

**IUPUI University College
School of Science**

Neuroscience – Purdue Bachelor of Science

Required: SCI-I120 Windows on Science. With permission another Learning Community may be substituted. 1 cr. ____

AREA I COMMUNICATION – 9 credit hours

A. English Composition – 6 credit hours

(Grade of a C or better in each course is required.)

ENG-W131 (ENG-W140) English Composition I 3 cr. ____

Second composition course

ENG-W231 (recommended), ENG-W132 (ENG-W150),
TCM 22000, or TCM 32000 3 cr. ____

B. Speech Communication – 3 credit hours

COMM-R110 Speech Communication 3 cr. ____

AREA II FOREIGN LANGUAGE

No foreign language proficiency is required for the B.S. degree.

However, knowledge of a foreign language is strongly recommended for any student planning to attend graduate school.

AREA III GENERAL EDUCATION REQUIREMENTS

A. Humanities, Social Sciences, &

Comparative World Cultures – 12 credit hours

HIST-H114 Western Civilization II *or*
HIST-H109 Perspectives on the World: 1800-Present 3 cr. ____

One course each from List H, S and C.

See School of Science Course List under checksheets.

List H: _____ 3 cr. ____

List S: _____ 3 cr. ____

List C: _____ 3 cr. ____

B. Junior/Senior Integrator – Requirement suspended.

C. Physical and Biological Sciences – 19-20 credit hours

(A single grade of D or D+ will be accepted in one of these courses. Otherwise, all courses must be a C- or higher.)

CHEM-C105 Principles of Chemistry I 3 cr. ____

CHEM-C125 Experimental Chemistry I 2 cr. ____

CHEM-C106 Principles of Chemistry II 3 cr. ____

CHEM-C126 Experimental Chemistry II 2 cr. ____

CHEM-C341 Organic Chemistry Lecture I 3 cr. ____

CHEM-C343 Organic Chemistry Laboratory I 2 cr. ____

Complete one of the following courses or sequence:

CHEM-C342 Organic Chemistry Lecture II 3 cr. ____

CHEM-C344 Organic Chemistry Laboratory II 2 cr. ____

or

PHYS-P201 General Physics I 5 cr. ____

or

PHYS 15200 Mechanics 4 cr. ____

D. Math and Computer Science

(A single grade of D or D+ will be accepted in one of these courses. Otherwise, all courses must be a C- or higher.)

Complete one of the following sequences:

a. MATH 23100/MATH 23200

or MATH 22100/MATH 22200

or MATH 16500/MATH 16600

b. One course in computer science chosen from CSCI-N201, CSCI-N207, or CSCI-N211 (or advisor-approved alternative programming course).

(CSCI-N241 and CSCI-N299 do not count in this AREA.)

AREA IV NEUROSCIENCE MAJOR COURSES

Students must have a grade of C (2.00) or higher for courses listed in AREA IV. Grades below C- (1.70) are unacceptable.

No more than 20 credit hours of courses previously completed at other colleges may be applied to this AREA.

A. Foundation Courses (25 cr.)

BIOL-K101 Concepts of Biology I 5 cr. ____

(pre-req: CHEM-C101 or one year of high school chemistry)

BIOL-K103 Concepts of Biology II 5 cr. ____

(pre-req: BIOL-K101)

BIOL-K324 Cell Biology 3 cr. ____

(pre-reqs: BIOL-K103 and CHEM-C106)

BIOL-K416 Cellular & Molecular Neuroscience 3 cr. ____

(pre-req: BIOL-K324)

PSY-B110 Introduction to Psychology 3 cr. ____

PSY-B201 Foundations of Neuroscience 3 cr. ____

(pre-req: PSY-B110 or equiv. intro psych course or BIOL-K101)

PSY-B320 Behavioral Neuroscience 3 cr. ____

(pre-req: PSY-B110 or equiv. intro psych course)

B. Statistical Research Methods Course (3 cr.)

PSY-B305 Statistics 3 cr. ____

(pre-req: PSY-B110 or equiv. intro psych course and three credits of college-level mathematics)

or

STAT 35000 Introduction to Statistics 3 cr. ____

(pre-req: MATH 16500 or equivalent)

C. Neuroscience Electives (18 cr.)

Complete 3 credit hours from the biology electives course list, 3 credit hours 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 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 Elective Course List

BIOL-K322 Genetics and Molecular Biology	3 cr. ____
(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 cr. ____
BIOL-K338 Introductory Immunology	3 cr. ____
BIOL-K483 Biological Chemistry	3 cr. ____
BIOL-K484 Cellular Biochemistry	3 cr. ____
BIOL 55900 Endocrinology	3 cr. ____
BIOL 56800 Regenerative Biology and Medicine	3 cr. ____
BIOL 57100 Developmental Neurobiology	3 cr. ____

Psychology Elective Course List

PSY-B311 Introductory Laboratory in Psychology	3 cr. ____
PSY-B334 Perception	3 cr. ____
PSY-B344 Learning	3 cr. ____
PSY-B356 Motivation	3 cr. ____
PSY-B394 Drugs and Behavior	3 cr. ____
PSY-B398 Brain Mechanisms of Behavior	3 cr. ____
PSY B3## {new course} Neurophysiology and Neurochemistry of Behavior	3 cr. ____
PSY B3## {new course} Dev. Psychobiology	3 cr. ____
PSY B3## {new course} Clinical Neuroscience	3 cr. ____
PSY-I545 {new course} Psychopharmacology	3 cr. ____
PSY-I560 {new course} Behavioral Genetics	3 cr. ____

Chemistry/Physics Elective Course List

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

D. Upper-Level Laboratory Course (1-2 cr.)

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 & Molecular Biology Lab	2 cr. ____
BIOL-K325 Cell Biology Laboratory	2 cr. ____
BIOL-K333 Embryology Laboratory	1 cr. ____
BIOL-K339 Immunology Laboratory	2 cr. ____
CHEM-C344 Organic Chemistry Laboratory II	2 cr. ____
(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 cr. ____

E. Capstone Course (1 course or course sequence; where not indicated, credit hours to be determined in consultation with advisor)

BIOL-K493 Independent Research (minimally 2 cr.) and BIOL-K494 Senior Research Thesis (minimally 1 cr.)	
<i>or</i>	
PSY-B499 Capstone Honors Research	
<i>or one of the choices below:</i>	
CHEM-C494 Intro to Capstone in Chemistry (1 cr.) and CHEM-C495 Capstone in Chemistry (1 cr.)	
<i>or</i>	
MATH 49200 Capstone Experience	
<i>or</i>	
PHYS 49000 Undergraduate Readings and Research	

AREA V ELECTIVES

GENERAL INFORMATION

- A minimum of 120 credit hours must be completed for graduation. This total must include residence of at least two semesters at IUPUI and completion of at least 32 credit hours at the 300-level or above taken at IUPUI.
- Courses taken outside the Schools of Science and Liberal Arts must receive departmental approval. No more than 6 credit hours of athletic, studio, clinical, performing arts course work will count towards the degree. See Departmental Advisor.
- Independent study (correspondence) courses may be taken for general electives up to a maximum of 12 credit hours with approval from the School of Science.
- Courses taken on the pass/fail option will only count as general electives and not towards any degree requirements of the School or Program.
- Capstone Experience Course: Required of all majors, the capstone is an independent, creative effort of the student that is integrative and builds on the student's previous work in the major (research, independent study/project, practicum, seminar, or field experience). See departmental sections of the bulletin for specific information about the capstone and independent research courses.
- The following courses do not count toward any degree program in the School of Science: all agriculture courses, BIOL-N120, BUS-K201, BUS-K204, all COAS courses, CSCI-N1## level courses, CPT 10600, CIT 10600, EDUC-U205, EDUC-X100, EDUC-X150, EDUC-X151, EDUC-X152, ENG-W001, ENG-W130, MATH-M010, MATH-M020, MATH-M001, MATH 00100, MATH 00200, MATH 11000, MATH 11100, MATH 12300, MATH 13000, MATH 13100, MATH 13600, PHYS 01000, UCOL-U112, all remedial or developmental courses. Topics or variable credit courses (i.e. BIOL-N222) must receive approval.