoactive drugs, and specify the factors that influence the effects, use, and abuse of psychoactive drugs.**
27. **Focus on Neuroscience: Explain the effects of addictive drugs on the brain, including the neural basis for drug tolerance, withdrawal, craving, and relapse.**
28. **Focus on Neuroscience: Identify the changes in the brains of chronic methamphetamine users compared to those of healthy adults.**
29. **Name and describe the characteristics and effects of the most common depressants, stimulants, opiates, psychedelic drugs, and designer or “club” drugs.**
30. **Describe the strategies and techniques used to treat sleep problems.**

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35. Explain the effects of authoritarian, permissive, and authoritative parenting styles on children, and list several suggestions that promote authoritative parenting.

33. Describe Elisabeth Kübler-Ross's stage theory of dying, and assess its validity.

34. Describe some individual variations in attitudes toward death and dying.

29. Characterize physical development in late adulthood, and discuss the accuracy of U.S. stereotypes of old age.

30. Describe research findings on the effects of aging on cognitive and intellectual abilities.

31. Discuss social development in late adulthood, explain the activity theory of aging, and describe the final stage in Erik Erikson's psychosocial theory.

32. Focus on Neuroscience: Describe how the brain develops during adolescence, and explain how these changes in brain structure are reflected in adolescent behavior.

26. Explain the major milestones in physical and social development during adulthood.

27. Describe changes in the composition of American families and households from 1970 to the present, and discuss some of the characteristics of career paths in adulthood.

28. Critical Thinking: Discuss the controversy surrounding the issue of day care, describe the results of research on the topic, and list the characteristics of high-quality day care.

29. Characterize physical development in late adulthood, and discuss the accuracy of U.S. stereotypes of old age.

30. Describe research findings on the effects of aging on cognitive and intellectual abilities.

31. Discuss social development in late adulthood, explain the activity theory of aging, and describe the final stage in Erik Erikson’s psychosocial theory.

32. Focus on Neuroscience: Describe the positive effects of aerobic exercise on cognitive functioning in old age and describe the evidence to support these claims.