Barnard College
Neuroscience & Behavior Department

Updated July 2019

Department Chair: Professor Rae Silver, rsilver@barnard.edu, 212-854-5531
Department Administrator: TBD (can reach out to psych@barnard.edu with questions)

This major provides a strong background in the biological underpinnings of behavior and cognition, and is intended for students who plan to pursue a research career in neuroscience or a related discipline. Students electing this major are exposed to basic courses in Biology, Chemistry, Psychology and Neuroscience. Majors must choose one of two areas of concentration. The *behavior concentration* places greater emphasis on behavioral and systems neuroscience, while the *cellular concentration* places greater emphasis on cellular and molecular neuroscience.

To elect the NSB major, a student must have completed at least two introductory courses (some with their associated laboratories) in Biology, Chemistry, and Psychology by the beginning of her junior year; and have earned an average grade of B- or better in those courses. For further details, see general requirements on the following pages, as well as on the department website.

All majors engage in two semesters of independent research during the senior year while enrolled in the Senior Research (Thesis) Seminar. In the junior year, majors must begin developing a plan for the senior research project. There is a meeting for junior majors during the fall and spring semesters to begin this process.

As an alternative to the Neuroscience and Behavior major, students may pursue an interdisciplinary program by majoring in either Biology or Psychology, and taking a minor in the other discipline.

There are **no minors** in Neuroscience and Behavior.

Neuroscience & Behavior Faculty

Full Time Faculty

Peter Balsam is exploring how animals learn about time and use it to guide behavior. He also studies the neural mechanisms that underlie this capacity.
Contact: 415-H Milbank, 854-5312, pbalsam@barnard.edu

Elizabeth Bauer is investigating the neurophysiological underpinnings of emotions and memory.
Contact: 1114 Altschul, 854-2349, ebauer@barnard.edu

John Glendinning is examining how input from different chemosensory systems (taste, tactile, odor and viscerosensory) modulates feeding responses of animals.
Contact: 1107 Altschul, 854-4749, jglendin@barnard.edu

Russell Romeo focuses on how gonadal sex hormones and adrenal stress hormones influence the pubertal maturation of the nervous system and behavior. Professor Romeo is also the Department Representative.
Contact: 415B Milbank, 854-5903, rromeo@barnard.edu

Rae Silver is examining hormonal control of reproductive behavior and circadian rhythms in behavior. Professor Silver is the director of the NAB Program.
Contact: 415-I Milbank, 854-5531, qr@columbia.edu

Additional Advising Faculty

Alison Pischedda studies animal behavior and focuses on sexual selection and conflict using the fruit fly model system, drawing from the fields of animal behavior, evolutionary biology and population genetics.
Contact: 1306 Altschul, 854-9865, apischedda@barnard.edu

Kenneth Light focuses on neural networks involved in behavior and is currently focused on the networks involved in anticipation. *Contact: 415M Milbank, 854-9035, klight@barnard.edu*

Kara Pham engages in research in behavioral neuroscience, with emphasis on stress, fear learning, and hippocampal neurogenesis. She has also conducted studies on developmental neurobiology and addiction.
Contact: 407, 851-9945, kpham@barnard.edu

Adjunct Faculty

William Fifer, wpf1@columbia.edu

Andrew Fink, afink@barnard.edu

Abigail Kalmbach, akalmbac@barnard.edu

Carl Schoonover, cschoono@barnard.edu

Ari Shechter, ashecte@barnard.edu

Requirements for the NSB Major

Required core courses for all NSB majors:		
PSYC	BC1001	Introduction to Psychology
BIO	BC1500 & 1501	Organismal and Evolutionary Biology (Lec & Lab)
BIO	BC1502 & 1503	Intro to Cell and Molecular Biology (Lec & Lab)
CHEM	BC2001	General Chemistry I with Laboratory
CHEM	BC3230	Organic Chemistry I (Lecture)
CHEM	BC3328	Introductory Organic Chemistry Laboratory
One of the following:		
PSYC	BC1101	Statistics ***OR***
BIO	BC2286	Statistics and Research Design
Both of the following courses (one w/ lab):		
PSYC	BC2119 (BC2118)	Systems & Behavioral Neuroscience Lec (+Lab)
BIO	BC3362 (BC3363)	Molecular & Cellular Neuroscience Lec (+Lab)
Senior thesis requirement (year-long course):		
NSBV	BC3593–3594	Research & Seminar in Neuroscience & Behavior

Behavior Concentration:		
PSYC	BC2106 & 2107	Psychology of Learning Laboratory & Lecture
BIO	BC2280	Animal Behavior
Two Electives (see list on the following page):		
Elective #1		
Elective #2		

Cellular Concentration:		
BIO	BC 2100	Mendelian & Molecular Genetics
BIO	BC 3310	Cell Biology
One of the following labs:		
BIO	BC 2801	Lab in Genetics
BIO	BC 3303	Lab in Molecular Biology
BIO	BC 3305	Project Lab in Molecular Biology
BIO	BC 3311	Lab in Cell Biology
Two Electives (see list on the following page):		
Elective #1		
Elective #2		

Approved Electives

Please note that not all courses are offered every year; also, additional courses may be available in a given semester. Always consult the Course Catalogue, the Neuroscience & Behavior website, and with the Department Chair for the most updated information.

Biology Department
BIOL BC2100 Molecular & Cellular Genetics (Behavior Concentration only)
BIOL BC2278 Evolution
BIOL BC2280 Animal Behavior (Cellular Concentration Only)
BIOL BC3302 Molecular Biology
BIOL BC3310 Cell Biology (Behavior Concentration only)
BIOL BC3352 Development
BIOL BC3360 Animal Physiology
BIOL BC3367 Ecophysiology
BIOL UN3025 Neurogenetics
BIOL UN3031 Genetics (Behavioral Concentration Elective)

Chemistry Department
CHEM BC3282 Biochemistry I
CHEM BC3283 Biochemistry II
BIOC UN3300 Biochemistry

Psychology Department
PSYC BC2107 Psychology of Learning (Cellular Concentration Only)
PSYC BC2175 Addictive Behaviors
PSYC BC2177 Psychology of Drug Use and Abuse
PSYC BC3164 Perception & Language
PSYC BC3369 Language Development
PSYC G4232 Production & Perception of Language

Neuroscience & Behavior Department
NSBV BC2154 Hormones & Behavior
NSBV BC2180 Neurodevelopmental Processes & Cognitive/Behavioral Disorders
NSBV BC3367 Transformative Landmarks in Neuroscience
NSBV BC3376 Psychobiology of Infant Development
NSBV BC3377 Adolescent Neurobehavioral Development
NSBV BC3380 Cognitive Neuroscience
NSBV BC3383 Neuropharmacology & Behavior
NSBV BC3387 Topics in Neuroethics
NSBV BC3392 Psychobiology of Stress
NSBV BC3394 Neurobiology of Social Behaviors
NSBV BC3396 Topics In Systems Neuroscience: Sensory Neuroscience
NSBV BC3397 Neural Modulation
NSBV BC3398 Psychobiology of Sleep
NSBV BC3405 The Neuroscience of Trauma
NSBV UN2430 Cognitive Neuroscience