

Bachelor of Science in Neuroscience

The Bachelor of Science degree in Neuroscience provides a strong foundation in the core sciences and related mathematical disciplines, along with the opportunity for training in biology, chemistry, computer science, mathematics, physics, or psychology. Distinctive features of the program include an emphasis on developing the quantitative, statistical, mathematical, and computational skills required in neuroscience, and meaningful hands-on laboratory experience.

Prescribed Work Common to All Options

In the process of fulfilling degree requirements, all students must complete:

- a. Core curriculum
- b. Skills and experience flags:
 - a. Writing: two flagged courses beyond Rhetoric and Writing 306 or its equivalent, including one at the upper-division level
 - b. Quantitative reasoning: one flagged course
 - c. Global cultures: one flagged course
 - d. Cultural diversity in the United States: one flagged course
 - e. Ethics: one flagged course
 - f. Independent inquiry: one flagged course

Courses that may be used to fulfill flag requirements are identified in the [Course Schedule](#). They may be used simultaneously to fulfill other requirements, unless otherwise specified. Please note, students may not earn the cultural diversity in the United States and the global cultures flags from the same course. Students are encouraged to discuss options with their academic advisors.

- c. At least 21 semester hours of upper-division coursework, including 18 semester hours in biology and neuroscience, must be completed in residence at the University. All students must complete at least 36 semester hours of upper-division coursework.

Additional Prescribed Work for Each Option

Option I: Neuroscience Scholars

- d. Mathematics 408C, or 408N and 408S, or 408R and 408S; Statistics and Data Sciences 320E
- e. An eight hour physics sequence chosen from the following:
 - a. Physics 317K, 105M, 317L, and 105N
 - b. Physics 303K, 105M, 303L, and 105N
 - c. Physics 301, 101L, 316, and 116L
- f. Chemistry 301 or 301C, 302 or 302C, and 204
- g. Biology 311C and 311D, or 315H and 325H, and 206L
- h. Three additional majors-level courses selected from one of the following sequences:
 - a. Biology: Biology 325 or 325H, Molecular Biosciences 320, 344, 350, and Integrative Biology 370
 - b. Chemistry: Chemistry 328M and 128K, 328N and 128L, 353 or 353M, and Biochemistry 369
 - c. Computer Science: Computer Science 312, 314, Statistics and Data Sciences 335, 374E
 - d. Mathematics: Mathematics 427J or 427K, 427L, 340L or 341, 362K, 378K, Statistics and Data Sciences 321 or

329C; Mathematics 362K and Statistics and Data Sciences 321 may not both count.

- e. Physics: Physics 345, 338K, 355
- f. Psychology: Psychology 301, 323, 353K, 355

- i. Neuroscience 330
- j. Neuroscience 335
- k. Neuroscience 340
- l. Twelve semester hours of laboratory courses chosen from the following: Neuroscience 365L, 366E, 366L, 366N, 366P, 366S, 367W, 377, 466G, and 466M. Neuroscience 377 may only be taken once for credit.
- m. Nine semester hours of upper-division neuroscience to be chosen from: Biology 325, Integrative Biology 353S, 359K, Neuroscience 170C, 270C, 337, 361T, 365D, Neuroscience 365E, Neuroscience 365M, 365N, 365P, 365T, 365V, 365W, 366C, 366D, Neuroscience 366R, Neuroscience 367C, 367F, 367S, 367V, and 371M; Biology 325 or 325H may count toward either requirement 8a or requirement 12
- n. Three semester hours of Neuroscience 379H, *Honors Tutorial Course*; the research topic in 379H must relate to neuroscience and be approved in advance by the faculty advisor
- o. Enough additional coursework to make a total of 120 semester hours

Option II: Neuroscience Honors

- d. Breadth requirement: An honors mathematics course; Biology 315H and 325H; Chemistry 301C and 302C; and an additional three-hour honors-designated course from a department in the College of Natural Sciences; credit earned by examination may not be counted toward this requirement.
- e. Three hours of statistics chosen from the following: Statistics and Data Sciences 321, 325H, or 320E; other statistics courses may be approved by the departmental honors advisor.
- f. Chemistry 204 and Biology 206L
- g. An eight hour physics sequence chosen from the following:
 - i. Physics 317K, 105M, 317L, and 105N
 - ii. Physics 303K, 105M, 303L, and 105N
 - iii. Physics 301, 101L, 316, and 116L
- h. Three additional majors-level courses selected from one of the following sequences:
 - i. Biology: Molecular Biosciences 320, 344, 350, and Integrative Biology 370
 - ii. Chemistry: Chemistry 328M and 128K, 328N and 128L, 353 or 353M, and Biochemistry 369
 - iii. Physics: Physics 345, 338K, 355
 - iv. Computer Science: Computer Science 312, 314, Statistics and Data Sciences 335, 374E
 - v. Mathematics: Mathematics 427J or 427K, 427L, 340L or 341, 362K, 378K, 321 or 329C; Mathematics 362K and Statistics and Data Sciences 321 may not both count.
- i. Neuroscience 330
- j. Neuroscience 335
- k. Neuroscience 340
- l. Six hours of laboratory courses chosen from: Neuroscience 365L, 366E, 366L, 366N, 366P, 366S, 367W, 466G, 466M
- m. Six hours of upper-division neuroscience chosen from: Integrative Biology 353S, 359K, Neuroscience 170C, 270C, 337, 361T, 365D, 365E, 365M, 365N, 365P, 365T, 365V, 365W, 366C, 366D, 366R, 367C, 367F, 367S, 367V, 371M, 377
- n. A section of Undergraduate Studies 302 or 303 that is approved by the departmental honors advisor

- o. A section of Rhetoric and Writing 309S that is restricted to students in the Dean's Scholars Honors Program
- p. Two semesters of Neuroscience 379H
- q. Fifteen additional semester hours of coursework approved by the departmental honors advisor
- r. Six semester hours of coursework from the College of Liberal Arts and/or the College of Fine Arts
- s. Enough additional coursework to make a total of 120 semester hours

Option III: Neuroscience

- d. Mathematics 408C, or 408N and 408S, or 408R and 408S; and Statistics and Data Sciences 320E
- e. An eight-hour physics sequence chosen from the following:
 - i. Physics 317K, 105M, 317L, and 105N
 - ii. Physics 303K, 105M, 303L, and 105N
 - iii. Physics 301, 101L, 316, and 116L
- f. Chemistry 301 or 301C, 302 or 302C, and 204
- g. Biology 311C, 311D, and 325 or 315H and 325H
- h. Biology 206L
- i. Neuroscience 330, 335, and 340
- j. Fifteen hours of upper-division neuroscience chosen from: Integrative Biology 353S, 359K, Neuroscience 170C, 270C, 337, 361T, 365D, 365E, 365L, 365M, 365N, 365P, 365T, 365V, 365W, 366C, 366D, 366E, 366L, 366N, 366P, 366R, 366S, 367C, 367F, 367S, 367V, 367W, 371M, 377, 379H, 466G, 466M. Neuroscience 377 may be repeated once for credit. The research topic in 379H must relate to neuroscience and be approved in advance by the faculty advisor.
- k. Six additional hours of upper-division laboratory course work chosen from the following: Neuroscience 365L, 366E, 366L, 366N, 366P, 366S, 367W, 377, 466G, 466M. Neuroscience 365L, 366E, 366L, 366N, 366P, 366S, 367W, 377, 466G, and 466M may count toward requirement 10 or requirement 11. Neuroscience 377 may only count once toward requirement 11.
- l. Enough additional coursework to make a total of 120 semester hours

Special Requirements

Students must fulfill both the University's [General Requirements](#) for graduation and the [college requirements](#). They must also earn a grade of at least C- in each mathematics and science course required for the degree, and a grade point average in these courses of at least 2.00. More information about grades and the grade point average is given in the [General Information Catalog](#).

To graduate under Option II, students must remain in good standing in the Dean's Scholars Honors Program, must submit an honors thesis approved by the departmental honors advisor, and must present their research in an approved public forum, such as the college's annual [Undergraduate Research Forum](#).