



The College of New Jersey

PSYCHOLOGY DEPARTMENT BIOPSYCHOLOGY SPECIALIZATION

OVERVIEW

In the Biopsychology Specialization, students will explore how biological mechanisms relate to a wide range of topics: sensation, cognition, sleep, motivation, emotion, addiction, and clinical disorders. This specialization will expose students to the interface between biology and psychology (e.g., neuroscience, health psychology, psychopharmacology, psychoneuroimmunology, and genetics) and will prepare students for careers in these fields as well as in clinical psychology, medicine, or pharmaceuticals. Students will be offered hands-on research opportunities (with humans and rats), and specialized courses may include cognitive neuroscience, health psychology, neuroanatomy, addiction, psychopharmacology, human neuropsychology, neurological disorders, animal behavior, behavioral pharmacology of drug abuse, and schizophrenia. Students in this specializations will develop credentials that facilitate challenging careers and graduate/professional studies.

Students completing the biopsychology specialization will receive preparation for careers in fields including clinical psychology, medicine, neuropsychological testing, and pharmaceuticals. This specialization also prepares students for graduate studies in neuroscience, health psychology, psychopharmacology, genetics, clinical psychology and psychoneuroimmunology.

Objectives:

- To expose students to a variety of different areas within biopsychology (for example: neuroscience, health psychology, psychopharmacology, psychophysiology, and animal behavior).
- To offer a variety of research experiences in biopsychology.
- To develop critical thinking and communication skills (oral and written).
- To help students develop credentials that facilitate admission to graduate programs or obtain employment.

For more information about this specialization, contact the Biopsychology Coordinator (Dr. Ruddy, ruddy@tcnj.edu, x2630) or any of the affiliated faculty listed below.

COURSEWORK FOR THE BIOPSYCHOLOGY SPECIALIZATION

Core Courses:

- PSY 101 - General Psychology
- PSY 121 - Methods & Tools
- PSY 203 - Design & Statistical Analysis
- PSY 299 - Research Seminar*

*Any research seminar (PSY 299) fulfills this requirement, although we recommend a seminar in Biopsychology.

Foundation Course: PSY 212 – Biopsychology; Either PSY 214 – Cognitive Psychology OR PSY 213- Learning & Memory; One additional foundation course selected from the following options:

PSY 217 - Psychological Disorders (*formerly* Abnormal Psychology)
PSY 220 – Development Across the Lifespan
PSY 216 - Personality Theory and Research
PSY 218 - Psychology of Power, Oppression, and Privilege
PSY 267 - Organizational Psychology

Specialized Courses: The Biopsychology Specialization requires students to complete **TWO** specialized courses from the following options:

PSY 311 - Sensation and Perception
PSY 316 - Applied Behavior Analysis
PSY 340 - Health Psychology
PSY 342 - Clinical Psychopharmacology
PSY 343 - Behavioral Pharmacology of Drug Abuse
PSY 346 - Cognitive Neuroscience

In addition, any of the following options will also count towards this requirement if it has a Biopsychology focus:

PSY 390 - Laboratory Learning
PSY 393 - Individual Study
PSY 396 - Senior Honors Thesis I
PSY 397 - Instructional Internship
PSY 399 – Internship

The **THIRD** specialized course may be any 300 or 400-level course approved by the Psychology Department as a specialized course.

NOTE: Only **ONE** specialized course may be an ELOPsy course (e.g., PSY 390, 393, etc.).

Psychology Option: Students select 1 course; recommended at 300 or 400 level.

Senior Experience: The Biopsychology Specialization requires students to complete a senior experience that is relevant to Biopsychology.

PSY 470 - Senior Topics Study Group
PSY 496 - Senior Honors Thesis II
PSY 492 - Senior Laboratory Learning
PSY 493 - Senior Individual Study
PSY 499 - Senior Internship

Additional Requirements to complete the Biopsychology Specialization:

The Biopsychology specialization also requires courses in Biology and Philosophy (or equivalent courses from other institutions, for transfer students):

Biology:

1. BIO 201 – Foundations of Biological Inquiry

AND

2. 1 additional Biology course selected from the following options:

- BIO 211 - Cell Biology and Biochemistry (formerly Biology of the Eukaryotic Cell)
- BIO 221 - Ecology and Field Biology
- BIO 231 - Genetics

OR: *A biology minor will fulfill Biology course requirements for biopsychology specialization*

Philosophy:

1 Philosophy course selected from the following options:

- PHL 100 – Introduction to Philosophy
- PHL 120 - Introduction to Logic
- PHL 205 - History of Modern Philosophy
- PHL 255 - Biomedical Ethics
- PHL 410 - Theory of Knowledge
- PHL 411 - Philosophy of Science
- PHL 421 - Philosophy of Language
- PHL 422 - Philosophy of Mind

FACULTY AFFILIATED with the BIOPSYCHOLOGY SPECIALIZATION

Dr. Leynes: (Office: SB 125; 609-771-2624; leynes@tcnj.edu)

Courses: Biopsychology; Design & Analysis; Research Seminar; Cognitive Neuroscience

Research Interests: Neuroscience; Memory; Attention; Creativity

Dr. Margaret Martinetti: (Office: SSB 116; 609-771-2640; martinet@tcnj.edu)

Courses: Biopsychology; Design and Analysis; Behavioral Pharmacology of Drug Abuse

Research Interests: Animal Models of Alcohol Abuse; Quantitative Analyses of Choice Behavior; Behavioral Economics of Drug Abuse

Dr. Betsy Ruddy: (Office: SSB 119; 609-771-2630; ruddy@tcnj.edu)

Courses: Biopsychology; Psychopharmacology; Research Seminar

Research Interests: Imagination, and Play in Infancy and Early Childhood; Parenting; Psychopathology

RECENT STUDENT-FACULTY COLLABORATIONS and INTERNSHIPS

- Students interested in neuroscience and memory can see Dr. Leynes for research opportunities, which are offered each semester. Students work in his lab collecting brain activity (called Event-Related Potentials or ERPs) from human subjects while participants complete various types of memory experiments. For more information see the ERP Lab Webpage: <http://www.tcnj.edu/~leynes/research.html>
- Students interested in alcohol abuse, quantitative analyses of behavior, or behavioral pharmacology may enjoy working in the laboratory of Dr. Margaret Martinetti. She and her Laboratory Learning students are conducting research examining physiological, behavioral, and economic influences on alcohol consumption in humans and laboratory rats. For more information see the Alcohol Lab Webpage: <http://www.tcnj.edu/~alcolab/>

Recent Laboratory Studies:

- Cardiovascular fitness & executive control: An ERP Study

Updated 10/15/2019

- Illusions of memory: An event-related potentials study investigating perceptual fluency and feelings of familiarity
- Concurrent ethanol & sucrose consumption in alcohol-preferring and non-preferring rats: A behavioral economic analysis
- The behavioral economics of alcohol consumption in college students: The role of academic constraints