

# Neurology Course 721

## CLERKSHIP CONTACTS

**Clerkship Director:**  
Jeff Kraakevik, MD

**Clerkship Coordinator:**  
Kelly Warner

Welcome to the Senior Clerkship in Neurology. This course in clinical neurology satisfies the requirements for graduation of the Oregon Health & Science University School of Medicine. This course is a fourth year course, but may also be taken under special conditions by third year students. This course must be completed prior to enrolling in advanced electives in clinical neurology.

### **COURSE GOALS:**

- 1) To familiarize the student with the clinical presentation of common neurological disorders. History taking skills to elicit precise symptoms and to distinguish clinical syndromes will be emphasized.
- 2) To develop in the student a facility with the neurologic exam. Both the detailed neurological examination and features of the neurological examination for practical application in general medical practice and allied neurological specialties such as orthopedics, and physical medicine will be taught.
- 3) To have the student acquire a sound knowledge of the differential diagnosis of common neurologic disorders, the laboratory evaluation and clinical management of these diseases. Categorically included are: stroke, seizure disorders, headache, movement disorders, multiple sclerosis, stupor and coma, diseases of muscle and nerve, dizziness, and dementia.
- 4) To introduce the student to the diagnostic evaluation and management of urgent neurological or neurosurgical illness.
- 5) To convey the indications for and to acquire skills in performing lumbar puncture and to appreciate both the clinical value and the limitations of technologies such as: electroencephalography, evoked potentials, computerized axial tomography (CT), magnetic resonance imaging (MRI), arteriography, myelography, and radionuclide imaging.
- 6) To acquaint the student with the new frontiers in neurology and many of the cutting-

edge issues in neuroscience.

- 7) To introduce the concepts of neurologic consultation and an understanding of the role of the consultant in clinical problem solving.

### **SITE INFORMATION**

Currently the Department of Neurology offers the rotation in Bend or Eugene; one student to each location. A little details about each:

**Bend** is east of Mt. Hood about 3 1/2 hours from Portland. You will be working with neurologists from Bend Neurological Associates, (Drs. Michael Bell, Laura Schaben and David Schloesser) and NorthStar Neurology, (Drs. Francena Abendroth, Craigan Griffin and Richard Koller). Both clinics are within 1 minute walk of the St. Charles Medical Center and 5 minute walk from your provided apartment. These will be no resident and you will have one on one with the attending. You will be working in a private clinic setting as well as inpatient. Call depends on neurologist schedule and anticipate having a few weekends off. A laptop is provided and a \$50 stipend is given for food while at St. Charles. <http://www.visitbend.com/>

**Eugene** - Sacred Heart Medical Center (SHMC) in Eugene and Springfield offers a Neurology rotation with either Dr David Lippincott of Peace Health Medical Group or Dr Ray Englander of Oregon Neurology Associates, depending on scheduling. The neurologists are very excited to have students work with them and are very willing to make this rotation the best it can be based on your particular interests. Both physicians' offices are on the SHMC RiverBend campus and patients are seen in this state-of-the-art facility in Springfield.

The Center for Medical Education & Research (CMER) coordinates your stay in the area and is based at SHMC University District in Eugene. The Student Lounge at CMER, with computers, course testbooks, comfortable chairs and couch, TV, refrigerator, and lockers, provides a quiet place to study, separate from your apartment. Students stay in Duck's Village apartments which are on a main bus route and are close to well-maintained bike paths that allow easy access via bicycles to clinics and hospitals. Many students have also stayed with family or friends while in the area. Eugene-Springfield is located approximately 2 1/2 hours from Portland.

<http://www.travellanecounty.org/>

With the powers of technology, both students at the off site locations will be involved in the lecture series here at OHSU. A notebook with wireless access is provided for both students at their sites.

## RESOURCES:

Required reading:

- OHSU Neurology 721 syllabus

Recommended reading (provided while on rotation):

- Aminoff, Simon, Greenberg. Clinical Neurology. 2005.

Recommended references for your library:

- Biller. Practical Neurology. 2008.
- Ropper and Brown. Adam's and Victor's Principles of Neurology. 2005.
- Rowland. Merritt's Neurology. 2005
- Wiener and Goetz. Neurology for the Non-Neurologist. 2004.

Electronic resources:

- [www.medlink.com](http://www.medlink.com) – UpToDate specific to neurology
- [www.aan.com](http://www.aan.com) – American Academy of Neurology website
  - o Education site has practice parameters

## COURSE DESCRIPTION:

The course is divided into 3 principal components: Inpatient Service, Outpatient Clinics and Teaching Sessions. It is designed to give the student a broad overview of clinical neurology. Students assigned to Bend or Eugene away rotations will have a mix of inpatient and outpatient activities to which you will be oriented when you arrive at those sites.

- 1) *Inpatient Service (3 weeks)*: Each student is assigned to an inpatient ward experience either on the general neurology VA or OHSU service, the NSICU service, the OHSU stroke service, or the neurosurgery service, or the pediatric neurology service. Of note, the pediatric neurology service consists of both inpatient and outpatient responsibilities. The location of your assignment may be found in the schedule of your syllabus. You will be assigned to an inpatient service for two weeks, and a critical care service (neurosurgery, NSICU, or stroke service) for one week. The student will evaluate patients admitted to the ward or seen on the consultation service, and will present the case to the attending physician during rounds. The student will be expected to write an admitting history and physical examination along with case analysis for each patient they are assigned. The student will make rounds with the house staff and actively participate in the care of patients he or she is assigned. Students are required to write daily notes on their patients either in EPIC or CPRS. An awareness of the status of their patients during hospitalization as well as pertinent results of laboratory and radiological testing is expected from the student. Students are especially encouraged to undertake independent in-depth reading and literature search on neurologic disorders that pertain to their patients. Participation may also include performance of simple diagnostic tests such as lumbar puncture.

During the weeks a student clerk is assigned to the inpatient service, each student is expected to be present for daily rounds Monday through Friday. Students not "on call" will be expected to be available to accept a new patient until 5 pm. Students will be "on call" until 10:00 pm two nights during their rotation. Students will be "on call" one weeknight while on the inpatient services. Students assigned to the NSICU may take their call with the NSICU team. Students will be asked to be present one weekend during the rotation. In order to

allow greater continuity in patient care it is generally expected that you will perform your weekend call time while you are assigned to the inpatient wards. Students should read extensively and be familiar with the disease processes, complications, and potential therapies of the patients they have seen.

- 2) *Outpatient Clinics (1 week):* Each student will be assigned to General and Subspecialty *Neurology Clinics* for one week. During this assigned week, students are required to attend clinics according to the accompanying schedule. The level of involvement of the student will vary from clinic to clinic. Ideally the student will be allowed to see patients individually and discuss the case with a staff. Unfortunately due to busy clinic schedules, this level of involvement in the patient care is not always available.
- 3) *Teaching Sessions:* In the course of his/her ward assignment; it is unlikely that each student will be exposed to all the important aspects of neurological diseases. A Medical Student Attending will conduct one-hour teaching sessions at least 3 times per week. These are intended to introduce students to the approach of common neurological problems, through didactic sessions, case vignettes and student presentations. The students will also learn the fundamentals of the neurological examination. This is an important portion of the clerkship, and all students are expected to attend. These teaching sessions take priority in case of scheduling conflicts.

Students will also be assigned to participate in a learning experience at a long term Alzheimer's care unit. This is a required trip, and if the student is unable to attend on the day they are assigned, they must make arrangements to reschedule or make up the experience with the course director.

- 5) *Clinical Conferences:* Each student is encouraged to attend as many of the regularly scheduled neurological conferences as possible. Attendance by all students is expected at the Neurology Grand Rounds, Neuroradiology Conferences, the Thursday Noon Conference and the Neuroscience Conferences.

#### **ATTENDANCE POLICY:**

If you are unable to be on your ward service or attend your clinic rotation, please let Kelly Warner know by email, [warnerk@ohsu.edu](mailto:warnerk@ohsu.edu), prior to being absent. An alternative clinic will be arranged or additional call may be scheduled for making up the time. Medical students are allotted 2 excused days from the rotation with time absent made up. If you plan on being away for more than 2 days from your rotation, please discuss with Dr. Kraakevik for approval and arrangements.

#### **REQUIRED ASSIGNMENTS:**

- 1) *Patient write-up:* Each student will turn in a formal write up of a patient they have encountered during the course of the clerkship due on the third Friday of the clerkship. Papers should be submitted by email directly to the clerkship coordinator ([warnerk@ohsu.edu](mailto:warnerk@ohsu.edu)).

The case report should follow the guidelines for submission to the academic journal 'Neurology' for Clinical/ Scientific Notes which can be found at this website:

<http://www.neurology.org/site/misc/auth2.xhtml#SPECIFICATIONS>

The one change in these guidelines is that you will have a 1,500 word limit (not the 750 word limit allowed by 'Neurology'). As this is a case report format, you will need to be concise, yet still display a depth of the topic you are discussing. The case report should consist of a brief description of a case you have seen while on the neurology clerkship. This case description should include brief history, and a description of the neurological examination. As your word count is going to be limited, your history and physical examination notations are likely going to be shorter than you would typically write in a chart note, and will be more confined to pertinent positives and negative findings. You will then need to present about a paragraph outlining differential diagnosis and diagnostic studies performed on this person.

The remainder of the case report should be a description of a mechanism of disease topic which is directly related to your patient's case. This section should be referenced in text using the format outlined by the journal 'Neurology'. The topic should not be a review of clinical trial data, but should instead focus on research articles which are looking at the neuroscience behind the disease, diagnostic evaluation, or treatment. This can look at the neuroanatomic localization, pathophysiological mechanisms, or pharmacological mechanism. All papers need to have at least 3 references. Honors level papers will need to be referenced with primary literature, and will need to display that the information presented is at the edge of what is currently known about the topic. It is fine to discuss theoretical mechanisms as long as there is some data to back up what you present.

These case reports will be the basis for an online journal, and the hope is that a portion of each class' case reports will be published. Cases may include imaging, and charts and graphs if it is helpful to the case. Videos of patients may also be submitted, but a properly filled out video consent form must accompany the video at the time of submission. As these will be potentially published online, all identifiable patient information should not be included. If imaging is submitted, identifying information must not be present on the image, and videos should have faces pixelated out or equivalent unless the face is required to see the finding.

- 2) *Neurological examination passport:* Each student will have the entire neurological examination observed by a faculty member. As we realize that faculty members do not always have the time to watch a complete physical examination, we have established a passport system. With this system, the student has the opportunity to have a faculty member observe a single component of the examination. If the student is felt to have competently demonstrated that portion of the examination, the faculty member will sign off on the passport form. Later a student may then have another faculty member observe a different portion of the examination. **Through the course of the clerkship, the student is responsible for having all of the portions of the neurological examination observed and signed off.** For example, student Luke has attending Dr. Vader observe the cranial nerve examination. Luke then asks Dr. Vader to sign the cranial nerve part of the passport. Luke the next day has Dr. Yoda observe him doing the strength testing, and Dr. Yoda signs on the strength testing line. By the end of the rotation, Luke has a signatures on each part of the neurological examination, and he feels super to have mastered this part of his training. (Then Luke finds out Dr. Vader is his father, and throws himself into a wind tunnel, and he then drops out of medical school and goes to some naturopathic school.).
- 3) *Alzheimer's Disease day center visit:* Attendance to your assigned visit to an Alzheimer's disease center is required to pass this course.

## STUDENT EVALUATION:

Total grade will be determined based on these three activities with majority of grade (approximately 75%) based on clinical evaluations along with examination score (approximately 15%), and patient write-up (approximately 10%). Although not formally graded, participation in didactic sessions may influence grades which are felt to be borderline.

- 1) *Ward/Clinic evaluations:* Evaluation of the student clerk's performance, knowledge base and clinical skills will be provided by the residents and attending staff on each service. The Medical Student Attending will be responsible to gather together these evaluations and provide feedback to each student. Although there are individual differences in emphasis, most attending and resident staff looks for motivation, competence and responsibility in a student. The student will have ample opportunity to demonstrate mastery of the history and neurological examination skills with a Neurology staff. The neurological examination passport must be completed for a student to pass this course.
- 2) *Patient write-up:* Students are expected to complete a patient write-up by the end of the third week. Description is found above.
- 3) *Final examination:* Students are expected to take an exam on the final day of the clerkship. The score from the exam will be incorporated into the students' final grade. The *Clinical Neurology Exam* from the National Board of Medical Examiners (NBME) consists of 100 multiple choice questions. Students will have 2 1/2 hours to complete the examination.  
RESOURCE:  
[http://www.nbme.org/pdf/SubjectExams/SE\\_ContentOutlineandSampleItems.pdf](http://www.nbme.org/pdf/SubjectExams/SE_ContentOutlineandSampleItems.pdf)

This gives an overview of what broad topics are covered and what percentage of the exam covers those topics.

## WEEKLY SCHEDULE:

*Inpatient Service:* Work rounds and attending rounds - exact time varies.

*Clinics:* Most clinics start at 8:30AM and 1:00PM. Check your clinic assignments during the assigned week. We are often not informed of last minute changes in the clinic schedule. Don't be shy about joining other ongoing clinical activities if you have an unexpected lull in your schedule. Also bring along a book or be prepared to use the library just in case.

*Teaching Sessions:* You will meet with your teaching attending at least 3 times per week. Each session is about an hour long. These generally occur on Mondays, Wednesdays, and Fridays from either noon to 1 pm or 4 to 5 pm, but the time is subject to change based on availability of the teaching physician. Attendance at the teaching sessions is required. Students on the Bend and Eugene rotations will be required to log into the Friday (and one Wednesday) didactic sessions from 12:30 to 1:30 pm PM. The remaining lecture topics should be discussed with your on-site preceptors.

*Conferences:* Conferences of relevance are listed below.

Monday	8:30 AM	Morning Report, Hatfield Building, 12D03
	12:00 PM	◆ Neuroradiology / Neuro-oncology Conference, Hatfield Building, 14D03

Tuesday	4:00 PM	◆ Medical student teaching session
	7:00 AM	Neuropathology Conference, Hatfield Building, 12D03
	4:00 PM	◆ Medical student teaching session
Wednesday	8:00 AM	◆ *Neurology/Neurosurgery Grand Round, UHS 8B- 60
	11:00 AM	Epilepsy Conference, VAMC 5th Floor Conference Room
	4:00 PM	◆ Peds Neuroscience Seminar, CDRC Conf Rm 3320
Thursday	11:00 AM	◆ Brain Cutting, Basic Science Building, Morgue
	Noon	◆ Clinical Conference/M&M Conference, MacHall, 3198
	4:00 PM	◆ Medical student teaching session
Friday	8:30 AM	Morning Report, Hatfield Building, 12D03
	12:30 PM	◆ Neuroscience Conference, Hatfield Building, 12D03

◆=You really should go to these conferences.

\* = Neurology Grand Rounds are canceled during the summer.