Bachelor of Science in Neuroscience – Course Requirements

First Year Experience (1 credit hour)
SCI-I120 (or an equivalent first-year experience course)

AREA I: English Composition and Speech Communication (9 credit hours)
ENG-W131  Elementary Composition I (3 credits)
ENG-W231  Professional Writing Skills (3 credits)
COMM-R110  Fundamentals of Speech Communication (3 credits)

AREA II: No foreign language required.

AREA IIIA: Humanities, Social Sciences, and Comparative World Cultures (12 credit hours)
HIST H114  History of Western Civilization II (3 credits)
and one course each from lists H, S, and C:
List H: Humanities (3 credits)
List S: Social Sciences (3 credits)
List C: Comparative World Cultures (3 credits)

AREA IIIB: Not required

AREA IIIC: Physical and Biological Sciences (19-20 credit hours)
15 credits from the following sequences are required.
CHEM-C105  Principles of Chemistry I (3 credits) and Experimental Chemistry I CHEM-C125 (2 credits)
CHEM-C106  Principles of Chemistry II (3 credits) and Experimental Chemistry II CHEM-C126 (2 credits)
CHEM-C341  Organic Chemistry I (3 credits) and CHEM-C343 Organic Chemistry Laboratory I (2 credits)

And one of the following courses or course sequence:
CHEM-C342  Organic Chemistry II (3 credits) and CHEM-C344 Organic Chemistry Laboratory II (2 credits)
or
PHYS 15200  Mechanics (4 credits)
or
PHYS-P201  General Physics I (5 credits)

Note: One grade of D or D+ will be allowed in AREA IIIC.

AREA IIID: Mathematical Sciences (9 credit hours)
6 credits from one of the following sequences:
MATH 23100  Calculus for Life Sciences I (3 credits) and MATH 23200 Calculus for Life Sciences II (3 credits)
or
MATH 22100  Calculus for Technology 1 (3 credits) and MATH 22200 Calculus for Technology II (3 credits)

And one of the following courses:
CSCI-N201  Programming Concepts (3 credits)
or
CSCI-N207  Data Analysis using Spreadsheets (3 credits)
or
CSCI-N211  Introduction to Databases (3 credits)

Note: Computer Science CSCI-N100-level courses and CPT/CIT 106 do not count for any credit towards any degree in the School of Science. Also, CSCI-N241 and CSCI-N299 do not count in AREA IIID, but may count as general electives.

Note: One grade of D or D+ will be allowed in AREA IIID.

AREA IV: Neuroscience Major Requirement (48-49 credit hours)
The Neuroscience Program requires a minimum grade of C in all courses in AREA IV Neuroscience Major (C- grades are unacceptable).
Bachelor of Science in Neuroscience –Course Requirements

**AREA IV Part A: Foundation Courses (25 credit hours)**
- BIOL-K101 Concepts of Biology I (5 credits)
- BIOL-K103 Concepts of Biology II (5 credits)
- BIOL-K416 Cellular & Molecular Neuroscience (3 credits)
- PSY-B110 Introduction to Psychology (3 credits)
- PSY-B201 Foundations in Neuroscience (3 credits)
- PSY-B320 Behavioral Neuroscience (3 credits)
- PSY-B499 Capstone Honors Research [or BIOL-K493 & BIOL-K494; or CHEM-C494 & CHEM-C495 or MATH 49200 or PHYS 49000]

**AREA IV Part B: Statistical Research Methods (3 credit hours)**
- PSY-B305 Statistics (3 credits)
  or
- STAT 35000 Introduction to Statistics (3 credits)

**AREA IV Part C: Neuroscience Electives (18 credit hours)**
Students must complete 3 credits from the biology electives course list, 3 credits from the psychology electives course list and an additional 12 credit hours from any courses included in the biology electives course list, the psychology electives course list or the math/chemistry/physics electives course list.

A course cannot be used to satisfy two AREA requirements. For example, if CHEM-C342 Organic Chemistry II Lecture is used to apply to the AREA IIIC requirement, it cannot be subsequently used to satisfy an AREA IV Part C neuroscience elective requirement. This applies to other courses, including CHEM-C344, PHYS 15200 and PHYS-P201. This is not a complete list.

**Biology Electives Course List**
- BIOL-K322 Genetics and Molecular Biology (3 credits) [strongly recommended, as this serves as a prerequisite for other higher-level electives and generally is required for admission to graduate and professional programs]
- BIOL-K331 Embryology (3 credits)
- BIOL-K338 Introductory Immunology (3 credits)
- BIOL-K483 Biological Chemistry (3 credits)
- BIOL-K484 Cellular Biochemistry (3 credits)
- BIOL 55900 Endocrinology (3 credits)
- BIOL 56800 Regenerative Biology and Medicine (3 credits)
- BIOL 57100 Developmental Neurobiology (3 credits)

**Psychology Electives Course List**
- PSY-B311 Introductory Laboratory in Psychology (3 credits)
- PSY-B334 Perception (3 credits)
- PSY-B344 Learning (3 credits)
- PSY-B356 Motivation (3 credits)
- PSY-B394 Drugs and Behavior (3 credits)
- PSY-B398 Brain Mechanisms of Behavior (3 credits)
- PSY B3## [proposed new course] Neurophysiology and Neurochemistry of Behavior (3 credits)
- PSY B3## [proposed new course] Developmental Psychobiology (3 credits)
- PSY B3## [proposed new course] Clinical Neuroscience (3 credits)
- PSY-I545 [proposed new course] Psychopharmacology (3 credits)
- PSY-I560 [proposed new course] Behavioral Genetics (3 credits)
Bachelor of Science in Neuroscience – Course Requirements

Chemistry/Physics Electives Course List

CHEM-C342 Organic Chemistry II (3 credits) (If used in AREA IIIC Physical and Biological Sciences, then the course cannot apply to AREA IV Part C requirement.)
CHEM-C371 Chemical Informatics I (1 credit)
CHEM-C372 Chemical Informatics II: Molecular Modeling (2 credits)
CHEM-C484 Biomolecules and Catabolism (3 credits)
CHEM-C485 Biosynthesis and Physiology (3 credits)
PHYS-P201 General Physics I (5 credits) or PHYS 15200 Mechanics (4 credits)
PHYS-P202 General Physics II (5 credits) or PHYS 25100 Heat, Electricity and Optics (5 credits)
PHYS 58500 Introduction to Molecular Biophysics (3 credits)

AREA IV Part D: Upper-Level Laboratory (1-2 credit hours)
To receive credit for a laboratory for which there is an accompanying pre- or co-requisite lecture, the lecture must be completed with a minimum grade of C.

BIOL-K323 Genetics and Molecular Biology Laboratory (2 credits)
BIOL-K325 Cell Biology Laboratory (2 credits)
BIOL-K333 Embryology Laboratory (1 credit)
BIOL-K339 Immunology Laboratory (2 credits)
CHEM-C344 Organic Chemistry Laboratory II (2 credits) (If used in AREA IIIC Physical and Biological Sciences, then the course cannot apply to AREA IV Part D requirement.)
CHEM-C486 Biological Chemistry Laboratory (2 credits)

AREA IV Part E: Capstone (1 course or course sequence; where not indicated, credit hours to be determined in consultation with advisor)
BIOL-K493 Independent Research (minimally 2 credits) & BIOL-K494 Senior Research Thesis (minimally 1 credit)
or
CHEM-C494 Intro to Capstone in Chemistry (1 credit) & CHEM-C495 Capstone in Chemistry (1 credit)
or
MATH 49200 Capstone Experience
or
PHYS 49000 Undergraduate Readings and Research
or
PSY-B499 Capstone Honors Research

AREA V: General Electives (20-22 credit hours)
Students may choose the remainder of the their 120 required credit hours from any IUPUI department, but no more than 6 credits hours of studio, clinical, athletic, or performing arts course work will be approved as electives unless they fulfill the requirements for a second major, a minor, or a certificate.