Introduction to Psychology



JAMES W. KALAT

North Carolina State University



Australia • Brazil • Japan • Korea • Mexico • Singapore • Spain • United Kingdom • United States

brief contents

- 1 What Is Psychology? 1
- 2 Scientific Methods in Psychology 27
- 3 Biological Psychology 61
- 4 Sensation and Perception 96
- 5 Nature, Nurture, and Human Development 143
- 6 Learning 194

••••••

- 7 Memory 233
- 8 Cognition and Language 272
- 9 Intelligence 313
- 10 Consciousness 340
- 11 Motivated Behaviors 373
- 12 Emotions, Stress, and Health 410
- 13 Social Psychology 451
- 14 Personality 498
- 15 Abnormality, Therapy, and Social Issues 536
- 16 Specific Disorders and Treatments 568

contents



1 What Is Psychology? 1

MODULE 1.1

Psychologists' Goals 3
General Points About Psychology 3
Major Philosophical Issues in Psychology 4
What Psychologists Do 7
Should You Major in Psychology? 13

IN CLOSING: Types of Psychologists 14

Summary 15

Key Terms 15

MODULE 1.2 Psychology Then and Now 16 The Early Era 16 The Rise of Behaviorism 21 From Freud to Modern Clinical Psychology 22 Recent Trends 22

IN CLOSING: Psychology Through the Years 24

Summary 24 Key Terms 25 EXPLORATION AND STUDY 25 Why Does This Matter to Me? 25 Suggestions for Further Exploration 26 Additional Resources 26



2 Scientific Methods in Psychology 27

MODULE 2.1

Thinking Critically and Evaluating Evidence 29

Evidence and Theory in Science 29

Steps for Gathering and Evaluating Evidence 29

Replicability 31

Criteria for Evaluating Scientific Theories 31

IN CLOSING: Scientific Thinking in Psychology 36

Summary 36

Key Terms 36

Answers to Other Questions in the Module 36

MODULE 2.2

Conducting Psychological Research 37

General Principles of Psychological Research 37

Observational Research Designs 41

Experiments 47

What's the Evidence? Inheritance of Acquired Characteristics? 48

Ethical Considerations in Research 50

IN CLOSING: Psychological Research 51

Summary 52

Key Terms 52

MODULE 2.3 Measuring and Analyzing Results 53

Descriptive Statistics **53** Evaluating Results: Inferential Statistics **56**

IN CLOSING: Statistics and Conclusions 57

Summary 57

Key Terms 58 EXPLORATION AND STUDY 58

3 Biological Psychology 61

MODULE 3.1 Neurons and Behavior 63

Nervous System Cells 63

The Action Potential 65

Synapses 66

What's the Evidence? Neurons Communicate Chemically 68

Neurotransmitters and Behavior 69

IN CLOSING: Neurons, Synapses, and Behavior 70

Summary 71

Key Terms 71

MODULE 3.2 Drugs and Their Effects 72 Stimulants 72

Depressants 73

Narcotics 74

Marijuana **74**

Hallucinogens 75

Why Does This Matter to Me? **58** Suggestions for Further Exploration **58** Additional Resources **59**

APPENDIX TO CHAPTER 2 Statistical Calculations 60

Standard Deviation 60 Correlation Coefficients 60 Web/Technology Resources 60

IN CLOSING: Drugs and Synapses 78

Summary 78 Key Terms 78

MODULE 3.3 Brain and Behavior 79 The Major Divisions of the Nervous System 79

Measuring Brain Activity 85

The Autonomic Nervous System and Endocrine System ${\bf 86}$

Experience and Brain Plasticity 88

The Two Hemispheres and Their Connections $\ensuremath{\,89}$

The Binding Problem 91

IN CLOSING: Brain and Experience 93

Summary 93 Key Terms 94 EXPLORATION AND STUDY 94 Why Does This Matter to Me? 94 Suggestions for Further Exploration 94 Additional Resources 95

4 Sensation and Perception 96

MODULE 4.1 Vision 98 The Detection of Light 98 Color Vision 104

IN CLOSING: Vision as an Active Process 108

Summary 108

Key Terms 108 Answers to Other Questions in the Module 108

MODULE 4.2 The Nonvisual Senses 109 Hearing 109

The Vestibular Sense 113





The Cutaneous Senses 114

The Chemical Senses 117

Synesthesia 120

IN CLOSING: Sensory Systems 121

Summary 121

Key Terms 122

MODULE 4.3 The Interpretation of Sensory Information 123

Perception of Minimal Stimuli 123

Perception and the Recognition of Patterns 125

What's the Evidence? Feature Detectors 126

Perceiving Movement and Depth **132** Optical Illusions **135**

IN CLOSING: Making Sense of Sensory Information 139

Summary 139

Key Terms 140

Answers to Other Questions in the Module 140

EXPLORATION AND STUDY 141

Why Does This Matter to Me? 141

Suggestions for Further Exploration 141

Additional Resources 141



5 Nature, Nurture, and Human Development 143

MODULE 5.1

Genetics and Evolution of Behavior 145 Genetic Principles 145 How Genes Influence Behavior 150 Evolution and Behavior 151

The Fetus and the Newborn $\ \mathbf{152}$

IN CLOSING: Getting Started in Life 154

Summary 154 Key Terms 154

MODULE 5.2 Cognitive Development 155 Infancy 155

Research Designs for Studying Development 158

Jean Piaget's View of Cognitive Development 161

Infancy: Piaget's Sensorimotor Stage 162

What's the Evidence? The Infant's Concept of Object Permanence 162

Early Childhood: Piaget's Preoperational Stage 164

What's the Evidence? Children's Understanding of Other People's Knowledge 164

Later Childhood and Adolescence: Piaget's Stages of Concrete Operations and Formal Operations **168**

How Grown Up Are We? 170

IN CLOSING: Developing Cognitive Abilities 171

Summary 171

Key Terms 172

MODULE 5.3 Social and Emotional Development 173

Erikson's Description of Human Development 173

Infancy and Childhood 174

Social Development in Childhood and Adolescence **175**

Adulthood 177

Old Age 178

The Psychology of Facing Death 179

IN CLOSING: Social and Emotional Issues Through the Life Span 180

Summary 180

Key Terms 180

MODULE 5.4 Diversity: Gender, Culture, and Family 181 Gender Influences 181 Cultural and Ethnic Influences 184

The Family 186

IN CLOSING: Many Ways of Life 191

Summary 191

Key Terms **191** EXPLORATION AND STUDY **192**

6 Learning 194

MODULE 6.1 Behaviorism 196

The Rise of Behaviorism 197

The Assumptions of Behaviorism 198

IN CLOSING: Behaviorism as a Theoretical Orientation 199

Summary 199

Key Terms 199

MODULE 6.2 Classical Conditioning 200

Pavlov and Classical Conditioning 200

What's the Evidence? Emotional Conditioning Without Awareness 204

Drug Tolerance as an Example of Classical Conditioning **205**

Explanations of Classical Conditioning 206

IN CLOSING: Classical Conditioning Is More Than Drooling Dogs 209

Summary 209

Key Terms 209

MODULE 6.3 Operant Conditioning 210 Thorndike and Operant Conditioning 210 Reinforcement and Punishment 212

7 Memory 233

MODULE 7.1 Types of Memory 235 Ebbinghaus's Pioneering Studies of Memory 235

Methods of Testing Memory 236

Application: Suspect Lineups as Recognition Memory **238**

Children as Eyewitnesses 239

Why Does This Matter to Me? **192** Suggestions for Further Exploration **192** Additional Resources **192**

Additional Phenomena of Operant Conditioning **215** B. F. Skinner and the Shaping of Responses **216**

Applications of Operant Conditioning 219

IN CLOSING: Operant Conditioning and Human Behavior 221

Summary 221

Key Terms 222

MODULE 6.4 Variations of Learning 223

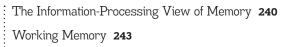
Conditioned Taste Aversions 223

Birdsong Learning 226

Social Learning 227

IN CLOSING: All Learning Is Not the Same 230

Summary 230 Key Terms 231 EXPLORATION AND STUDY 231 Why Does This Matter to Me? 231 Suggestions for Further Exploration 231 Additional Resources 232



IN CLOSING: Varieties of Memory 245

Summary 245

Key Terms 246

Answers to Other Question in the Module 246





MODULE 7.2

Encoding, Storage, and Retrieval 247 Encoding 247

The Timing of Study Sessions 252

The SPAR Method 253

Mnemonic Devices 253

Storage 254

Retrieval 255

IN CLOSING: Improving Your Memory 258

Summary 258

Key Terms 258

Answers to Other Questions in the Module **258**

MODULE 7.3 Forgetting 259 Retrieval and Interference 259 A Controversy: "Recovered Memories" or "False Memories"? 260 What's the Evidence? Suggestions and False Memories 262 Amnesia 263 IN CLOSING: Memory Loss and Distortion 268 Summary 269 Key Terms 269 Exploration and Study 270 Why Does This Matter to Me? 270 Suggestions for Further Exploration 270 Additional Resources 270



8 Cognition and Language 272

MODULE 8.1 Attention and Categorization 274 Research in Cognitive Psychology 274 What's the Evidence? Mental Imagery 274

Attention **275** Attention-Deficit Disorder **280**

Categorization 281

IN CLOSING: Thinking About Attention and Concepts 284

Summary 284

Key Terms 284

Answers to Other Questions in the Module 285

MODULE 8.2 Solving Problems, Making Decisions, and Thinking 286

Algorithms and Heuristics 287

Other Common Errors in Human Cognition 290

Expertise 293

Unconscious Thinking and Problem Solving 294

IN CLOSING: Successful and Unsuccessful Problem Solving 296

Summary 296

Key Terms 296

Answers to Other Questions in the Module 297

MODULE 8.3 Language 298 Nonhuman Precursors to Language 298 Human Specializations for Learning Language 300 Language Development 302 Understanding Language 305 Reading 307 IN CLOSING: Language and Humanity 310

Summary 310 Key Terms 311 EXPLORATION AND STUDY 311 Why Does This Matter to Me? 311 Suggestions for Further Exploration 311 Additional Resources 312

9 Intelligence 313

MODULE 9.1

Intelligence and Intelligence Tests 315 What Is Intelligence? 315

IQ Tests 319

IN CLOSING: Measuring Something We Don't Fully Understand 322

Summary 323

Key Terms **323** Answers to Other Question in the Module **323**

MODULE 9.2 Evaluation of Intelligence Tests 324 The Standardization of IQ Tests 324 Evaluation of Tests 327

Are IQ Tests Biased? 330

What's the Evidence? Stereotype Threat 333 Individual Differences in IQ Scores 334 IN CLOSING: Consequences of Testing 336 Summary 337 Key Terms 337 Answers to Other Question in the Module 337 EXPLORATION AND STUDY 338 Why Does This Matter to Me? 338 Suggestions for Further Exploration 338 Additional Resources 338



10 Consciousness 340

MODULE 10.1 Conscious and Unconscious Processes 342

Brain Mechanisms Necessary for Consciousness **342**

Can We Use Brain Measurements to Infer Consciousness? **343**

Consciousness as a Threshold Phenomenon 344

Consciousness as a Construction 345

Unconscious or Altered Perception 345

Consciousness and Action 347

What's the Evidence? Consciousness and Action 347

IN CLOSING: The Role of Consciousness 349

Summary 349 Key Terms 350

100y 101113 330

MODULE 10.2 Sleep and Dreams 351 Our Circadian Rhythms 351 Why We Sleep 354 Stages of Sleep 356 Abnormalities of Sleep 358

The Content of Our Dreams 360

IN CLOSING: The Mysteries of Sleep and Dreams 363

Summary 363 Key Terms 363

MODULE 10.3 Hypnosis 364 Ways of Inducing Hypnosis 364

The Uses and Limitations of Hypnosis 365

What's the Evidence? Hypnosis and Memory 367

What's the Evidence? Hypnosis and Risky Acts 368

Is Hypnosis an Altered State of Consciousness? 369

Meditation as an Altered State of Consciousness **370**

IN CLOSING: What Hypnosis Is and Isn't 370

Summary 371 Key Terms 371 EXPLORATION AND STUDY 371 Why Does This Matter to Me? 371 Suggestions for Further Exploration 372 Additional Resources 372





11 Motivated Behaviors 373

MODULE 11.1

General Principles of Motivation 375 Views of Motivation 375

Conflicting Motivations 377

IN CLOSING: Many Types of Motivation 379

Summary 379

Key Terms 380

MODULE 11.2 Hunger Motivation 381

The Physiology of Hunger and Satiety **381** Social and Cultural Influences on Eating **384** Eating Too Much or Too Little **384**

IN CLOSING: The Complexities of Hunger 389

Summary 389

Key Terms 389

MODULE 11.3 Sexual Motivation 390

What Do People Do and How Often? **390** Sexual Anatomy and Identity **394** Sexual Orientation **397** What's the Evidence? Sexual Orientation and Brain Anatomy 400

IN CLOSING: The Biology and Sociology of Sex 401

Summary 401

Key Terms 401

MODULE 11.4 Work Motivation 402

Goals and Deadlines 402

What's the Evidence? The Value of Deadlines 402

Job Design and Job Satisfaction **404** Leadership **406**

IN CLOSING: Work as Another Kind of Motivation 407

Summary 407

Key Terms 408

EXPLORATION AND STUDY 408

Why Does This Matter to Me? 408

- Suggestions for Further Exploration 408
- Additional Resources 408



12 Emotions, Stress, and Health 410

MODULE 12.1 The Nature of Emotion 412

Measuring Emotions **412** Emotion, Arousal, and Action **414**

What's the Evidence? The Cognitive Aspect of Emotion 416

Do We Have a Few "Basic" Emotions? **418** Usefulness of Emotions **423** Emotional Intelligence **425**

IN CLOSING: Research on Emotions 427

Summary 427

Key Terms 428

Answers to Other Question in the Module 428

MODULE 12.2 A Survey of Emotions 429 Fear and Anxiety 429 Anger and Aggressive Behavior 431 Happiness, Joy, and Positive Psychology 433 Sadness 436 Other Emotions 437 In Closing: Emotions and the Richness of Life 437

Summary 438

Key Terms 438

MODULE 12.3 Stress, Health, and Coping 439

Stress 439

How Stress Affects Health 441

Coping with Stress 443

IN CLOSING: Health Is Mental as Well as Medical 447

Summary 448 Key Terms 448 EXPLORATION AND STUDY 449 Why Does This Matter to Me? 449 Suggestions for Further Exploration 449 Additional Resources 449

13 Social Psychology 451

MODULE 13.1

Cooperation and Competition 453

Developing Morality and Cooperation $\ \mathbf{453}$

Altruistic Behavior 455

Accepting or Denying Responsibility Toward Others **458**

IN CLOSING: Is Cooperative Behavior Logical? 460

Summary 461

Key Terms 461

MODULE 13.2 Social Perception and Cognition 462

First Impressions 462

Stereotypes and Prejudices 463

Attribution 466

IN CLOSING: How Social Perceptions Affect Behavior 471

Summary 471

Key Terms 471

MODULE 13.3 Attitudes and Persuasion 472

Attitudes and Behavior 472

Central and Peripheral Routes of Attitude Change and Persuasion $\ensuremath{ 474}$

IN CLOSING: Persuasion and Manipulation 479

Summary 479

Key Terms 479

MODULE 13.4 Interpersonal Attraction 480

Establishing Relationships 480

Special Concerns in Selecting a Mate 484

Marriage **486**

IN CLOSING: Choosing Your Partners Carefully 487

Summary 487

Key Terms 488

MODULE 13.5 Interpersonal Influence 489

Conformity **489** Obedience to Authority **491**

What's the Evidence? The Milgram Experiment 492

Group Decision Making 494

IN CLOSING: Fix the Situation, Not Human Nature 495

Summary 496

Key Terms 496

EXPLORATION AND STUDY 496

Why Does This Matter to Me? 496

Suggestions for Further Exploration 497

Additional Resources 497





14 Personality 498

MODULE 14.1

Personality Theories 500 Sigmund Freud and the Psychodynamic Approach 500 Carl Jung and the Collective Unconscious 506 Alfred Adler and Individual Psychology 508 The Learning Approach 509 Humanistic Psychology 510

IN CLOSING: In Search of Human Nature 512

Summary 513

Key Terms 513

MODULE 14.2 Personality Traits 514

Personality Traits and States The Search for Broad Personality Traits The Big Five Model of Personality The Origins of Personality

IN CLOSING: The Challenges of Classifying Personality 522

Summary 522

Key Terms 523

MODULE 14.3 Personality Assessment 524

Standardized Personality Tests 524

An Objective Personality Test: The Minnesota Multiphasic Personality Inventory **525**

The NEO PI-R 526

The Myers-Briggs Type Indicator 527

Projective Techniques 527

Implicit Personality Tests 529

Uses and Misuses of Personality Tests 530

Personality Tests in Action: Criminal Profiling 531

What's the Evidence? Criminal Profiling 532

IN CLOSING: Possibilities and Limits of Personality Tests 533

Summary 533

Key Terms 534

EXPLORATION AND STUDY **534** Why Does This Matter to Me? **534** Suggestions for Further Exploration **535**

Additional Resources 535



15 Abnormality, Therapy, and Social Issues 536

MODULE 15.1

Abnormal Behavior: An Overview 538 Defining Abnormal Behavior 538

Classifying Psychological Disorders 541

IN CLOSING: Is Anyone Normal? 544

Summary 545

Key Terms 545

MODULE 15.2 Psychotherapy: An Overview 546

Historical Trends in Psychotherapy **546**

Psychoanalysis 547

Behavior Therapy 548

Therapies That Focus on Thoughts and Beliefs $$ 550 $$

Humanistic Therapy **551** Family Systems Therapy **552** Trends in Psychotherapy **552**

What's the Evidence? How Effective Is Psychotherapy? 554

Comparing Therapies and Therapists $\ {\bf 556}$

IN CLOSING: Trying to Understand Therapy 559

Summary 559

Key Terms 560

MODULE 15.3 Social and Legal Aspects of Treatment 561

Deinstitutionalization 561

Involuntary Commitment and Treatment of Potentially Dangerous Patients **562**

The Duty to Protect **562** The Insanity Defense **563** Preventing Mental Illness **564**

IN CLOSING: The Science and Politics of Mental Illness 565

Summary 565

16 Specific Disorders and Treatments 568

MODULE 16.1 Anxiety Disorders 570

Disorders with Excessive Anxiety 570

Disorders with Exaggerated Avoidance 572

What's the Evidence? Learning Fear by Observation 573

IN CLOSING: Emotions and Avoidance 579

Summary 580

Key Terms 580

Answers to Other Questions in the Module 580

MODULE 16.2 Substance-Related Disorders 581

Substance Dependence (Addiction) 581

Alcoholism 583

What's the Evidence? Ways of Predicting Alcoholism 585

Opiate Dependence 587

IN CLOSING: Substances, the Individual, and Society 588

Summary 588

Key Terms 589

MODULE 16.3

EXPLORATION AND STUDY 566

Why Does This Matter to Me? **566** Suggestions for Further Exploration **566**

Mood Disorders 590

Additional Resources 566

Depression **590** Bipolar Disorder **597**

Key Terms 565

Mood Disorders and Suicide 599

IN CLOSING: Mood and Mood Disorders 600

Summary 600

Key Terms 600

MODULE 16.4

Schizophrenia and Autism 601

Symptoms of Schizophrenia 601

Types and Prevalence 603

Causes 604

Therapies 606

Autism 609

IN CLOSING: The Elusiveness of Schizophrenia and Autism 609

Summary 609

Key Terms 610

EXPLORATION AND STUDY 610

Why Does This Matter to Me? 610

Suggestions for Further Exploration 610

Additional Resources 611

EPILOGUE 612 REFERENCES 613 NAME INDEX 657 SUBJECT INDEX/GLOSSARY 672

