

NEUROLOGY (NEUROL)

NEUROL 699 – DIRECTED RESEARCH IN NEUROLOGY

1-3 credits.

Offers the undergraduate student majoring in the life sciences (including biology, chemistry psychology, or related fields) and with interest in preparing for advanced coursework in graduate or medical school, an opportunity to participate in basic and translation research in neuroscience and neurological disorders.

Requisites: Consent of instructor

Course Designation: Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2025

Learning Outcomes: 1. Develop a clear research question or problem and formulate a hypothesis.

Audience: Undergraduate

2. Deliver an “elevator pitch” describing your research.

Audience: Undergraduate

3. Conduct research using methods employed by your lab and under the supervision of your PI and senior laboratory personnel.

Audience: Undergraduate

NEUROL 735 – NEUROBIOLOGY OF DISEASE

2 credits.

Overview of the major categories of human neurological and ophthalmological disease to fundamental topics in neurobiology.

Requisites: Graduate/professional standing and NTP/NEURODPT 610

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2022

Learning Outcomes: 1. Recognize the clinical aspects (diagnosis and available treatments) for a number of neurological diseases

Audience: Graduate

2. Critically discuss current papers in the neurobiology of disease literature

Audience: Graduate

3. Demonstrate understanding of the latest findings and treatments for a number of neurological disorders

Audience: Graduate

4. Sharpen communication skills by presenting scientific papers and leading discussions

Audience: Graduate

NEUROL 910 – INDEPENDENT READING AND RESEARCH FOR FOURTH YEAR MEDICAL STUDENTS

1-12 credits.

Independent research under the direct supervision of Neurology faculty. Each project is individualized to meet the research goals of the student within the context of the faculty's research.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2024

Learning Outcomes: 1. Apply concepts learned in coursework to real life situations

Audience: Graduate

2. Read and effectively search scientific literature

Audience: Graduate

3. Develop critical, analytical, and independent thinking skills

Audience: Graduate

NEUROL 913 – COGNITION AND NEUROANATOMY

2 credits.

Basic science concepts will be integrated to examine the relationship between neuroanatomy and cognition (e.g., learning and memory, executive function, visual perceptual abilities, etc.). Utilize stroke, epilepsy, dementia and other neurodegenerative disorders from clinical practice to demonstrate the connection between brain structure and cognitive function. Hands on experience in neuropsychological test administration and interpretation will be integrated into learning. Brain imaging correlates for clinical cases will be presented by a clinical neurologist.

Requisites: MED SC-M 810, 811, 812, and 813

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Differentiate cognitive profiles and neuroanatomical correlates of dementia

Audience: Graduate

2. Differentiate cognitive profiles and neuroanatomical correlates of stroke

Audience: Graduate

3. Differentiate cognitive profiles and neuroanatomical correlates of epilepsy

Audience: Graduate

4. Understand factors needed to determine cognitive capacity

Audience: Graduate

5. Learn to administer and interpret MOCA, SLUMS, and MMSE accurately

Audience: Graduate

NEUROL 914 – NEUROLOGY, DIET & NEUROLOGICAL DISORDERS

2 credits.

Gain insight into the role of diet and nutrition in neurological disease while utilizing analytical and evidence-based-medicine research skills. Gain understanding of the role of diet and nutrition in the exacerbation and the treatment of neurological disorders (e.g. Epilepsy, Autism, Fragile X Syndrome, Phenylketonuria (PKU), Multiple Sclerosis).

Requisites: MED SC-M 810, 811, 812, and 813

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Describe the fundamental associations between diet and neurological disorders under study (e.g. Epilepsy, Autism, Fragile X Syndrome, Phenylketonuria (PKU), Multiple Sclerosis).

Audience: Graduate

2. Identify and critically evaluate landmark articles in field.

Audience: Graduate

3. Apply evidence from research, readings, and discussions to interpretation of case studies

Audience: Graduate

4. Identify a question or topic of interest and prepare a written (book review, case report, mini review) or oral presentation (PowerPoint) in the area of diet/nutrition and brain disorders.

Audience: Graduate

5. Demonstrate competency in giving/receiving feedback through a peer review process.

Audience: Graduate

NEUROL 919 – NEUROLOGY INDIVIDUALIZED CLINICAL ELECTIVE

1-12 credits.

Individually scheduled clinical elective, directly supervised by Neurology senior residents and attending physicians. Regularly scheduled supervisor-student meetings, which involve some or all of the following: rounding on service patients, observing procedures in the unit or clinic, examination of patients in an ambulatory setting, presenting cases and teaching topics, and discussing patient cases. Independent activities, including reading about patient conditions and preparing for direct patient care, as needed. Other patient care related learning activities as assigned by instructors: these are dependent on the individual student and the patients under the student's care.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2025

Learning Outcomes: 1. Perform a hypothesis driven history and complete a targeted exam.

Audience: Graduate

2. Develop and present a weighted differential diagnosis.

Audience: Graduate

3. Using clinical evidence, adapt and justify the working diagnosis.

Audience: Graduate

4. Present a diagnostic plan including laboratory and imaging modalities.

Audience: Graduate

5. Correctly interpret imaging and laboratory findings and communicate results to patients and team members.

Audience: Graduate

6. Complete written documentation in a comprehensive, concise, accurate and timely manner.

Audience: Graduate

7. Review, interpret and present current literature to support patient care.

Audience: Graduate

8. Develop clinically relevant questions to advance learning.

Audience: Graduate

9. Communicate effectively with patients, families, physicians and non-physician team members.

Audience: Graduate

10. Communicate and collaborate with consultants and/or primary team and other providers to coordinate care.

Audience: Graduate

11. Engage patients in shared decision-making regarding tests, orders and procedures.

Audience: Graduate

12. Avoid medical jargon when communicating with patients and families.

Audience: Graduate

13. Recognize limitations and seek assistance as appropriate.

Audience: Graduate

NEUROL 990 – RESEARCH SPECIAL NEUROLOGICAL FIELDS

1-12 credits.

Independent research under the direct supervision of Neurology faculty. Each student's project is individualized to meet the research goals of the student within the context of the faculty's research.

Requisites: Consent of instructor

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Summer 2015

Learning Outcomes: 1. Exhibit a broad understanding of general neurological principles

Audience: Graduate

2. Conduct independent research using a variety of approaches

Audience: Graduate

3. Think critically to address research challenges

Audience: Graduate

4. Exhibit and foster professional and ethical conduct in research

Audience: Graduate

5. Collaborate with other investigators within or outside the thesis lab

Audience: Graduate

6. Complete required regulatory training and certifications (for example, IRB, biosafety, animal, radiation and HIPPA) as pertinent to thesis laboratory.

Audience: Graduate