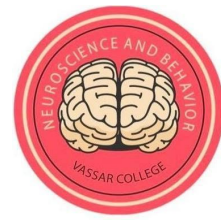




# Neuroscience and Behavior Program



## Academic Year 2023-2024

**Director:** Megan D. Gall (megall@vassar.edu)

**Participating Faculty:** Hadley C. Bergstrom (Psychology), John Mark Cleaveland (Psychology), Josh de Leeuw (Cognitive Science), Kelli A. Duncan (Biology), Megan D. Gall (Biology), Kevin Holloway (Psychology), Lori Newman (Psychology), Kathleen M. Susman (Biology), Justin C. Touchon (Biology), Bojana Zupan (Psychology).

Neuroscience and Behavior is a multidisciplinary program that is interested in how interactions of brain, body, and environment contribute to animal (including human) behavior. Neuroscientists and Behaviorists study the structure and function of the nervous system, the development and evolution of neural and behavioral systems, and interactions among behavior, environment, physiology, and heredity. The study of brain and behavior requires students to delve deeply into nervous system mechanisms at all levels of analysis - from molecules to synapses to neurons, from circuits to computational algorithms to behavior and cognition to mathematical modeling of biological problems.

This program is ideal for students with interests in biological and psychological sciences specifically, but also students interested in incorporating chemistry, computer science, physics and astronomy, mathematics and statistics, and philosophy into the study of brain and behavior.

### Major Requirements (11 credits total)

1. BIOL 107
2. BIOL 108
3. NEUR 105 (pre-req BIOL 107)
4. PSYC 200 – Statistics and experimental design
5. PSYC 241 – Principles of Physiological Psychology
6. PSYC 229 – Research Methods in Learning and Behavior **OR** PSYC 249 – Research Methods in Physiological Psychology
7. BIOL 2XX (Choose one of the following approved courses)
  - a. BIOL 217 – Human Physiology
  - b. BIOL 218 – Cellular Structure and Function
  - c. BIOL 226 – Animal Structure and Diversity
  - d. BIOL 228 – Animal Physiology
  - e. BIOL 232 – Developmental Biology
  - f. BIOL 238 – Molecular Genetics
  - g. BIOL 244 – Genetics and Genomics
  - h. BIOL 248 – Evolutionary Genetics
  - i. BIOL 272 – Biochemistry
8. BIOL 3XX (Choose one approved course; check current course catalogue as these can change year to year)
  1. BIOL 316 - Seminar in Neurobiology
  2. BIOL 323 - Epigenetics
  3. BIOL 324 - Molecular Biology
  4. BIOL 340 - Experimental Animal Behavior
  5. BIOL 353 - Bioinformatics
  6. BIOL 360 - Animal Communication
  7. BIOL 373 - Biomechanics
  8. BIOL 375 - Sensory Ecology
  9. BIOL 376 - Hormones and Behavior
9. PSYC 3XX
  - a. PSYC 321 - Seminar in Animal Learning and Behavior
  - b. PSYC 323 - Seminar in Evolutionary Psychology
  - c. PSYC 341 - Seminar in Physiological Psychology
  - d. PSYC 362 - Seminar in Clinical Psychology and Psychopathology
  - e. PSYC 364 – Seminar in Behavior Genetics
  - f. PSYC 397/398 - Senior Empirical Thesis (with approval of program faculty)



# Neuroscience and Behavior Program



## 10. NEUR ELECTIVE (Choose ONE of the following or choose another course in consultation with your advisor)

- a. Either an approved Psychology courses at the 200 level
  - i. PSYC 221 – Learning and Behavior
  - ii. PSYC 223 – Evolutionary Psychology
  - iii. PSYC 243- Topics in Physiological Psychology
  - iv. PSYC 262 – Principles of Clinical Psychology and Psychopathology
- b. Or another approved Biology course at the 300 level
- c. Or one of the following pre-approved courses (common courses listed below, check course catalogue for most up to date course list)
  - i. ANTH 320 – Seminar in Biological Anthropology
  - ii. C MPU/MATH 144 – Fundamentals of Data Science
  - iii. C MPU 250 - Modeling, Simulation and Analysis
  - iv. COGS 2XX or 3XX
  - v. ECON 215 – The Science of Strategy
  - vi. ECON 333 – Behavioral Economics
  - vii. MATH 242 - Applied Statistical Modeling
  - viii. STS 360 - Issues in Bioethics
  - ix. PHIL 222 - Philosophy of Language
  - x. PHIL 224 - Philosophy of Mind

## 11. NEUR 301

