

# ANATOMICAL SCIENCES AND NEUROBIOLOGY (ASNB)

Subject-area course lists indicate courses currently active for offering at the University of Louisville. Not all courses are scheduled in any given academic term. For class offerings in a specific semester, refer to the Schedule of Classes ([https://csprd.louisville.edu/psp/ps\\_class/EMPLOYEE/PSFT\\_CS/c/COMMUNITY\\_ACCESS.CLASS\\_SEARCH./x/?state=62dab551a0d600a5e8237359c50704e59007&duo\\_code=sjUx20STj215WV49377Rjlsfpa0v](https://csprd.louisville.edu/psp/ps_class/EMPLOYEE/PSFT_CS/c/COMMUNITY_ACCESS.CLASS_SEARCH./x/?state=62dab551a0d600a5e8237359c50704e59007&duo_code=sjUx20STj215WV49377Rjlsfpa0v))

500-level courses generally are included in both the undergraduate- and graduate-level course listings; however, specific course/section offerings may vary between semesters. Students are responsible for ensuring that they enroll in courses that are applicable to their particular academic programs.

## Course Fees

Some courses may carry fees beyond the standard tuition costs to cover additional support or materials. Program-, subject- and course-specific fee information can be found on the Office of the Bursar website (<https://louisville.edu/bursar/tuitionfee/university-fees/>).

### ASNB 491. Undergraduate Neuroscience Research 1-3 Units

**Term Typically Offered:** Fall, Spring, Summer

**Prerequisite(s):** PSYC 201, or permission of instructor.

**Description:** This is the basic course for granting course credit to undergraduates participating in laboratory research. Students engage in laboratory research activities for 3 hours per week per credit hour (e.g., students enrolled in 3 credits complete 9 hours of laboratory research activities per week).

For class offerings for a specific term, refer to the Schedule of Classes (<http://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm>)

### ASNB 492. Undergraduate Neuroscience Research - CUE 3 Units

**Term Typically Offered:** Fall, Spring, Summer

**Prerequisite(s):** PSYC 301 and PSYC 355; declared Neuroscience major.

**Description:** This course is a variation of ASNB 491, one that grants CUE credit. In addition to 9 hours per week of research activity, the student must read 10 research articles over the course of the semester, meet with their mentor regularly, and create and present their findings at a departments seminar or research symposium.

**Course Attribute(s):** CUE - This course fulfills the Culminating Undergraduate Experience (CUE) requirement for certain degree programs. CUE courses are advanced-level courses intended for majors with at least 90 earned credits/senior-level status.

For class offerings for a specific term, refer to the Schedule of Classes (<http://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm>)

### ASNB 495. Honors Neuroscience Research 3 Units

**Term Typically Offered:** Fall, Spring, Summer

**Prerequisite(s):** Acceptance to the Neuroscience Honors Program (University Honors students can also enroll) and consent of instructor (i.

**Description:** e., consent of the faculty research mentor). This course involves the designing of experiments and collection of data in support of the honors thesis. This research course is the first in a series of two intended to yield a thesis for Honors in Neuroscience. The major focus in the first semester is to write a formal thesis proposal, have it approved, and begin data collection.

For class offerings for a specific term, refer to the Schedule of Classes (<http://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm>)

### ASNB 496. Honors Neuroscience Thesis - CUE, WR 3 Units

**Term Typically Offered:** Fall, Spring, Summer

**Prerequisite(s):** ASNB 491 or ASNB 495; admission to Neuroscience Honors Program (University Honors students can also enroll) and consent of instructor (i.

**Description:** e., consent of the faculty research mentor). Students enroll in this course in the semester that they intend to submit their Honors thesis. In order to complete this course (and earn Neuroscience Honors), the student must: 1) Form a thesis committee of three faculty, including the mentor; 2) Write a thesis paper describing the methods and results of an independent research study; and 3) Complete an oral defense and adequately address committee requests for revisions to the written thesis document.

**Course Attribute(s):** CUE - This course fulfills the Culminating Undergraduate Experience (CUE) requirement for certain degree programs. CUE courses are advanced-level courses intended for majors with at least 90 earned credits/senior-level status.

For class offerings for a specific term, refer to the Schedule of Classes (<http://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm>)

### ASNB 502. Fundamentals of Neuroscience 3 Units

**Term Typically Offered:** Fall Only

**Prerequisite(s):** PSYC 355 or permission of instructor.

**Description:** Basics of cellular and systems neuroscience are taught through a combination of lectures and laboratories. Topics include: electrical potentials in the nervous system, synaptic transmission, somatosensory pathways, special senses (vision, hearing, balance, taste, and smell), eye movements, motor systems and higher functions (language, sleep and wakefulness, cognition, emotion and memory).

**Note:** Credit may not be earned in both ASNB 502 and ASNB 602.

For class offerings for a specific term, refer to the Schedule of Classes (<http://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm>)

**ASNB 514. Molecular Neuroscience - CUE****3 Units****Term Typically Offered:** Fall Odd Years

**Description:** Prerequisites or corequisites: ASNB 502, BIOL 241, BIOL 329, BIOL 415, Instructor Permission The purpose of this course in Molecular Neuroscience is to explore the molecular and cellular basis of nervous system development, function and diseases. The course will provide intellectual tools and skills to evaluate novel hypotheses and mechanisms in neuroscience. Special emphasis of the course will be to provide basic technical knowledge and tools to apply molecular biology concepts in the ongoing research in any area of neuroscience.

**Course Attribute(s):** CUE - This course fulfills the Culminating Undergraduate Experience (CUE) requirement for certain degree programs. CUE courses are advanced-level courses intended for majors with at least 90 earned credits/senior-level status.

For class offerings for a specific term, refer to the Schedule of Classes (<http://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm>)

**ASNB 517. Seminar on Developmental Neurobiology - CUE****3 Units****Term Typically Offered:** Spring Even Years**Prerequisite(s):** ASNB 502, and BIOL 329 or ASNB 514.

**Description:** The purpose of this course is to provide the student with a basic understanding of the processes and mechanisms of neural development. Specific topics include emergence of the neural primordium, patterning and growth of the nervous system, neuronal determination, axonal navigation and targeting, neuron survival and death, synapse formation, synaptic refinement and the formation of specific connections.

**Course Attribute(s):** CUE - This course fulfills the Culminating Undergraduate Experience (CUE) requirement for certain degree programs. CUE courses are advanced-level courses intended for majors with at least 90 earned credits/senior-level status.

For class offerings for a specific term, refer to the Schedule of Classes (<http://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm>)

**ASNB 530. Origin of Mammalian Sensory Systems and Comparative Neurobiology - CUE****3 Units****Term Typically Offered:** Fall Even Years**Prerequisite(s):** PSYC 305, or permission of instructor.

**Description:** This course examines the phylogenetic and developmental history of the mammalian senses with a focus on the integration of anatomy, neurobiology, and fossil evidence. We will study how our understanding of non-human vertebrates (both model and non-model organisms) can provide important insights into the structure and function of the modern mammalian senses and their brain correlates.

**Course Attribute(s):** CUE - This course fulfills the Culminating Undergraduate Experience (CUE) requirement for certain degree programs. CUE courses are advanced-level courses intended for majors with at least 90 earned credits/senior-level status.

For class offerings for a specific term, refer to the Schedule of Classes (<http://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm>)

**ASNB 566. Synaptic Organization of the Central Nervous System - CUE****3 Units****Term Typically Offered:** Spring Odd Years**Prerequisite(s):** ASNB 502.

**Description:** The purpose of this course is to provide the student with a basic understanding of synaptic circuits and the techniques used to study them. Each week we will focus on a different brain region or circuit. During the first meeting of each week the instructor will provide an overview of the topic which includes both lecture and reading material. During the second meeting of each week, students will meet with a graduate student teaching assistant to review and discuss the course material presented that week.

**Course Attribute(s):** CUE - This course fulfills the Culminating Undergraduate Experience (CUE) requirement for certain degree programs. CUE courses are advanced-level courses intended for majors with at least 90 earned credits/senior-level status.

For class offerings for a specific term, refer to the Schedule of Classes (<http://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm>)