California University of Science and Medicine
SCHOOL OF MEDICINE

NEUR-7701: Neurology Clerkship

Course Syllabus

Clerkship Director:

Dr. Elizabeth

Morrison-Banks

Associate Dean of Clinical Curriculum:

Dr. Maegen Dupper

Class
MD Class of 2027

Credits hour: 4

Mode of Instruction
Residential

Course Faculty

Dr. Elizabeth
Morrison-Banks
Dr. Dhrupad Joshi
Dr. Johanna Rosenthal
Dr. Lisa Sovory

Table of Contents

1. MD Program Learning Outcomes

PLO 1. Medical Knowledge

Students must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care, through prevention, diagnosis, and treatment of disease.

PLO 2. Patient Care

Students must be able to provide patient care that is compassionate, appropriate, and effective for the promotion of health and the treatment of health-related problems. Students must prioritize patient's problems, formulate appropriate differential diagnoses and develop appropriate plans for the diagnosis and/or management. Students are expected to perform clinical procedures safely and effectively while respecting patients' needs, and concerns

PLO 3. Professionalism

Students must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Students are expected to demonstrate:

a. compassion, integrity, and respect for others
b. respect for patient privacy and autonomy
c. responsiveness to patient needs that supersedes self-interest
d. accountability to patients, society, and the profession
e. awareness of biases, sensitivity, and responsiveness to diverse populations

PLO 4. Interpersonal Communication

Students must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. Students are expected to:

a. communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
b. work effectively as a member or leader of a healthcare team and communicate effectively with physicians, other health professionals, and health related agencies

PLO 5. Personal Improvement (Practice-based Learning)

Students must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. Students are expected to identify strengths, deficiencies, and limits in one's knowledge and expertise and set learning and improvement goals

PLO 6. System improvement (System-based Practice) and Social Accountability

Students must demonstrate an awareness of and responsiveness to the larger context and system of healthcare, as well as the ability to call effectively on other resources in the systems available to provide optimal healthcare. Students are expected to work effectively in various healthcare delivery settings and in inter- professional teams to enhance patient safety and contribute to high-quality care. Graduates are expected to demonstrate an awareness of the US health care system, as well as local Inland Empire health care needs and social determinants of health.

2. Course Description

The Neurology Clerkship is a 4-week rotation where students work closely with clinical trainees and faculty. The clerkship intends to have students apply their knowledge of the basic sciences and expand their clinical knowledge base through a variety of patient encounters and procedures in the realm of neurology. Students participate in patient care in the neurology inpatient consultation service and neurology wards managing patients from admission to discharge. As an outpatient, students are exposed to different disciplines of neurology including epilepsy, dementia, movement disorders, sleep disorders, headache and neuropathic pain, and stroke. The Neurology Clerkship is a required four-week rotation in the third year.

3. Course Learning Outcomes

The course learning outcomes (CLO) are outlined below. The relationship of each CLO to the MD program learning outcomes is indicated in bold at the end of each CLO.

3.1 Medical Knowledge/Skills

a Identify and describe the conditions commonly encountered in medical practice.

b Identify and describe common treatment modalities and perform routine procedures used in medical practice

c Apply specific protocols used in clinical practice

d Interpret common radiologic and laboratory tests.

e Apply knowledge of molecular, cellular, biochemical, nutritional, and systems-level mechanisms that maintain homeostasis and of the dysregulation of these mechanisms to the prevention, diagnosis, and management of disease.

f Apply major principles of the basic sciences to explain the pathobiology of significant diseases and the mechanism of action of important biomarkers used in the prevention, diagnosis, and treatment of diseases.

g Use the principles of genetic transmission, molecular biology of the human genome, and population genetics to 1) obtain and interpret family history and ancestry data, 2) infer and calculate the risk of diseases, 3) order genetic tests to guide decision making and to assess patient risk, and 4) institute an action plan to mitigate this risk.

h Apply the principles of the cellular and molecular basis of immune and non-immune host defense mechanisms in health and disease to 1) determine the etiology of diseases, 2) identify preventative measures, and 3) predict response to surgical interventions.

i Apply the mechanisms of those processes which are responsible for the maintenance of health and the causation of disease to the prevention, diagnosis, management, and prognosis of important disorders.

j Apply principles of the biology of microorganisms in normal physiological and diseased states to explain the etio-pathogenesis of diseases and identify management and preventative measures.

k Apply the principles of pharmacology to evaluate options for safe, rational, and optimally beneficial interventions.

l Apply quantitative and qualitative knowledge and reasoning and informatics tools to diagnostic and therapeutic decision making.

3.2 Patient Care

a Provide patient care that is compassionate, appropriate, and effective for the promotion of health and the treatment of health-related problems.

3.3 Professionalism

a Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles.

b Demonstrate compassion, integrity, and respect for others.

c Demonstrate respect for patient privacy and autonomy.

d Demonstrate responsiveness to patient needs that supersedes self-interests.

e Demonstrate accountability to patients, society, and the profession.

f Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in age, sex, culture, race, religion, disabilities, and sexual orientation.

3.4 Interpersonal Communication

a Demonstrate interpersonal and communication skills that result in collaboration and the effective exchange of information with patients, their families, and health professionals.

b Communicate effectively with patients and families across a broad range of socioeconomic and cultural backgrounds.

c Communicate effectively with physicians, other health professionals, and health related agencies.

d Work effectively as a member of surgical or medical care teams.

e Maintain comprehensive, timely, and legible medical records.

3.5 Personal Improvement (Practice-Based Learning)

a Identify strengths, deficiencies, and limits in one's knowledge and expertise (self-assessment and reflection).

b Set learning and improvement goals.

c Identify and perform appropriate learning activities.

d Systematically analyze own practice using quality improvement (QI) methods and implement changes with the goal of continuous improvement

e Incorporate "formative" evaluation feedback into daily practice.

f Locate, appraise, and assimilate evidence from scientific studies related to the patients' health problems (evidence-based medicine).

g Use information technology to optimize learning outcomes.

3.6 System Improvement (System-Based Practice)

a Demonstrate an awareness and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in systems available to provide optimal health care.

b Work effectively in various health care delivery settings and systems. Coordinate surgical patient care within the health care system.

c Incorporate consideration of cost awareness and risk-benefit analysis in patient and population-based care.

d Advocate for quality patient care and to help optimize patient care systems.

e Work in inter-professional teams to enhance patient safety and improve patient care quality.

4. Instructional Methods

4.1 Mode of Instruction

The mode of instruction is Residential

Learning is organized through participation in patient care experiences in clinical environments, small group academic teaching sessions, simulation-based clinical training, interprofessional education sessions, and related self-directed learning activities. Team-based learning activities help foster collaboration, respect and reciprocal benefits from the knowledge and experiences among team members.

Methods of learning include clinical patient care (hospital, clinic, office), engaged learning activities (ELAs; specialty-specific small group teaching sessions), core learning activities (CLAs; common core clerkship small group teaching sessions) including simulation sessions, and other assigned weekly activities.

4.2 Clinical Patient Care

Students will participate in clinical patient care under the supervision of precepting faculty and residents during two, four-week rotation segments. The first segment will provide students with initial exposure to the clinical service and common patient conditions, as well as allow the students to gain progressive responsibility of patient

care based on demonstrated competency. All of the students' evaluations during the first segment will be formative thus provide a comprehensive summary of individual student strengths and areas for improvement.

Participation in the second segment of the rotation will allow students to build on the experiences and formative feedback they received from the first segment, as well as from the knowledge and skills gained from the other segments completed in different core clerkships. As students will complete the first segments of all core clerkships[1] before entering the second segments, the overlap and commonality that exists between medical specialties will provide students in their second segment an expanded perspective with regards to patient presentations, possible causative conditions, and the potential effects of comorbidity.

Clinical care will take place in the hospital, associated clinics, and/or offices as directed by the supervising faculty preceptor and clerkship director.

4.3 Engaged Learning Activities (ELA)

Formal specialty-specific educational activities will follow a *flipped clerkship* model consisting of pre-assigned educational activities that students will complete prior to meeting with teaching faculty, followed by a small group session in which teaching faculty will engage students in discussions of the conditions assigned and relate those discussions to real-patient cases. The formal curriculum follows guidelines provided by national clerkship directors and is distributed across the 4-week rotation so that all students experience the same curriculum regardless of the timing of their rotations. The weekly topic list and assigned case studies are outlined in Table 4.3 below.

Table 4.3 Engaged Learning Activities – Weekly Topic List and Assigned Case Studies

		Discussion Topic[2]	**Cases to Review Prior to Meeting[3]**	
			Tuesday	Thursday
Week 1	12n-1p	▪ Cognitive Impairment, Acute or Chronic ▪ Focal or Diffuse Motor Disturbance, Acute or Chronic ▪ Pain, Acute or Chronic Sensory Dysfunction (Hypesthesia or Paresthesia)	Selected Cases: ▪ Alzheimer Dementia ▪ Migraine Headache ▪ Parkinson Disease	Selected Cases: ▪ Dermatomyositis ▪ Foot Drop ▪ Median Nerve Mononeuropathy
			Faculty: Elias Giraldo, MD	Faculty: Dhrupad Joshi, DO
Week 2	12n-1p	▪ Acute Stroke (Ischemic or Hemorrhagic) or TIA ▪ Acute Vision Loss ▪ Brain Death ▪ Head Trauma ▪ Increased Intracranial Pressure	Selected Cases: ▪ Acute Cerebral Infarct ▪ Stroke in a Young Patient (Acute Ischemic) ▪ Subarachnoid Hemorrhage	Selected Cases: ▪ Cerebral Concussion ▪ Metastatic Brain Tumor ▪ Pseudotumor Cerebri/Idiopathic Intracranial Hypertension
			Faculty: Elias Giraldo, MD	Faculty: Elias Giraldo, MD

[1] Except Neurology and Emergency Medicine which consist of a single 4-week rotation each
[2] From the American Academy of Neurology, Core curriculum guidelines for a required clinical neurology experience 2019
[3] Case Files: Neurology

Week 3	12n-1p	▪ CNS Infection ▪ Encephalopathy (Acute or Subacute) ▪ Status Epilepticus	Selected Cases: ▪ Absence Versus Complex Partial Seizures ▪ New-Onset Seizure, Adult ▪ New-Onset Seizure, Child	Selected Cases: ▪ Acute Disseminated Encephalomyelitis ▪ Huntington Disease ▪ Viral Meningitis
			Faculty: Dhrupad Joshi, DO	Faculty: Lisa Sovory, MD
Week 4	12n-1p	▪ Guillain-Barre Syndrome ▪ Neuromuscular Respiratory Failure ▪ Spinal Cord Dysfunction	Selected Cases: ▪ Chronic Inflammatory Demyelinating Polyneuropathy ▪ Amyotrophic Lateral Sclerosis ▪ Guillain-Barré Syndrome	Selected Cases: ▪ Multiple Sclerosis ▪ Ptosis (Myasthenia Gravis) ▪ Spinal Cord Injury, Traumatic
			Faculty: Dhrupad Joshi, DO	Faculty: Johanna Rosenthal, MD

4.4 Core Learning Activities (CLA)

Students from all core clerkships will gather weekly for two-hour sessions covering topics common to all areas of medicine. Sessions will include large and small group discussions, guest presentations, simulation activities, case presentations by students, and journal clubs. Participation in CLA is required and tracked for both attendance and a brief engagement assignment. Core Learning Activities: Attendance and engagement with 80% of CLA didactic sessions is required to receive the full 10% component of the grade

A list of the CLA sessions can be found in Table 4.4 below.

Table 4.4 Core Learning Activities – Weekly Topic List and Related Assignments

Table 4.4 Core Learning Activities – Weekly Topic List and Related Assignments	
Week	Core Learning Activity Topic
Block 1	
1	Intro and HEART Score (confirmed)
2	Primary Care...a day in the life (part 1)
3	COPD/Asthma Exacerbations (confirmed)
4	Overnight Call
5	PACE Presentation: ERAS tokens, Letters of Recommendation (confirmed)
6	Organ Procurement Process in Collaboration with One Legacy
7	Wellness Part 1 with Dr. Debra Wright
8	Mood and anxiety disorders
9	Primary Survey at Level 1-2 Trauma Centers (confirmed)
10	Primary Care: Day in the Life (part 2)
11	Child Injury Prevention
12	No CLA due to Exams
Block 2	

13	Ophthalmology-related topic
14	Top 10 Surgical Cases (confirmed)
15	PACE Presentaton: Roadmap to Residency
16	Sepsis
17	Domestic Violence
18	Antibiotic stewardship (confirmed)
19	Top Surgical Cases in Clerkship
20	Lifestyle Medicine & Dietary Counseling in Primary Care Clerkships + OSCE Briefing
21	Stages of Labor + VSLO
22	No CLA due to OSCE
23	LGBTQ Health
24	No CLA due to Exams
Block 3	
25	Mini roadmap to residency + ERAS orientation (confirmed) PD/1st Clerkship students: Choosing a medical specialty (maybe resident panel from ARMC or RCH)
26	PAD
27	Case Based Workshop: Post-operative Complications
28	Wellbeing Part 2 and Self-Care as a Physician in Training (confirmed)
29	PACE Presentation: Noteworthy characteritics (confirmed) Residency 101(nuts and bolts, terms to know, general timeline)
30	Diagnosis and Management of Common Pediatric Viral Exanthems
31	Regional Anesthesia
32	Determining Capacity
33	Healthcare Finance
34	Personal statement Workshop Gauging Competitive Eligibility (NRMP reports and other tools to help assess eligibility)
35	Medical Malpractice
36	Management of Outpatient Diabetes
37	No CLA due to Exams
Block 4	
38	Cardiac Interventions
39	Wellness part 3 w/ Dr. Debra Wright
40	AI in Medicine (Image Generation and Diagnosis)
41	Ultrasound Free Scanning Session
42	Resident Panel
43	Orientation to 4th year
44	Race-Conscious Medicine
45	Sleep Disorders
46	CA Consent Laws
47	No CLA due to OSCE
48	Overnight Call for Sub-internship Prep

49	No CLA due to Exams

4.5 Assigned Weekly Activities

Students will track all their patient care experiences through the electronic patient log program in OASIS. All entries into the patient log program will automatically integrate with the Required Clinical Encounters and Procedures (see description below).

4.6 Out of Class Workload

The amount of effort that students should expect to spend outside of formal curricular activities during the rotation are outlined in the University Catalogue. In general, the students are expected to research the clinical conditions of their patients and prepare for the formal educational sessions.

5. Evaluating the Credibility of Information Sources

Students will be using various sources of information to support their opinions and findings during many of their activities. Students are expected to be able to show that these sources are credible. During their pre-clerkship training students were shown how to seek and evaluate the credibility of sources they use during clinical activities and presentations. Feedback on their information-seeking skills will be provided by instructors and facilitators either through general discussion during their clinical activities and/or through mid- and end-of clerkship evaluations. Students are expected to evaluate the credibility of sources used by initially asking the following questions:

1. Where was the source published?: Texts that have scholarly credibility are those published in a peer-reviewed scholarly journal or by a university press, professional society, or scientific publisher. (Use “Ulrichsweb.com” to determine if a journal is peer-reviewed). Students are expected to discuss doubts they may have about an online source with their instructor.
2. Who is the author of the information?: Students can search whether the author is affiliated with a university or

other institutions, and whether there are other works by the author. Citation databases can help reveal the number of times a source has been cited by others, giving further insight into its credibility.

3. Is the information timely and appropriate? Information can sometimes become outdated very quickly, and at other times information can remain valuable for longer. Students should search for additional information on a topic, and related sources or citations in order to gain a better understanding of the intellectual relevance and value.
4. For whom is the source written? Determine if the intended audience is a scholarly one by checking the source for a bibliography that could be used to find further sources.

6. Textbooks and Other Resources

6.1 VitalSource Textbook System

VitalSource Bookshelf provides required electronic textbooks to CUSM students. Each student can access the textbooks via VitalSource website and is permitted to download textbooks on two electronic devices (laptop, tablet, or desktop) to ensure easy access, without any additional charge. All textbooks have been hyperlinked by subject matter. The software allows easy highlighting, margin notations, as well as easy figure/picture capture. Software access includes copyright privileges. Additional electronic textbooks can be purchased by the student on an individual basis. All required textbooks are available to students and faculty through VitalSource.

Students are expected to explore library resources provided for the courses and are encouraged to explore other non-library resources on their own.

Required Text	Recommended Resources
▪ Simon RP, Aminoff MJ, Greenberg DA. *Clinical Neurology*. 10th ed. New York, NY: McGraw-Hill Education; 2018. eISBN: 9781259861734 ▪ Toy EC., Simpson E. *Case Files: Neurology*. 3rd ed. New York: McGraw-Hill Education; 2018. ISBN: 9780071848008 ▪ Individual cases are available via McGraw-Hill's Case File Collection®	▪ Blumenfeld H. *Neuroanatomy Through Clinical Cases*. 2nd ed. New York, NY: Sinauer Associates; 2010. ISBN: 9780878930586 ▪ Louis ED, Mayer SA, Rowland LP, eds. *Merritt's Neurology*. 13th ed. Philadelphia, PA: Wolters Kluwer; 2016. ISBN: 9781451193367 ▪ Westover MB, Choi DeCroos E, Awad K, Bianchi MT, eds. *Pocket Neurology*. 2nd ed. Philadelphia, PA: Wolters Kluwer; 2016. ISBN: 9781496305534 ▪ Resources for Medical Students https://aan.com/

6.2 Other Resources

Students will be provided resources to accomplish the pre-work sessions of the CLAs. Other resources may be required by the clerkship director and/or faculty preceptors.

6.3 Required Tools

- reflex hammer
- 256-Hz tuning fork

7. Policies

7.1 Attendance, Absence, and Duty Hour Policies

CUSM has policies on attendance, absence, and duty hours. Students are advised to consult the Student Handbook / University Catalog for the full description of these policies. The absence policy describes the process for requesting and obtaining approval for qualifying absences during the course. Students should also consult the CUSM Medical Student Healthcare Policy in the catalog which specifically states "Students may be

excused from classes or clinical duties in order to access needed health care services on a reasonable basis by working through the Office of Student Affairs and Admissions."

7.2 Feedback

Students will receive narrative feedback from supervising faculty, residents and/or the clerkship director during this rotation. Feedback will include verbal feedback during the clinical and formal academic experiences in the rotation. Students will also review formal feedback at the midpoint and end of the rotation through discussions with the clerkship director and/or supervising preceptor, and narrative feedback from the mid- and end-of-rotation preceptor evaluation.

7.3 Policy on Academic Workload

CUSM has a policy that outlines the amount of effort that students should expect to spend in scheduled and unscheduled learning activities. Students are advised to consult the Student Handbook / University Catalog for the full policy.

7.4 Grading Policy

8. CUSM has a grading policy. Students are advised to consult the Clinical Clerkship Handbook and Student Assessment Handbook for a description of the full policy and grade information. The policy also describes when students should expect to receive results following an assessment or evaluation.

8.1 Remediation Procedure

CUSM has a procedure for students who require to remediate a failed rotation. Students are advised to consult the Student Assessment Handbook for the full description of the procedure. The handbook also describes the procedure for examination day and for addressing deferred/make-up assessments.

8.2 Diversity

CUSM is committed to diversity and inclusion in all of its programs and does not discriminate on the basis of age, gender, nationality, race or social status.

8.3 Title IX Sexual Harassment and Sexual Misconduct

CUSM is dedicated to establishing and maintaining a safe and inclusive campus where all have equal access to the educational and employment opportunities the University offers. CUSM strives to promote an environment of sexual respect, safety, and well-being; therefore, CUSM will not tolerate sexual assault, sexual harassment, domestic violence, dating violence, and/or stalking in our community as dictated by the 1972 Education Amendment known as Title IX. In an effort to increase transparency, please be aware all CUSM faculty members are "Responsible Employees". This means that faculty are obliged to and must share information with the Title IX Coordinator that a student describes or reports to them about situations that they have experienced or witnessed. Faculty must also share information with the Title IX Coordinator that they suspect might involve sexual harassment (quid pro quo or hostile work environment), sexual assault, dating violence, domestic violence, or stalking. Please note that although all student reports must be notified to the Title IX Coordinator, the student will control how their case is handled including whether or not they wish to pursue a formal complaint. The goal at CUSM is to ensure that students are aware of the range of options available to them and that they have access to supportive measures and resources that they may need to ensure academic success. For more information on Title IX, please visit the Title IX webpage found on CUSM's website that provides a wealth of information and includes: CUSM's Title IX policy, Options for Reporting an Incident, Support Resources (for students and employees), and FAQs. Should you have any questions, please feel free to contact CUSM's Title IX Coordinator Dr. Sandra E. Hodgin at TitleIXCoordinator@cusm.org.

9. Assessment and Course Grading

Assessments are outcomes based so that learners and faculty can evaluate progress in the development of competencies expected for the course. Some scores will be earned individually, some scores will be earned as a team. It is the student's responsibility to read the Student Assessment Handbook and familiarize themselves with the policies, regulations and procedures regarding assessments and evaluations.

9.1 Preceptor Evaluations

Students will be evaluated by their clinical preceptor(s) at the midpoint and end of rotation. The clerkship director will receive feedback from all faculty and residents who had significant contact with the student and will integrate the input into a final rotation evaluation. Individual evaluations of the student by faculty and/or residents may be provided, in addition to the composite final evaluation, for student review.

1. **8.2 National Board of Medical Examiners - Clinical Subject Examination: Neurology**
2. The National Board of Medical Examiners (NBME) has a series of clinical subject examinations that are used for assessment of discipline-based learning. One NBME clinical subject examination will be used to assess the core clerkship. The examination results with the higher score will be used to calculate 25% of the student's clerkship grade. In addition to the results these examinations provide for individual students, they also provide aggregate data regarding CUSM students' preparation in these areas and offer benchmarks for comparison with all medical students nationally. Passing NBME subject examination is required to pass the clerkship.

8.3 Multi-Station Objective Structured Clinical Examination (OSCE)

Students will participate in two multi-station OSCEs, the first at the end of the Block 2 (after completion of the first segments of all core clerkships), and the second at the end of the year. The examination results with the higher score will be used to calculate 25% of the student's clerkship grade. The multi-station OSCEs will be developed collaboratively by clerkship directors and designed to assess essential patient care skills in each of the core clerkships.

8.4 Patient Logs

Students will be required to log all of their patient encounters in the *patient log* program in OASIS. All log entries will be HIPAA compliant and will be available for student review for the duration of their clerkship year. The clinical content of each patient log will also contribute to the *Required Clinical Encounters* for each rotation

8.5 Required Clinical Encounters

Each rotation has a list of clinical encounters that have been recognized by national clerkship organizations as essential for core clerkship rotations. Through this series of patient encounters, students become familiar with the most prevalent diseases and conditions, and with the essentials of critical thinking that lead to the differential diagnosis and formulation of management plans. The *Required Clinical Encounters* for all core clerkships can be found in Table 8.5 below.

A single patient can potentially present with one or more of these problems and/or condition for the student to log as a Patient Encounter; for example, a patient with burns can present with metabolic failure / shock, so the student can log one case of burn and one case of metabolic failure / shock.

Student progress in their required clinical experiences is monitored and will continue to be monitored throughout the year by the CUSM-SOM Office of Medical Education through the student log in the OASIS learning management system. OASIS reports confirm the syllabus statements that students must complete these required experiences in the designated clerkship. Any students with gaps or insufficient progress are notified at the mid-point of that rotation. Clerkship directors are also made aware of any student not completing required clinical experiences at the mid-point of the rotation. Should any student have a remaining unfulfilled required clinical experience at the end of a core clerkship, an appropriate alternative experience is provided via our online resource in Aquifer or faculty guided simulation lab experience in order to fill that gap and allow the student to complete the course without disruption.

All CUSM-SOM clerkship rotation will undergo a formal end-of-rotation review starting with the clerkship

directors, Clerkship Curriculum Subcommittee and the Assessment and Evaluation Committee. Should any student require the use of one of the CUSM alternative learning experience to complete a required clinical experience, the committee process will provide a thorough review to determine the cause for this and consider ensuring future availability through action on the clerkship director or clinical faculty, a change in clinical setting to allow access to the experience, or to determine if the experience may no longer be required. If the last determination is reached, the clerkship directors and reviewing committees will ensure clerkship learning outcomes are still met and may consider a replacement required clinical experience that better serves student learning. In addition to any student requiring an alternative learning experience, required clinical experiences will be reviewed for each clerkship to ensure they fulfill clerkship learning outcomes for both patient types, clinical experiences, and specific procedural skills relevant to each specific clerkship.

Required Clinical Experiences

Clerkship/Clinical Discipline	Patient Type/ Clinical Condition	Procedure/Skill	Clinical Setting	Level of Student Responsibility*
1. Students are required to participate in conditions listed in the following indicated ways: Taking a history as aligned with EPA1, developing a differential through clinical reasoning as aligned with EPA 2; Collaborating with an interprofessional team as aligned with EPA 9; Developing general procedural skills as aligned with EPA 12 2. Students will be required to participate in the care of a patient with these conditions in the indicated settings: O = Outpatient; I = Inpatient; AC = Acute Care. 3. Students will be required to participate in the designed level of engagement indicated: O = Observation; P = Participate with supervision; I = Participate Independently with supervision**				
Any Clerkship	Adult Preventative Care	EPAs 1, 2, & 9	O/I	I
	Pediatric Preventative Care	EPAs 1, 2, & 9	O/I	I
	Anemia/Bleeding Disorder	EPAs 1, 2, & 9	O/I/AC	I
	Mood Disorder	EPAs 1, 2, & 9	O/I	I
	Psychotic Disorder	EPAs 1, 2, & 9	O/I	I
	ENT Condition	EPAs 1, 2, & 9	O/I	I
	Rheumatologic Disorder	EPAs 1, 2, & 9	O/I	I
	Substance Use Disorder	EPAs 1, 2, & 9	O/I/AC	I
	Infection	EPAs 1, 2, & 9	O/I/AC	I
	Dermatological Condition	EPAs 1, 2, & 9	O/I	I
	Upper Respiratory Complaint	EPAs 1, 2, & 9	O/I/AC	I
	Pulmonary Condition	EPAs 1, 2, & 9	O/I/AC	I
	Cardiovascular Condition	EPAs 1, 2, & 9	O/I/AC	I
	Gastrointestinal Condition	EPAs 1, 2, & 9	O/I/AC	I
	Genitourinary Disorder	EPAs 1, 2, & 9	O/I/AC	I
	Pregnancy	EPAs 1, 2, & 9	O/I/AC	I
	Abnormal Uterine Bleeding	EPAs 1, 2, & 9	O/I/AC	I
	Pregnancy Prevention	EPAs 1, 2, & 9	O/I	I
	Sexual Health	EPAs 1, 2, & 9	O/I/AC	I
	Disorder of upper extremities	EPAs 1, 2, & 9	O/I/AC	I
	Disorder of Lower extremities	EPAs 1, 2, & 9	O/I/AC	I
	Trauma	EPAs 1, 2, & 9	I/AC	P
	Endocrine Disorder	EPAs 1, 2, & 9	O/I/AC	I
	Hepatic Disorder	EPAs 1, 2, & 9	O/I/AC	I
	Movement Disorder	EPAs 1, 2, & 9	O/I	I
	Cognitive Disorder	EPAs 1, 2, & 9	O/I/AC	I
	CVA/TIA	EPAs 1, 2, & 9	O/I/AC	I
	Seizure Disorder	EPAs 1, 2, & 9	O/I/AC	I
	Oncologic disorder	EPAs 1, 2, & 9	O/I/AC	I

	Renal Disease	EPAs 1, 2, & 9	O/I/AC	I
	Critical Care	EPAs 1, 2, 9, & 10	I	P
	Thromboembolic Disorder	EPAs 1, 2, & 9	O/I/AC	I
	Urinary Catheter Placement	EPA 12	O/I/AC	I
	Nasogastric tube Placement	EPA 12	O/I/AC	I
	Venipuncture	EPA 12	O/I/AC	I
	Arterial Blood Gas	EPA 12	O/I/AC	P
	Basic Suturing	EPA 12	O/I/AC	I
	Sterile Technique	EPA 12	I	I
	Would Dressing	EPA 12	O/I/AC	P
	Vaginal Delivery	EPA 12	I	P
	Cesarian Delivery	EPA 12	I	P
	Pelvic Examination	EPA 12	O/I	P
	Resuscitation	EPAs 10 & 12	I/AC	P

8.6 Course Grading

The assessment and evaluation of the various components of the course is shown below:

Assessment / Evaluation	When	%
a. Preceptor Evaluation	End-of Rotation	30
b. NBME Clinical Subject Exam	End-of-Rotation	25
d. multi-Station OSCE	End of Year	25
e. Patient Log / Required Clinical Encounters	End of Year	10
f. Core Learning Activities	End of Year	10

- Preceptor Evaluations: Summative evaluations are averaged to calculate a component score out of 6 to be used for the final 30% of the overall grade.
- NBME Shelf exams are aligned using the NBME Modified Angoff score to determine the passing 70% score and reported as a CUSM Modified score for the final 25% of the score. The higher of the two scores for dual-pass clerkships are used to calculate the final grade.
- OSCE scores are reported with a 70% pass rate and the higher of the two scores are used to calculate the final grade.
- Students complete a patient log tracking all required clinical encounters with completion by deadline reported out of 10%.
- Core Learning Activities: Attendance and engagement with 80% of CLA didactic sessions is required to receive the full 10% component of the grade
- Scores for each component of the final grade are left intact (or rounded) to the 0.1. The weighted value of those components was then combined to create a final score.
- As per the CUSM Grade Policy: Final grades are calculated based on rounding to the nearest whole number. Only the final % earned in the course is rounded, after the individual components of the course grade have been added together, to the next highest whole number.

Clerkship Passing Grade requirements:

- Minimum total score of 70% of the above components

- A passing NBME Subject Examination score as determined by the NBME Modified Angoff
- Minimum score of 70% of Student Performance preceptor evaluation score: summative Evaluation average of 4.0/6.0
- Minimum score of 70% on the Final Multi-station OSCE: Minimum score of 70.0/100

	Numerical Threshold
Honors	90 – 100
High Pass	80 – 89
Pass	70 – 79
Failure	≤ 69

CUSM Student Assessment Handbook

Please refer to the CUSM Student Assessment handbook for detailed information of the following:

- Clinical Performance Assessment
- USMLE Step 2 Clinical Knowledge (CK) Exam
- Incomplete Grades
- Failures and Remediation
- Policy on Academic Progress

10. Weekly Schedule

		Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	7a-12n	Inpatient	Inpatient	Inpatient	Inpatient	Inpatient
	12n-1pm	Lunch	Lunch/ELA	Lunch/ *	Lunch/CLA	Lunch
	1p-4p	Outpatient 1M	Outpatient 2M	Inpatient	Outpatient 3M	Inpatient
Week 2	7a-12n	Inpatient	Inpatient	Inpatient	Inpatient	Inpatient

	12n-1p	Lunch	Lunch/ELA	Lunch/CLA *	Lunch/ELA	Lunch
	1p-4p	Outpatient 4M	Outpatient 1M	Inpatient	Outpatient 2M	Inpatient
Week 3	7a-12n	Inpatient	Inpatient	Inpatient	Inpatient	Inpatient
	12n-1p	Lunch	Lunch/ELA	Lunch/CLA *	Lunch/ELA	Lunch
	1p-4p	Outpatient 3M	Outpatient 4M	Inpatient	Outpatient 1M	Inpatient
Week 4	7a-12n	Inpatient	Inpatient	Inpatient	Inpatient	Off - Exam
	12n-1p	Lunch	Lunch/ELA	Lunch/CLA *	Lunch/ELA	Off - Exam
	1p-4p	Outpatient 2M	Outpatient 3M	Inpatient	Outpatient 4M	Off - Exam

Please note that students will do the neurology clerkship from Monday to Friday at ARMC with off time for self-study on Saturdays and Sundays.

Glossary of Definitions

7a-12n Inpatient: All students are assigned to neurohospitalist consultation service rounds with on-call neurology faculty (either Dr. Johanna Rosenthal or Dr. Lisa Sovory) Monday to Friday from 7 am to 12 noon, except Wednesday from 7 am to 11 am (to attend CLA)

12n-1p Lunch/ELA: ELA stands for Engaged Learning Activity lead by neurology faculty based on neurology faculty sub-specialty and clinical interests (Table 3. ELAs).

12n-1p Lunch/CLA*: CLA stands for Core Learning Activity at CUSM. CLAs are 2-hour weekly educational sessions on Wednesdays from 11a-1p (not 12n-1p as mentioned in Tables 1 and 2).

1p-4p Inpatient: All students are assigned to neurohospitalist consultation service rounds with on-call neurology faculty (either Dr. Johanna Rosenthal or Dr. Lisa Sovory) Monday to Friday from 1 pm to 4 pm, except one (1) student assigned to outpatient clinic with Dr. Elias Giraldo.

1p-4p Outpatient: One (1) student is assigned to outpatient clinic with Dr. Elias Giraldo on Mondays, Tuesdays and Thursdays from 1 pm to 4 pm. The students are designated as 1M to 4M in alphabetical order by last name if four (4) students are doing the neurology clerkship in a four-week period. The schedule Table 1 above is a sample schedule if four (4) students are doing the neurology clerkship in a four-week period.

11. Course Schedule

See Engaged Learning Activities (4.3) and Core Learning Activities (4.4) above.

Core Clerkship Learning outcomes and Standards of Performance

Expectations for student work			Expectations for instruction	
Students who rotate through clerkships will a. Complete all required learning experiences and procedures b. Maintain patient logs c. complete and submit end-of-rotation-segment evaluation, and a preceptor, site and clerkship evaluation d. Attend didactic sessions, and complete online educational modules			Instruction in the course will be delivered as a. supervised clinical training by attending physicians b. facilitated guidance during observed performance of clinical skills c. didactic classroom sessions	
PLO	Content Standard: Course Learning Outcomes (CLO)		Expected Standard of Performance for outcomes	
			Assessment	Course
1	Medical Knowledge/Skills • Identify and describe the conditions commonly encountered in medical practice. (EPA 1, 2, 6, 10) • Apply knowledge of molecular, cellular, biochemical, nutritional, and systems-level mechanisms that maintain homeostasis and of the dysregulation of these mechanisms to the prevention, diagnosis, and management of disease. (EPA 1-7, 10) • Apply major principles of the basic sciences to explain the pathobiology of significant diseases and the mechanism of action of important biomarkers used in the prevention, diagnosis, and treatment of diseases. (EPA 1-7, 10) • Use the principles of genetic transmission, molecular biology of the human genome, and population genetics to 1) obtain and interpret family history and ancestry data, 2) infer and calculate the risk of diseases, 3) order genetic tests to guide decision making and to assess patient risk, and 4) institute an action plan to mitigate this risk. (EPA 1-7, 10) • Apply the principles of the cellular and molecular basis of immune and non-immune host defense mechanisms in health and disease to 1) determine the etiology of diseases, 2) identify preventative measures, and 3) predict response to interventions. (EPA 2-7, 10) • Apply the mechanisms of those processes which are responsible for the maintenance of health and the causation of disease to the prevention, diagnosis, management, and prognosis of important disorders. (EPA 2-7, 10-11) • Apply principles of the biology of microorganisms in normal physiological and diseased states to explain the etio-pathogenesis of diseases and identify management and preventative measures. (EPA 2-7, 10) • Apply the principles of pharmacology to evaluate options for safe, rational, and optimally beneficial interventions. (EPA 4-7, 10) • Apply quantitative and qualitative knowledge and reasoning and informatics tools to diagnostic and therapeutic decision making. (EPA 1-7, 10, 11, 13)	What is measured? How measured? When/ frequency: Satisfactory level:	Knowledge of the clinical specialty • Multi-station OSCE • NBME Shelf exam • Preceptor evaluation (including ELAs) • Patient log/required clinical encounters End of clerkship Cumulative 70% of final grade	At least 90% of class achieves satisfactory level in medical knowledge for the clinical specialty as follows: • passing NBME Subject Examination score • minimum score of 70% of possible preceptor evaluation score • minimum score of 70% on the final multi-station OSCE minimum total score of 70% of the above components
2	Patient Care	What is measured?	Identification and presentation skill	At least 90% of class achieves satisfactory level patient care

	• Provide patient care that is compassionate, appropriate, and effective for the promotion of health and the treatment of health-related problems. (EPA 1-7, 10-13) • Identify and describe common treatment modalities and perform routine procedures used in medical practice (EPA 3, 4, 10-12) • Apply specific protocols used in clinical practice. (EPA 2-6, 10-11) • Interpret common radiologic and laboratory tests. (EPA 2-6, 10)	How measured? When/ frequency: Satisfactory level:	• Multi-station OSCE • NBME Shelf exam • Preceptor evaluation (including ELAs) • Patient log/required clinical encounters Throughout and end of clerkship Cumulative 70% of final grade	
3	Professionalism • Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. (EPA 1-8, 10-13) • Demonstrate compassion, integrity, and respect for others. (EPA 1-8, 10-12) • Demonstrate respect for patient privacy and autonomy. (EPA 1-8, 10-12) • Demonstrate responsiveness to patient needs that supersedes self-interests. (EPA 1, 3, 10, 12) • Demonstrate accountability to patients, society, and the profession. (EPA 1-8, 10, 12) • Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in age, sex, culture, race, religion, disabilities, and sexual orientation. (EPA 1-8, 10-12)	What is measured? How measured? When/ frequency: Satisfactory level:	Professionalism • Multi-station OSCE • Preceptor evaluation (including ELAs) • Patient log/required clinical encounters End of clerkship Cumulative 70% of final grade	At least 90% of class achieves satisfactory level in professionalism
4	Interpersonal Communication • Demonstrate interpersonal and communication skills that result in collaboration and the effective exchange of information with patients, their families, and health professionals. (EPA 1-12) • Communicate effectively with patients and families across a broad range of socioeconomic and cultural backgrounds. (EPA 1, 3-7, 10-12) • Communicate effectively with physicians, other health professionals, and health related agencies. (EPA 1-10, 12) • Work effectively as a member of surgical or medical care teams. (EPA 4-11) • Maintain comprehensive, timely, and legible medical records. (EPA 4, 5, 8, 9, 11)	What is measured? How measured? When/ frequency: Satisfactory level:	Communication skills • Multi-station OSCE • NBME Shelf exam • Preceptor evaluation (including ELAs) • Patient log/required clinical encounters Throughout and end of clerkship Cumulative 70% of final grade	At least 90% of class achieves satisfactory level in interpersonal communication
5	Personal Improvement (Practice-Based Learning) • Identify strengths, deficiencies, and limits in one's knowledge and expertise (self-assessment and reflection). (EPA 2-4, 6-10, 12, 13) • Set learning and improvement goals. (EPA 6, 7, 9, 12) • Identify and perform appropriate learning activities. (EPA 6, 7, 9, 12, 13)Systematically analyze own practice using quality improvement (QI) methods and implement changes with	What is measured?	Personal improvement	At least 90% of class achieves satisfactory level in personal improvement (practice-based learning)

	the goal of continuous improvement (EPA 5, 7, 9, 13) • Incorporate "formative" evaluation feedback into daily practice. (EPA 5-9, 12, 13) • Locate, appraise, and assimilate evidence from scientific studies related to the patients 'health problems (evidence-based medicine). (EPA 2-7, 9, 13) • Use information technology to optimize learning outcomes. (EPA 4, 5, 7-9, 11)	How measured?	• Multi-station OSCE • NBME Shelf exam • Preceptor evaluation (including ELAs) • Patient log/required clinical encounters	
		When/ frequency:	Throughout and end of clerkship	
		Satisfactory level:	Cumulative 70% of final grade	
6	System Improvement (System-Based Learning) • Demonstrate an awareness and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in systems available to provide optimal health care. (EPA 2-5, 7-9, 10, 13) • Work effectively in various health care delivery settings and systems. Coordinate patient care within the health care system. (EPA 3-5, 8-11, 13) • Incorporate consideration of cost awareness and risk-benefit analysis in patient and population-based care. (EPA 3, 4, 7, 13) • Advocate for quality patient care and to help optimize patient care systems. (EPA 3, 5, 9, 11, 13) • Work in inter-professional teams to enhance patient safety and improve patient care quality. (EPA 1-13)	What is measured?	Knowledge and awareness of context and system of healthcare	At least 90% of class achieves satisfactory level in system improvement (system-based practice)
		How measured?	• Multi-station OSCE • NBME Shelf exam • Preceptor evaluation (including ELAs) • Patient log/required clinical encounters	
		When/ frequency:	Throughout and end of clerkship	
		Satisfactory level:	Cumulative 70% of final grade	

Core Entrustable Professional Activities (EPAs) for entering Residency

Definition: Expectations for both learners and teachers that include 13 activities that all medical students should be able to perform upon entering residency, regardless of their future career specialty.

EPA 1: Gather a history and perform a physical examination
EPA 2: Prioritize a differential diagnosis following a clinical encounter
EPA 3: Recommend and interpret common diagnostic and screening tests
EPA 4: Enter and discuss orders and prescriptions
EPA 5: Document a clinical encounter in the patient record
EPA 6: Provide an oral presentation of a clinical encounter
EPA 7: Form clinical questions and retrieve evidence to advance patient care
EPA 8: Give or receive a patient handover to transition care responsibility
EPA 9: Collaborate as a member of an inter-professional team
EPA 10: Recognize a patient requiring urgent or emergent care and initiate evaluation and management.
EPA 11: Obtain informed consent for tests and/or procedures
EPA 12: Perform general procedures of a physician
EPA 13: Identify system failures and contribute to a culture of safety and improvement