

PHYSIOLOGY AND NEUROBIOLOGY (PNB)

PNB 5001. Principles of Physiology and Neurobiology. (3 Credits)

Molecular foundations of physiology and neurobiology. Discussion of classic and emerging literature, experimental design, and research technologies. Topics may include genetics, protein biology, cell structure and function, and neurophysiology.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205001>)

PNB 5002. Principles of Physiology and Neurobiology II. (3 Credits)

Foundations of physiology and neurobiology. Discussion of classic and emerging literature, experimental design, and research technologies. Emphasis on systems physiology.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205002>)

PNB 5101. Anatomy and Physiology for Intraoperative Neuromonitoring. (4 Credits)

Anatomy and physiology of the nervous and musculoskeletal systems.

Enrollment Requirements: Recommended preparation: course background in biology.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205101>)

PNB 5102. Fundamentals of Intraoperative Neuromonitoring. (3 Credits)

Overview of intraoperative neuromonitoring. Basics underlying recording of signals and discussion of main neuromonitoring modalities, common surgeries employing neuromonitoring, operating room protocols and procedures.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205102>)

PNB 5103. Applied Intraoperative Neuromonitoring. (2 Credits)

Experience working with the intraoperative neuromonitoring recording machines. Practice writing protocols for different modalities, and use of simulator programs to observe examples of signal acquisition.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205103>)

PNB 5104. Clinical Practicum in Intraoperative Neuromonitoring. (3 Credits)

Direct student involvement in intraoperative neuromonitoring of various surgical procedures, observing live signals obtained in a clinical setting, interaction with patients, surgeons and operating room staff, and review of operating room protocols and procedures.

Enrollment Requirements: PNB 5101, 5102 and 5103 with an average GPA of 3.0 or higher in these classes, and instructor consent.

May be repeated for credit

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205104>)

PNB 5105. Seminar in Intraoperative Neuromonitoring. (2 Credits)

Presentations of clinical and nonclinical topics affecting the daily job of an intraoperative neuromonitoring clinician. Topics may include the sterile field; infection control; needle, electrical, radiation and fire safety; patient privacy laws (HIPAA); professional conduct and communication; and diversity in the workplace.

Enrollment Requirements: Instructor consent.

May be repeated for a total of 4 credits

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205105>)

PNB 5106. Advanced Modalities in Intraoperative Neuromonitoring. (4 Credits)

Comprehensive didactic and laboratory training on advanced neuromonitoring modalities (tests) such as Phase Reversal, Motor Mapping, D-Wave, Nerve Action Potential and H-Reflex.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205106>)

PNB 5107. Clinical Research Methods in Intraoperative Neuromonitoring. (3 Credits)

Research methods and experimental design in a clinical setting. Common and advanced neurodiagnostic modalities, effects of anesthesia on neurophysiological data, and evaluation of multimodality monitoring. Discussion and critique of published literature, and development of a student generated research proposal.

Enrollment Requirements: PNB 5101, 5102 and 5103. Recommended preparation: PNB 5104 and 5105.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205107>)

PNB 5250. Physiological Signal Transduction: Principles, Pathways, and Applications. (3 Credits)

Signal transduction and regulation of development in physiological systems. Emphasis on genetic, molecular, and cellular methods; designing and interpreting experiments based upon research developments in current literature.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205250>)

PNB 5270. Molecular Endocrinology. (3 Credits)

Molecular mechanism(s) of hormone action in vertebrates and invertebrates. Molecular and genetic characterization of hormones, receptors, and signal transduction, and hormone actions at the molecular, cellular, and organismal levels. Includes student presentations on selected papers.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205270>)

PNB 5347. Electron Microscopy. (1-3 Credits)

Lectures and laboratory exercises on the principles and practice of biological electron microscopy.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205347>)

PNB 5350. Membrane Transport in Health and Disease. (3 Credits)

Fundamental mechanisms by which water and small molecules are transported across biological membranes. Biophysical and biochemical analysis of transport by diffusion, osmosis, channels, carriers and pumps in health and disease.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205350>)

PNB 5351. Projects in Electron Microscopy. (1-3 Credits)

Electron microscopy as a research method in biological sciences.
May be repeated for a total of 12 credits
View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205351>)

PNB 5395. Investigation of Special Topics in Physiology and Neurobiology. (1-3 Credits)

Advanced study within Physiology and Neurobiology.
May be repeated for a total of 24 credits
View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205395>)

PNB 5396. Research in Physiology and Neurobiology. (1-6 Credits)

Research in Physiology and Neurobiology in pursuit of a graduate degree.
May be repeated for a total of 60 credits
View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205396>)

PNB 5399. Independent Study. (1 Credit)

Independent investigation of topics in Physiology and Neurobiology.
May be repeated for a total of 12 credits
View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205399>)

PNB 5700. Sensory Physiology. (3 Credits)

Cellular and molecular mechanisms supporting the detection of sensory stimuli in vertebrates, invertebrates and other organisms. Detection of chemicals, touch, temperature, pain, sound, light, heat, magnetic fields, and electricity.
View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%205700>)

PNB 6250. Signal Transduction: Principles, Pathways, and Applications in Physiology. (3 Credits)

Signal transduction and regulation of development in physiological systems. Emphasis on genetic, molecular, and cellular methods; designing and interpreting experiments based upon research developments in current literature.
View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%206250>)

PNB 6405. Seminar in Research and Journal Presentations in Physiology and Neurobiology. (1 Credit)

Provides the opportunity for graduate students to present journal articles and their laboratory research in physiology and neurobiology to the department.
May be repeated for a total of 12 credits
View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%206405>)

PNB 6415. Ion Channels and Physiology. (3 Credits)

Exploration of major classes of ion channels, including ligand-gated, voltage-gated, mechanosensitive, thermosensitive and light-sensitive channels and their roles in physiology. Discussions of research approaches and emerging technologies in ion channel physiology.

Enrollment Requirements: PNB 5001 and 5002.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%206415>)

PNB 6417. Developmental Neurobiology. (3 Credits)

Molecular mechanisms of neurodevelopment. Neural induction, cell fate determination, neurogenesis, axon targeting, neuronal migration, synapse formation and activity-dependent synaptic remodeling.
View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%206417>)

PNB 6426. Molecular and Cellular Neurobiology. (3 Credits)

Molecular and cellular aspects of modern neurobiology including the analysis of neuronal proteins and their post-translational modifications, the dynamics of cellular substructures, and various signaling mechanisms in nerve cells including synaptic transmission. Molecular and cellular biology of selected neurological disorders.

Enrollment Requirements: Open to PNB grad students or seniors who have passed PNB 3251, PNB 3275, and one of MCB 2000, 2210, or MCB 3010. Consent of instructor required for non-PNB graduate students.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PNB%206426>)