# Introduction and Research Methods

## Introduction: What is Psychology

- Psychologist’s Origins: The Influences 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: Systematically Seeking Answers
- Specially Areas in Psychology: Integrating the Findings from Many Studies

## 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

- The Eight Major Perspectives in Contemporary Psychology

## Psy for your Life: Successful Study Techniques

- Broad Learning Objectives

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. (Culture and Human Behavior) Explain the importance of 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. Discuss the variations and limitations of the experimental method, and describe a natural experiment.
20. Describe and discuss the variations and limitations of the experimental method, and describe a natural experiment.
21. (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.
22. Define critical thinking.
23. Describe the major provisions of the APA’s code of ethics for research with human participants and nonhuman animal subjects.
24. Discuss and apply the various study techniques that are based on empirical data.
25. In addition, you should be able to give examples and elaborate on the major concepts from the chapter.
# Neuroscience and Behavior

## Broad Learning Objectives

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

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<tbody>
<tr>
<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>3. Identify the basic characteristics of the neuron, describe the action potential, and explain the processes that take place within the neuron when it is activated.</td>
<td>4. Explain how information is communicated between neurons, and distinguish between excitatory and inhibitory messages.</td>
<td>5. Describe how neurotransmitters affect synaptic transmission, identify seven important neurotransmitters, and explain their effects on behavior.</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>7. Identify and explain several ways in which drugs can affect brain activity by interfering with synaptic transmission.</td>
<td>8. Describe the functions of the two major components of the central nervous system, and explain how spinal reflexes work.</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>
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<td>11. Identify the functions of the major endocrine glands, and explain the relationship between the hypothalamus and the endocrine glands.</td>
<td>12. Discuss how the pseudoscience called “phrenology” evolved, and how it ultimately helped advance the idea of cortical localization.</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>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>
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<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>19. (Critical Thinking) Describe the differences in male and female brains, and explain what these differences do and do not mean.</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>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>
<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>
<td>23. Describe the research findings from studies on enriched versus impoverished environment using both nonhumans and humans, and list some of the practical implications of this research.</td>
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**Sensation and Perception**

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<td>• Basic Principles of Sensation</td>
<td>• What We See: The Nature of Light</td>
<td>• How We Hear: The Nature of Sound</td>
<td>• The Perception of Shape: What is it?</td>
<td>• The Müller-Lyer Illusion</td>
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<td>• How We See: The Human Visual System</td>
<td>• How We Hear: The Path of Sound</td>
<td>• How We Smell (Don’t Answer That!)</td>
<td>• Depth Perception: How Far Away is it?</td>
<td>• The Moon Illusion</td>
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<td>• Processing Visual Information</td>
<td>• What We See: The Nature of Light</td>
<td>• Taste</td>
<td>• The Perception of Motion: where is it Going?</td>
<td>• Perceptual Constancies</td>
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<td>• Color Vision</td>
<td>• What We Hear: The Path of Sound</td>
<td>• The Skin and Body Senses</td>
<td>• Perceptual Constancies</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.

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

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Consciousness and Its Variations

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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 electroencephalograph 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 fMRI 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 that REM and NREM sleep seem to play in memory consolidation of episodic, procedural, and spatial memories.**
15. **Discuss 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 insomnia; 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 hypnagogic 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.**
## Lifespan Development

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### Development During Infancy and Childhood
- Physical Development
- Social and Personality Development
- Cognitive Development
- Autism Spectrum Disorder

### Adolescence
- Physical and Sexual Development
- Social Development
- Identity Formation: Erikson’s Theory of Psychosocial Development
- The Development of Moral Reasoning

### Adult Development
- Emerging Adulthood
- Physical Changes in Adulthood
- Social Development in Adulthood

### Late Adulthood and Aging
- Cognitive Changes
- Social Development

### The Final chapter: Dying and Death
- Psych for your Life: Raising Psychologically Healthy Children

### Contributions to Development
- Genetic
- Prenatal
- Development

### Examples of Common Terms
- Zygote
- Chromosomes
- Genes
- DNA

### Examples of Major Milestones
- Physical Development
- Social and Personality Development
- Cognitive Development
- Autism Spectrum Disorder

### Themes of Developmental Psychology
- Physical and Sexual Development
- Social Development
- Identity Formation
- Moral Reasoning

### Critical Examples
- Teratogens
- Stem Cells
- Neural Tube
- Brain Development

### Key Themes
- Alzheimer's Disease
- Autism Spectrum Disorder
- Epigenetics
- Genetic Predisposition
- Genetic Blueprint

### Exam Preparation
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2/12/2020