

**NEUR 800p - Research (Neurology – Sun Health Research Institute)****Drs. M.N. Sabbagh & D.J. Connor (623 875 6500; [maarwan.sabbagh@sunhealth.org](mailto:maarwan.sabbagh@sunhealth.org))**

6 weeks, not to exceed 12 weeks; Offered periods 6W1 and 6W2

*Not* Directly Supervised/Non-patient care.

Maximum enrollment of 1

Prerequisites: NEUR 803

**Goals:** This elective may serve as a clinical or laboratory research elective. It will familiarize students with the clinical management of neurological problems, including in-depth review of the diagnostic modalities and treatment options of patients with Dementia, Alzheimer's, and Parkinson's. Students will be able to: 1) investigate clinical research topics in neurology; 2) learn how to approach clinical problems systematically, and 3) learn clinical research techniques and clinical trial design. Students will have extensive laboratory experience focusing on the newest advances in the area of neuropsychology and clinical neuroscience.

**Format:** The student will research a given topic in dementia from conception to possible publication, including clinical pathological correlations and database query, and prepare a written summary of his/her work. The student will observe a dementia clinic as well as a private practice weekly as part of the rotation and participate in geriatric CME lectures given two to three days/week.

**Evaluation Methods** The student will be evaluated based on: 1) observation of skills and performance of assigned research; 2) written report summarizing research projects; 3) student self-rating; and 4) course evaluation questionnaire rating the quality of the overall elective experience.

**NEUR 810Bf (sect 1) - Neurology (BNI, St. Joseph's Hospital and Medical Center, Phoenix)****Dr. S. Chung & Faculty ([Sandra.Edwards@chw.edu](mailto:Sandra.Edwards@chw.edu), 602 406 3382)**

4 - 6 wks; offered year round

*Not* directly supervised/Patient care.

Maximum enrollment of 2 (1 per clinical track) or with special permission

Prerequisites: Completion of third year clinical rotations and Neurology 803. Must have consent from Course Director.

**Goals:** This elective is designed to serve as an advanced experience for students who have already completed a basic rotation in clinical neurology. Systematic development of neurological differential diagnoses through physical examination and ancillary diagnostics will be emphasized, as well as evidence-based therapies and exposure to patient participation in clinical trial research for a wide range of diseases. Additionally, enrichment of knowledge of the anatomy and physiology of the nervous system and pathogenesis of neurological disorders will be gained through the didactic and clinical components of this course

**Format:** Students may choose one of two clinical tracks: **Track I (Acute inpatient neurology):** The student will serve as a member of the inpatient neurology team under the supervision of the attending inpatient neurologist and the chief resident. This will expose students to emergency room evaluation, acute inpatient, and intensive care management of the patient with neurological disease. The student will carry his/her own caseload of patients and be responsible for their comprehensive evaluation and plans of care. Formal instruction in clinical neurology is covered in both daily attending rounds and neuroradiology conference. **Track II (Ambulatory neurology):** The student will be able to choose from a single subspecialty or a combined subspecialty schedule for outpatient clinic Monday through Friday. These clinics include experience in 1) movement and cognitive disorders; 2) multiple sclerosis and other neuroimmunologic conditions; 3) neurovascular and stroke, with exposure to endovascular diagnostics and interventions, as well as acute stroke management; and 4) epilepsy and electrophysiology, including a combined experience of epilepsy clinic, EEG interpretation, and exposure to patient evaluation in the EMU (epilepsy monitoring inpatient unit). Teaching conferences and lecture series are scheduled daily, including weekly basic neuroscience conference and neuroscience (combined neurology/ neurosurgery) grand rounds and are considered appropriate for students in both tracks.

**Evaluation Methods:** The student is evaluated as to knowledge base, case organization and presentation skills, clinical judgement and initiative and participation as a member of the clinical team. Interpersonal skills. Evaluation forms will be completed by the senior residents and attending faculty who have observed the performance of the student during the elective.

**NEUR 810Bg (sect 2) - Neurology (Good Samaritan Regional Medical Center, Phoenix)****Drs. B. Hendin, Tamm & Levine ([Connie Farrington 602-239-2296](tel:602-239-2296))**

3,4 or 6 wks; maximum length of 6 wks; offered year round

Directly supervised/Patient care.

Maximum enrollment of 1

Prerequisites: Neurology 803. medical students must have consent of Course Director before registering.

**Goals:** The student will learn a systematic approach to the patient with neurological complaints. They will become proficient in the neurological history and physical exam and the other attendant diagnostic tools used in the assessment of

such patients. The student will gain an appreciation of neuroanatomy as applies to diagnosis, and will be able to formulate a treatment plan with attention to pharmacologic, psychosocial, and functional aspects of each case.

**Format:** Students are assigned to the Neurological Teaching Service at Good Samaritan Regional Medical Center, in conjunction with residents from the Good Samaritan Regional Medical Center/VAMC Internal Medicine Residency Program. In addition to regular teaching rounds, the patient will attend and participate in weekly Neurological Conferences and morning report. They will also obtain exposure to outpatient Neurology in the Good Samaritan Regional Medical Center Outpatient clinic and the office practice of the attending Neurologists. A reading list will supplement their clinical experience.

**Evaluation Methods:** Formal evaluation forms are completed by the Faculty Neurologists who have directly observed the student throughout their rotation. The student is evaluated on their content, knowledge, clinical judgment, interpersonal skills, and professionalism.

Subsidized housing available on a limited basis, prior reservation **MANDATORY**.

### **NEUR 810Bm (sect 3) - Neurology (Mayo Clinic, Scottsdale)**

**Dr. D. Dodick (480 301-4338)**

4 wks *only*; offered year round

Directly supervised/Patient care. Prior approval.

Maximum enrollment of 1

Prerequisites: Medicine

#### **Goals:**

1. To refine neurological history and examination skills.
2. To apply the neurological history and physical examination findings to generate a differential diagnose and localize the problem anatomically where possible.
3. To select the appropriate sequence of laboratory tests and diagnostic procedures based upon the neurological history and physical examination.
4. To learn the clinical applications and limitations of EEG, EMG, and other diagnostic neurological tests.
5. To learn an approach to the management of common neurological problems in the in-patient and out-patient settings.

**Format:** This clerkship takes place at the Mayo Clinic Scottsdale and Mayo Clinic Hospital. Students will be supervised directly by consultants, primarily in the in-patient setting and whenever possible, in the outpatient setting. In the outpatient clinic, students will be expected to perform a history and physical examination on two patients daily. After reviewing the case with the consultant, the student will assist in ordering tests and procedures and will be present when the patient returns at the conclusion of the workup. In the hospital service students will attend rounds with their supervising consultant. Opportunities will be available to perform neurological procedures such as lumbar punctures. Students will also have the opportunity to observe the activities of the EEG, EMG, neurovascular, and autonomic laboratories. Clerks are not expected to take call, so their evenings are available for independent study. While the emphasis of the clerkship will be general neurology, students will have the opportunity to gain added experience in the fields of movement disorders, demyelinating disease, neuromuscular diseases, epilepsy, cerebrovascular disease, cognitive disorders, and headache, if so desired.

**Evaluation Methods:** Written evaluations will be provided by each consultant working with the student. \*Clerkships of slightly longer or shorter duration may be arranged.

### **NEUR 815Bp- Behavioral, Cognitive, and General Neurology (21<sup>st</sup> Century Neurology)**

**Dr. S. Flitman (602)-265-5000**

4 or 6 wks; maybe repeated 1 time; maximum length of 12 wks; offered year round

*Not* Directly supervised/Patient care

Maximum enrollment of 1

Prerequisites: Neurology 803.

**Goals:**To gain experience with patients with disorders of higher brain function, including language, memory, behavior, spatial function, and executive function. This includes patients from age 5 and up including children with epilepsy, attention deficit disorder, learning disability, and young adults with adult attention deficit disorder and early onset dementia, to late adulthood with stroke, dementias like Alzheimer's disease and Lewy Body disease as well as rare conditions including Creutzfeldt-Jakob Disease (the human equivalent of mad cow disease).

**Format:** Not Directly Supervised/Patient Care. Students will participate and observe patient evaluations at 21st Century Neurology, a private practice in Phoenix, Arizona. The emphasis will be on performing mental status examinations and administering standardized tests like the Folstein MMSE and the Rey AVLT. Computer-based testing may also be employed. Interpretation of test results, formal neuropsychological tests, neurophysiology and neuroimaging will be part of the experience. Opportunities for students to participate and observe clinical research are also available, as the clinic is currently engaged in several phase II and phase III trials of experimental therapeutics and experimental diagnostic tests. At the end of the rotation, the student will give a brief presentation on a neurobehavioral topic of his/her choice. Students are encouraged to attend grand rounds and case presentations at the Barrow Neurological Institute, which is on the same

campus.

**Evaluation Methods:** Students will be evaluated based on observation of skills and assessment of assigned readings as well as a self-rating. Students will complete a course evaluation questionnaire rating the quality of the overall elective experience.

#### NEUR 815Dm (sect 2) - Epilepsy

**Drs. J. Sirven and J. Draskowski(480 301 4338)**

4 wks *only*; offered year-round

Directly supervised/Patient-care.

Maximum enrollment of 1

Prerequisites: Completion of NEUR 803

**Goals:** This elective in neurology-epilepsy will introduce students to adult patients with intractable epilepsy provided in a comprehensive epilepsy clinic. The goals include: developing an understanding of patients with epilepsy in a comprehensive Epilepsy center; developing a thorough understanding of IALE classifications of Epilepsy and applying it in a clinical setting; learning and applying the pharmacologic and surgical therapies for Epilepsy; developing an understanding for the complete care of the patient with Epilepsy including neuropsychological evaluation, therapeutic intervention, and medical therapy.

**Format:** During this elective students will attend daily epilepsy rounds in the morning and epilepsy clinic in the afternoon; attend the Surgical Case Management Conference once a week; participate in clinical research; have an opportunity to further his/her knowledge in EEG interpretation; be exposed to neuropsychologic testing and its uses; observe surgery for epilepsy and surgical work-ups. No weekend or night call.

**Evaluation Methods:** Evaluation will be based on observation of student performance, written comments by preceptor/s of the rotation, and constructive feedback from the comprehensive epilepsy team.

#### NEUR 815Ef - Vestibular Eye Movements and Balance Disorders (BNI, St. Joseph's Hospital and Medical Center, Phoenix)

**Dr. T. Fife (Sandra.Edwards@chw.edu, 602 406 3382)**

3 - 4 wks; offered year round

Directly supervised/Patient care

Maximum enrollment of 1

Prerequisites: Completion of all 3rd year student rotations and Neurology 803 or equivalent.

**Goals:** In this elective, students will gain experience in the clinical evaluation of patients with with dizziness, nystagmus and ataxia. Emphasis will be placed on the practical application of principles of neuroanatomy in the clinical setting.

**Format:** The course will be offered in the outpatient setting at the Balance Center of BNI. Students will spend time in clinic 4 days per week and will be tutored in relevant neuroanatomy and in the clinical syndromes producing dizziness. Clinical evaluation of abnormal eye movements will be emphasized. Research opportunities are available for those students with interest.

**Evaluation Methods:** Students will be evaluated by the attending faculty who observed the performance of the student during the elective.

#### NEUR 816Df - Neuro-Oncology (BNI, St. Joseph's Hospital and Medical Center, Phoenix)

**Drs. L. Ashby & W. Shapiro (Sandra.Edwards@chw.edu, 602 406 3382)**

4 wks; offered year round

Directly supervised/Patient care.

Maximum enrollment of 1

Prerequisites: Completion of all 3rd year student rotations and Neurology 803 or equivalent.

**Goals:** This course is offered as a comprehensive exposure for the student to become familiar with the diagnosis and management of patients with primary brain tumors and complications of systemic cancer that affect the nervous system, including metastatic neoplasms and paraneoplastic disorders. The student will become familiar with ongoing brain tumor clinical trials and will gain knowledge of the role of chemoradiotherapy and other treatment options for this disease.

**Format:** This elective includes inpatient and outpatient consultations and clinical management, and emphasizes the multidisciplinary approach to the care of patients with CNS malignancies. Exposure to neuropathology and neuroimaging are integrated into the experience, as well as weekly CNS tumor board and stereotactic radiosurgery conference. Reading assignments will be provided.

**Evaluation Methods:** Written evaluation will be completed by the attending neuro-oncology staff who observed the performance of the student during the elective.

**NEUR 815Gp - Clinical Neurology (Headache & Migraine) & Practice Management (Valley Neurological Headache Clinic)**

**Dr. C.A. Foster (602 331 3721 ph; 602 331 3627 fax)**

3 wks *only*; offered 3S4-3W4

*Not* directly supervised/Patient-care.

Maximum enrollment of 1

Prerequisites: Fourth year medical student

**Goals:** Upon completion of this rotation, the student will demonstrate a general knowledge of the evaluation and treatment of headache disorders including: demonstrating a knowledge of the International Classification of Headache and the use of this diagnostic tool; basic technical familiarity with the evaluation of the headache patient; skills and scientific reasoning in clinical pharmacology and clinical physiology problems presented by the headache patient; developing rational approaches to both acute and chronic headache management.

**Format:** The student serves as an active team member of a busy clerkship in a neurological headache clinic. The student will interact with faculty and residents on a daily basis including clinics, therapeutic rounds and therapeutic procedures. A reading list and syllabus will be provided. Each student will have direct patient care responsibility in assessment and therapeutic regimen development. Students will have an opportunity to learn the fundamentals of comprehensive treatment approaches for headache disorders, including dietary restrictions, exercise, and pain management.

**Evaluation Methods:** Each student will be evaluated by the clinic director. Evaluation will occur throughout the rotation. Students are evaluated on the basis of the improvement of cognitive knowledge, and regular attendance to clinical duties and teaching activities.