CONTENTS

Cutting edge research xv Seeing both sides xvi Preface xviii Walkthrough tour xxii About the Authors xxiv



THE NATURE OF **PSYCHOLOGY** 2



The Scope of Psychology 5

Interim Summary 7 **Critical Thinking Questions** 7

The Historical Origins of Psychology 7

Nature-nurture debate 8

The beginnings of scientific psychology 8

Structuralism and functionalism 9

Behaviorism 9

Gestalt psychology 9

Psychoanalysis 10

Later developments in twentieth-century psychology 11

Interim Summary 11

Critical Thinking Questions 11

Contemporary Psychological Perspectives 12

The biological perspective 12

The behavioral perspective 13

The cognitive perspective 13

The psychoanalytic perspective 14

The subjectivist perspective 14

Relationships between psychological and biological

perspectives 15

Major subfields of psychology 16

Interim Summary 17

Critical Thinking Questions 17

How Psychological Research is Done 19

Generating hypotheses 19

Experiments 19

Correlation 21

Observation 23

Literature reviews 24

Ethics of psychological research 24

Interim Summary 25

Critical Thinking Questions 25

BIOLOGICAL **FOUNDATIONS** OF PSYCHOLOGY 32





The Study of the Biological Bases of Psychology 34

Interim Summary 35

Critical Thinking Questions 35

Neurons, the Building Blocks of the Nervous System 36

Action potentials 37

Neural coding and synaptic transmission 39

Interim Summary 40

Critical Thinking Questions 41

Neurotransmitters 41

Interim Summary 42

Critical Thinking Questions 42

The Organization of the Brain 42

The hindbrain 42

The midbrain 43

The forebrain 43

Mapping the brain 47

Asymmetries in the brain 48

The Autonomic Nervous System 52

Interim Summary 54

The Endocrine System 54

Interim Summary 55

Critical Thinking Questions 55

Evolution, Genes, and Behavior 55

Evolution of behavior 56
Chromosomes and genes 56
Genetic studies of behavior 58
Interim Summary 62

Critical Thinking Questions 62

3

PSYCHOLOGICAL DEVELOPMENT 66



Nature Versus Nurture 68

Stages of development 70

Interim Summary 71

Critical Thinking Questions 71

Capacities of the Newborn 71

Vision 71

Hearing 72

Taste and smell 73

Learning and memory 73

Interim Summary 75

Critical Thinking Questions 75

Cognitive Development in Childhood 75

Piaget's stage theory 75

A critique of Piaget's theory 78

Alternatives to Piaget's theory 79

Theory of mind 82

The development of moral judgment 83

Interim Summary 85

Critical Thinking Questions 85

Personality and Social Development 86

Temperament 86

Early social behavior 87

Attachment 89

Self-concept 92

Interim Summary 93

Critical Thinking Questions 93

Adolescent Development 93

Biological development 93

Social relationships in adolescence 95

Interim Summary 98

Critical Thinking Questions 98



SENSORY PROCESSES 100



Characteristics of Sensory Modalities 102

Threshold sensitivity 102
Suprathreshold sensation 105
Signal detection theory 106
Sensory coding 108
Interim Summary 110

Critical Thinking Questions 111

Vision 111

Light and vision 111
The visual system 111
Seeing light 113

Seeing patterns 115

Seeing color 116

Sensation and perception: A preview 121

Interim Summary 122

Critical Thinking Questions 122

Audition 123

Sound waves 123 The auditory system 124 Hearing sound intensity 125 Hearing pitch 126 Interim Summary 129

Critical Thinking Questions 129

Other Senses 129

Olfaction 129

Gustation 131

Pressure and temperature 132

Pain 133

Interim Summary 140

PERCEPTION 144



What is the Use of Perception? 147

Processing and using incoming sensory information 147 Five functions of perception 147

Interim Summary 148

Attention 148

Selective attention 148 Auditory attention 149 Attention, perception, and memory 150 Costs and benefits of selectively attending to stimuli 150 **Interim Summary** 151 Critical Thinking Questions 151 Localization 151

Separation of objects 151 Perceiving distance 155 Perceiving motion 157 Interim Summary 159

Critical Thinking Questions 159

Recognition 159

Global-to-local processing 159 The binding problem: Pre-attentive and attentive processes 161 Determining what an object is 162

Later stages of recognition: Network models 163 Recognizing natural objects and top-down processing 165

Special processing of socially relevant stimuli: Face recognition 168 Failure of recognition 169

Interim Summary 170 oligonolinilo eacul aprillepios

Critical Thinking Questions 170 and an oldered

Abstraction 170

Exact to abstract 171

The advantages of abstraction: Required storage and processing speed 171

Interim Summary 173 085 sizenms ni vnomeM Critical Thinking Questions 173

Perceptual Constancies 173

The nature of constancies 174 Color and brightness constancy 174 Shape constancy 175 Size constancy 176 Illusions 176 Constancies in all sensory modalities 178 interim summary 178 **Critical Thinking Questions** 179

Divisions of Labor In The Brain 179

The neural basis of attention 179 The visual cortex 180 Recognition versus localization systems 181 Interim Summary 183 **Critical Thinking Questions** 183

Perceptual Development 183

Discrimination by infants 183 Controlled stimulation 185 **Interim Summary** 189 **Critical Thinking Question** 189



CONSCIOUSNESS 194



Aspects of Consciousness 196

Consciousness 196 Preconscious memories 197 The unconscious 197 Automaticity and dissociation 198 Interim Summary 199 **Critical Thinking Questions** 199

Sleep and Dreams 199

Stages of sleep 200

Sleep theory 202 Sleep-wake disorders 202 Dreams 204 Interim Summary 206 Critical Thinking Questions 206

Meditation 206

Interim Summary 208 Critical Thinking Questions 208

Hypnosis 208

Induction of hypnosis 208 Hypnotic suggestions 209 **Interim Summary** 210 **Critical Thinking Questions** 210

Psychoactive Drugs 210

Depressants 211 Illicit drugs 214 Opiates 215 Stimulants 216 **Interim Summary** 217 **Critical Thinking Questions** 220



LEARNING AND CONDITIONING 224



Perspectives on Learning 226

Interim Summary 227
Critical Thinking Questions 227

Classical Conditioning 227

Pavlov's experiments 227 Cognitive factors 231 Biological constraints 232

Interim Summary 233

Critical Thinking Questions 233

Instrumental Conditioning 234

Skinner's experiments 234 Cognitive factors 241 Biological constraints 242

Interim Summary 242

Critical Thinking Questions 242

Learning and Cognition 242

Observational learning 243
Prior beliefs 244

Interim Summary 246

Critical Thinking Questions 246

Learning and the Brain 246

Habituation and sensitization 246
Classical conditioning 247
Cellular basis of learning 248
Interim Summary 250

Critical Thinking Questions 250

Learning and Motivation 251

Arousal 251
From incentive

From incentives to goals 251
Intrinsic motivation and learning 251

Interim Summary 254

Critical Thinking Questions 254

8

MEMORY 258



Three Important Distinctions 260

Three stages of memory 260
Three memory stores 261
Different memories for different kinds of information 261
Interim Summary 262
Critical Thinking Question 262

Sensory Memory 262

Sperling's experiments: The partial-report experiment 262 Visible persistence: The temporal integration experiment 263

Partial report, visible persistence, and a theory that integrates them 263

Interim Summary 264
Critical Thinking Questions 265

Working Memory 265

Encoding 265

Current conceptions of working memory 266

Storage 268

Retrieval 269

Working memory and thought 270

Transfer from working memory to long-term memory 270 Division of brain labor between working memory and long-term memory 272

Interim Summary 272

Critical Thinking Questions 273

Long-Term Memory 273

Encoding 273

Retrieval cues 274

Forgetting: Loss of information from storage 277 Interactions between encoding and retrieval 277 Interactional factors in favorable and re

Emotional factors in forgetting 278

Interim Summary 280

Critical Thinking Question 280

Implicit Memory 280

Memory in amnesia 280 A variety of memory systems 283

Implicit memory in normal individuals 284

Interim Summary 285

Constructive Memory 285

Piaget's childhood memory 286 Constructive processes at the time of memory encoding 286

Post-event memory reconstruction 287 Constructive memory and the legal system 290 Memory errors and normal memory 293

Interim Summary 293
Critical Thinking Questions 294

Improving Memory 294

Chunking and memory span 294
Imagery and encoding 295
Elaboration and encoding 295
Context and retrieval 296
Organization 296
Practicing retrieval 297
Interim Summary 300
Critical Thinking Questions 300

9 LANGUAGE AND THOUGHT 304



Language and Communication 306

Properties of language 306
Language structure 306
Effects of context on comprehension and production 309
The neural basis of language 309
Interim Summary 311
Critical Thinking Questions 311

The Development of Language 311

Milestones 311
Language acquisition 313
Interim Summary 316
Critical Thinking Questions 317

Concepts and Categorization: The Building Blocks of Thought 317

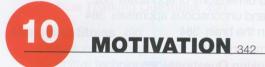
Functions of concepts 317
Prototypes 318
Hierarchies of concepts 320
Different categorization processes 320
Acquiring concepts 321
The neural basis of concepts and categorization 322
Interim Summary 323
Critical Thinking Questions 324

Reasoning and Decision-Making 324

Deductive reasoning 324
Inductive reasoning 325
The neural basis of reasoning 328
Interim Summary 329
Critical Thinking Questions 330

Thought in Action: Problem-Solving 330

Problem-solving strategies 330
Representing the problem 331
Imaginal thought 332
Experts versus novices 335
Automaticity 336
Interim Summary 337
Critical Thinking Questions 337





Drives and Homeostasis 345

Body temperature and homeostasis 345 Thirst as a homeostatic process 346 Interim Summary 347 Critical Thinking Questions 347

Incentive Motivation and Reward 347

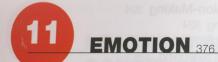
Drug addiction 349
Interim Summary 351
Critical Thinking Questions 352

Hunger, Eating, and Eating Disorders 352

Interactions between homeostasis and incentives 352
Physiological hunger cues 354
Integration of hunger signals 354
Obesity 356
Anorexia and bulimia 359
Interim Summary 362
Critical Thinking Questions 363

Gender and Sexuality 363

Early sexual development 363
Hormones versus environment 364
Adult sexuality 365
Sexual orientation 369
Interim Summary 373
Critical Thinking Questions 373





Components of Emotion 378

Interim Summary 380
Critical Thinking Questions 380

Cognitive Appraisal and Emotion 380

Discovery of appraisals 380
Themes and dimensions of appraisals 382
Conscious and unconscious appraisals 384
Appraisals in the brain 384
Interim Summary 385

Oilinterim Summary 385

Critical Thinking Questions 385

Subjective Experiences and Emotion 385

Feelings modify attention and learning 386 Feelings modify evaluations and judgments 386

Thought-Action Tendencies and Emotion 387

Interim Summary 388
Critical Thinking Questions 388

Bodily Changes and Emotion 388

Intensity of emotions 389
Differentiation of emotions 390
Interim Summary 392
Critical Thinking Questions 393

Facial Muscle Movements and Emotion 393

Communication of emotion through facial muscle movements 393

The facial feedback hypothesis 395

Interim Summary 395

Critical Thinking Questions 395

Responses to Emotion: Emotion Regulation 395

Interim Summary 397
Critical Thinking Questions 397

Emotions, Gender, and Culture 397

Gender differences 398
Cultural differences 399
Interim Summary 400
Critical Thinking Questions 401

Positive Psychology 401

Positive emotions and longevity 401
Positive emotions build personal resources 403
Interim Summary 408
Critical Thinking Question 409

12

INTELLIGENCE 412



Assessment of Intellectual Abilities 414

Early intelligence tests 414
The Stanford-Binet Intelligence Scale 414
The Wechsler Intelligence Scales 415
Interim Summary 416
Critical Thinking Questions 417

Contemporary Theories: Many or Few Intelligences? 417

Gardner's theory of multiple intelligences 418 Anderson's theory of intelligence and cognitive development 419

Sternberg's triarchic theory 420

Interim Summary 421
Critical Thinking Questions 421

Genetics and Intelligence 421

Heritability 422

Interim Summary 424
Critical Thinking Questions 425

Emotional Intelligence 425

Interim Summary 426
Critical Thinking Questions 426

General Learning Disability 426

Causes of general learning disability 427
Treatments for general learning disability 428
Interim Summary 429
Critical Thinking Questions 432

13

PERSONALITY 434



Conceptualizing and Measuring Personality 437

How many traits? 437
Personality inventories 438
Interim Summary 440
Critical Thinking Questions 441

The Psychoanalytic Approach 441 asignment isospolose

Defense mechanisms 442

Personality development 444

Modifications of Freud's theories 444

Projective tests 445

Problems with projective tests 447

A psychoanalytic portrait of human nature 447

An evaluation of the psychoanalytic approach 447

Interim Summary 449

Critical Thinking Questions 449

The Behaviorist Approach 449

Social learning and conditioning 450 A behaviorist portrait of human behavior 450 An evaluation of the behaviorist approach 451 Interim Summary 451

Critical Thinking Questions 451

The Cognitive Approach 451

Social-learning theory 451

Kelly's personal construct theory 453

Self-schemas 453

A cognitive portrait of human nature 454

An evaluation of the cognitive approach 454

Interim Summary 455

Critical Thinking Questions 455 is not all local laborations.

The Humanistic Approach 455

Carl Rogers 455

Abraham Maslow 457

A humanistic portrait of human nature 458

An evaluation of the humanistic approach 458

Interim Summary 459 and vinoism s of vilmioin

Critical Thinking Questions 459

The Evolutionary Approach 459

An evolutionary portrait of human nature 460 An evaluation of the evolutionary approach 462

Interim Summary 462

Critical Thinking Questions 462

The Genetics of Personality 463

Interactions between personality and environment 463

Interim Summary 467

Critical Thinking Questions 467

STRESS, HEALTH, AND COPING 470



Interim Summary 474 **Critical Thinking Questions** 474

Physiological Reactions to Stress 474

Interim Summary 476

Stress and Physical Health 476

Coronary heart disease 477 The immune system 478 Health-related behaviors 480

Interim Summary 481

Critical Thinking Questions 481

Stress and Psychological Health 481

Interim Summary 484

Critical Thinking Questions 484

Appraisals, Coping, and Health 485

Appraisals 485

Coping 487

Interim Summary 490

Critical Thinking Questions 490

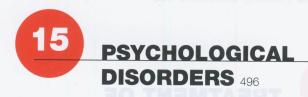
Managing Stress 490

Behavioral techniques 490 Cognitive techniques 491

Modifying type A behavior 491

Interim Summary 494

Critical Thinking Questions 494







Defining Abnormality 498

Deviation from cultural norms 498

Unusualness 499

Maladaptive behavior 499

Personal distress 499

Classifying mental health problems 500

Perspectives on mental health problems 502

Interim Summary 502

Critical Thinking Questions 502

Anxiety Disorders 503

Panic disorders 503

Understanding panic disorder and agoraphobia 504

Phobias 506

Understanding phobias 507

Obsessive-compulsive disorder 508

Understanding obsessive-compulsive disorder 509

Interim Summary 510

Depression and Bipolar Disorders 511

Depression 511
Bipolar disorder 512
Understanding mood disorders 513
Interim Summary 518

Critical Thinking Questions 518

Schizophrenia 518
Characteristics of schizophrenia 518
Behavioral symptoms and withdrawal from reality 520
Culture and the progression of schizophrenia 521
Understanding schizophrenia 521

Interim Summary 523
Critical Thinking Questions 524

Personality Disorders 524

Antisocial personality disorder 524
Understanding antisocial personality disorder 525
Borderline personality disorder 526
Understanding borderline personality disorder 527
Interim Summary 528
Critical Thinking Questions 528

Autism spectrum disorder 528

Diagnosis of autism spectrum disorder 528 Understanding autism spectrum disorder 532 Interim Summary 533 Critical Thinking Questions 533

16

TREATMENT OF MENTAL HEALTH PROBLEMS 536



Historical Background 538
Interim Summary 541

Critical Thinking Questions 541

Techniques of Psychotherapy 541

Behavior therapies 541
Systematic desensitization and in vivo exposure 542
Cognitive-behavior therapies 544
Psychodynamic therapies 545
Humanistic therapies 546
Interim Summary 548
Critical Thinking Questions 548

Biological Therapies 548

Psychotherapeutic drugs 548
Electroconvulsive therapy 549
Combining biological and psychological therapies 550
Interim Summary 550
Critical Thinking Questions 550

Enhancing Mental Health 551

Interim Summary 554
Critical Thinking Questions 554

17

SOCIAL INFLUENCE 556



The Presence of Others 559

Social facilitation and social inhibition 559
Deindividuation 561
Bystander effects 562
Interim Summary 565
Critical Thinking Questions 565

Compliance and Obedience 566

Conformity to a majority 566
Minority influence 570
Obedience to authority 571
Interim Summary 578
Critical Thinking Questions 578

Internalization 578

Self-justification 578
Reference groups and identification 582
Interim Summary 584
Critical Thinking Questions 584

Group Interactions 584

Institutional norms 585
Group decision-making 586
Interim Summary 589
Critical Thinking Questions 592

Recap: Social Psychological Views of the Seemingly Inexplicable 592



SOCIAL COGNITION 596



Impression Formation 598

Stereotypes 598 Individuation 604 Attributions 607

Interim Summary 609 **Critical Thinking Questions** 610

Attitudes 611

Persuasive communication 611 Attitudes and behavior 614 **Interim Summary** 616 **Critical Thinking Questions** 616

Interpersonal Attraction 616

Liking and attraction 617 Loving and mating 620 **Interim Summary** 623 **Critical Thinking Questions** 626

Recap: a Tale of Two Modes of Social Cognition 626 **Critical Thinking Questions** 626

Appendix: Statistical Methods and Measurement 630 Glossary 640 References 660 Name Index 716 Subject Index 717 Credits Page 722