VISITING STUDENT
SENIOR
ELECTIVE
CATALOG
2015 - 2016

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NORTHWESTERN UNIVERSITY

FEINBERG
SCHOOL OF MEDICINE
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**Inquiries:**

All inquiries must be directed to:  
Visiting Student Programs: visitingstudents@northwestern.edu or 312/503-1392. E-mail is the preferred method of communication. **Please reference the Frequently Asked Questions page of our website before contacting our office. Most of your questions will be answered in the FAQ section.**

**Availability:**

Clerkship availability fluctuates daily due to add/drop requests. For this reason, all electives are presented as being open unless noted in the individual elective description found in this elective catalog. However, there is no guarantee that an elective will be available at the time that you apply. Some electives are closed during certain rotation blocks. **Do not contact course directors or department heads. Spaces are not reserved and students are placed on a first-come, first-served basis. The Visiting Student Coordinator does not have information on availability, so please; do not contact the office to inquire.**

**Application processing:**

All application paperwork for visiting student electives must be submitted via VSAS. Processing initiates through VSAS and the Visiting Student Office only. **Students should NOT send any paperwork directly to the departments. The most up to date information and instructions are provided on our institution page on VSAS:**  
https://services.aamc.org/20/vsas/schools/detail/instID/155/mode/main/from/schools
Preceptorship in Clinical Anesthesiology
ANE.4071.04.NMH

Clerkship Advisor:
Bruno DeCaria, MD
Clerkship Director:
Yogen Asher, MD
Clerkship Coordinator:
Carolyn Betts, 251 E. Huron, 5-704, cbetts@nmff.org, 312/695-0122

*** This elective is not offered during Block 1 or Block 2 ***

Background and Justification:
The student, supervised by a faculty member or senior resident of the department on a weekly basis, participates actively in preoperative evaluation of surgical patients, administration of general, sedative, and regional anesthesia, and postoperative care in the recovery room. The student will briefly rotate in anesthesiology subspecialties, including: obstetrics, pediatrics, critical care, regional/pain service, as well as work with the Human Patient Simulator. Attendance at departmental teaching conferences is expected.

Goals:
- Provide an overview of clinical anesthesiology with an emphasis on airway management, pulmonary and cardiac physiology, anesthetic pharmacology, and invasive hemodynamic monitoring
- Expose students to several of the anesthetic subspecialties
- To thoroughly integrate students into the anesthetic team

Objectives:
During the rotation and by the end of four weeks, the student will:
- Perfect skills in performing pre-anesthetic evaluations of patients, including history-taking, physical examination, and analysis of common laboratory results
- Understand the basic principles of administering monitored anesthesia care, regional, and general anesthesia. The student will also develop an understanding of side effects and complications of anesthetics as well as anesthetic interaction with surgery. The result will be that students will acquire the ability to choose appropriate anesthetic techniques for patients undergoing a variety of surgeries.
- Be able to assess a patient’s respiratory status and develop basic airway management skills, including mask ventilation and tracheal intubation
- Develop an understanding of the physiologic effects of sedatives, analgesics, and muscle relaxants and be able to recommend appropriate choices of anesthetic therapy in uncomplicated normal patients undergoing non-complex surgeries
- Develop proficiency in establishing venous access
- Understand acute fluid management concepts and be able to assess a patient’s fluid status and recommend appropriate fluid therapy
- Understand the principles and indications for invasive monitoring and be able to describe them and to list complications from these techniques
- Be able to list causes for changes in the hemodynamic status of patients and make appropriate recommendations for choices of corrective therapy
- Understand post-anesthetic requirements and be able to design a post-anesthetic recovery room plan for uncomplicated patients with regard to monitoring of vital signs, required testing, and fluid, oxygen, analgesic, and anti-emetic therapy

Course Format and Proposed Schedule:
Students will spend most days in the Feinberg Operating Room from 6:30 a.m. to approximately 5:00 p.m., Monday through Friday, engaging in preoperative evaluation of patients, administration of anesthetics to patients, and insertion of invasive monitors if indicated. Olson and Prentice Buildings are other operating room sites that may be utilized. Several in-depth, discussions of anesthetic topics will take place daily under the direction of the students’ instructors. A number of conferences and lectures are scheduled weekly, including but not limited to Patient Safety...
Simulator Sessions, and Friday morning Grand Round conferences. Independent reading assignments will be given at the beginning of the rotation with recommended journal articles. A textbook will be available for each student. A refundable $20 deposit is required for the textbook. If desired, students may take overnight calls (to be discussed with instructor).

**Evaluation and persons performing the evaluation:**
Students will receive feedback on their performances. Instructors will complete standard Northwestern Evaluation forms regarding the performance of students. These evaluations constitute 90% of the final grade, while the final exam completes the remaining 10%. The final evaluation of a visiting student will be on the visiting student’s institutional evaluation form.

**A personal statement is required. The LOR must be from a professor in the field.**

**Number of M4 students per rotation (FSM and visiting): Six**
**Number of weeks: Four**

**First day report to:** Please arrive at 8:30 a.m. for the elective orientation. Orientation will be in Arkes Pavilion, 676 N. St. Clair, 10th floor. Carolyn Betts and Christopher Zell will provide an orientation to the elective program and a tour of the facilities. A locker has been assigned to you, and you will change into scrubs after meeting Dr. Yogen Asher, the Elective Director.

**Obstetric Anesthesiology**
**ANE.4073.04.NMH**

***This elective is not offered during Block 1 or Block 2***

**Clerkship Director:**
Jason Farrer, MD

**Clerkship Coordinator:**
Sean Jones, 251 E. Huron, sjones@nmff.org, 312/472-3585

**Background and Justification:**
This rotation provides an opportunity for the student to be exposed to a specific subspecialty of anesthesiology: obstetric anesthesiology. The majority of time will be spent working with the obstetric anesthesia team on the busy labor and delivery unit at Prentice Women’s Hospital. The student is expected to gain hands-on experience in regional and general anesthesia for a variety of obstetric procedures, in particular labor analgesia and anesthesia for Cesarean delivery and postpartum tubal sterilization. In addition, a daily lecture series will provide an overview of topics pertinent to obstetric anesthesiology. Each student is expected to give a 10-minute presentation on the topic of his or her choice relating to obstetric anesthesia at the end of the clerkship. There is no examination. Students contemplating careers in either Anesthesiology or Obstetrics/Gynecology may wish to consider this rotation.

**Goals/Objective:**
* Understand the anesthetic implications of the physiologic changes of pregnancy
* Learn how to evaluate the airway
* Learn the anesthetic implications of various disease states as they relate to obstetric anesthesiology
* Know the options for providing labor analgesia
* Assess factors that affect maternal and fetal oxygen transport and delivery
* Know the important principles of managing a bleeding parturient

**Course Format and Proposed Schedule:**
* Students function as part of the Anesthesiology Team on the Labor and Delivery Unit
* Monday through Friday, 6:45 a.m. through approximately 5:00 p.m.
* Students are encouraged to take overnight call several times during the rotation

**Evaluation and persons performing the evaluation:**
Evaluations will be completed by attending and resident physicians, and anesthesia nurses, at the end of the rotation. These evaluations will be summarized using a standard FSM evaluation. Students are encouraged to seek verbal feedback throughout the rotation.
Preceptorship in Pain Management
ANE.4074.04.NMH

Clerkship Director:
Geeta Nagpal, MD
Clerkship Coordinator:
Carolyn Betts, 251 E. Huron, 5-704, cbetts@nmff.org, 312/926-8105

*** This elective is not offered during Block 15, Block 16, or Block 20 ***

Background and Justification:
Students will be assigned to a staff preceptor in the section of pain medicine in the Department of Anesthesiology, and will participate in the Anesthesiology Pain Management Services of NMH. Patients with chronic pain problems are evaluated and managed. The section is active in the management of acute postoperative pain as well as chronic pain. During their clerkship, students are exposed to a wide variety of interventional pain management procedures to diagnose and treat as well as pharmacologic treatment of the different pain syndromes.

Goals:
- Understand the mechanisms and pathways of the ascending and descending nociceptive systems
- Increase ability to diagnose and treat acute and chronic pain syndromes
- Understand the role of interventional techniques in pain management in the diagnosis and treatment of pain
- Learn the rational use of opiate and non-opiate analgesics, anticonvulsants, antidepressants, muscle relaxants, and other drugs used to manage pain

Objectives:
Be better able to:
- Treat chronic non-cancer, and cancer-related pain
- Manage patients with low back pain
- Treat neuropathic pain syndromes including complex regional pain syndrome (CRPS), postherpetic neuralgia, painful diabetic neuropathy, trigeminal neuralgia, and other neuralgias
- Understand the pharmacology of the major and minor analgesics
- Understand the role of adjuvant drugs including anticonvulsants, antidepressants, and muscle relaxants
- Observe and/or perform neuraxial (e.g. epidural), appendicular and peripheral nerve blocks
- Understand the role of image guidance (fluoroscopy, ultrasound) in performing interventional pain procedures
- Understand the role of other specialties like psychology, rehabilitation, neurology, etc., in pain management

Evaluation and persons performing the evaluation:
Evaluations will be completed by attending and PGY-5 resident physicians at the end of the rotation. These evaluations will be summarized using a standard FSM evaluation form. Students are encouraged to seek verbal feedback throughout the rotation.

**A personal statement is required. The LOR must be from a professor in the field.
Sites: NMH (Galter Building).

First day report to: Carolyn Betts in the McGaw Pavilion, 240 E. Huron, 1st Floor. Please arrive at 8:30 a.m. for orientation.

Critical Care/Anesthesiology
ANE.4076.04.NMH

Clerkship Director:
Michael Ault, MD

Clerkship Coordinator:
Angela Gipson, 251 E. Huron, Feinberg 8-336, agipson@nmff.org, 312/926-2537

*** This elective is not offered during Block 1, Block 2, or Block 24 ***

Background and Justification:
The student functions as part of the Anesthesiology/Critical Care Service. The student will be involved with the care of critically ill patients. The greatest involvement is with patients suffering neurologic and acute spinal cord injury (Neuroscience-Spine ICU). This will include their perioperative management. Students will be exposed to the evaluation and treatment of acute cardiopulmonary instability, metabolic derangements associated with critical illness, coagulation abnormalities, and neurologic dysfunction. The principles of supportive care (mechanical ventilation, respiratory therapy, hemodynamic support and manipulation, transfusion therapy) and interpretation of critical laboratory data (arterial blood gas analysis, electrolyte studies, coagulation studies, etc.) will be emphasized. Medical students are expected to actively participate on the clinical service.

Goals:
* Develop the ability to assess and manage patients with acute and life threatening problems
* Become familiar with routine ICU procedures (i.e., arterial catheter placement and monitoring, central venous catheterization, pulmonary artery catheterization, etc.)
* Manage patients requiring various degrees and types of mechanical ventilatory support
* Identify and manage perioperative patients of various types

Objectives:
To provide the student with enhanced understanding of:
* The monitoring and support of neurologic function in the ICU
* The various types of and indications for airway management, mechanical ventilatory support, and respiratory therapy
* How various disease states affect cardiopulmonary function
* The methods of hemodynamic monitoring in the ICU
* The pharmacology of various drugs used in the treatment of critically ill patients
* Diagnostic methods and procedures in the ICU
* Complications and problems associated with critical illness

**A personal statement is required. The LOR must be from a professor in the field.**

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: NMH

First day report to: After visiting student registration, please report to Angela Gipson in Feinberg 8-336 (Respiratory Care Hallway) at 8:30 a.m.
Clinical Dermatology
DER.4201.04.NMH

Clerkship Director:
Maria Colavincenzo, MD
Clerkship Coordinator:
Trisha Gougis, 676 North St. Clair, Ste. 1600, t.gougis@nmff.org, 312/695-6837

*** This elective is not offered during Block 20 or Block 21 ***

Background and Justification:
This rotation emphasizes the approach to the diagnosis and treatment of diseases of the skin, hair, and nails. Experiences in outpatient care and in-patient consultation will be provided. Skills in history taking, cutaneous examination and diagnostic procedures will be emphasized. Familiarity with the diagnostic and treatment modalities will be provided through didactic lecture and/or clinical exposure: punch biopsy, shave biopsy, KOH preps, mineral oil preps, cryosurgery, electrodesiccation, and curettage.

It is recommended that students interested in a career in dermatology schedule clinical rotation as early in the fourth year as possible.

For rotations in Pediatric Dermatology at Lurie Children's hospital of Chicago, see the Pediatric Dermatology listing in the elective catalog.

Goals:
Familiarize each student with the approach to the diagnosis and treatment of diseases of the skin, hair and nails.

Objectives:
- Learn to perform a comprehensive skin examination
- Develop the vocabulary to describe skin lesions
- Learn to generate a differential diagnosis based on pattern recognition
- Recognize and treat common skin diseases
- Recognize the scope of dermatology as a specialty and the criteria for patient referral

Course Format and Proposed Schedule:
Students spend their time primarily in the academic, clinical dermatology outpatient setting. They participate directly in the diagnosis and treatment of skin diseases. This may include learning a variety of routine procedures under the supervision of resident and attending staff members. Students participating in the clinical rotation are given a weekly clinic assignment schedule by the resident responsible for the medical student rotation. This is designed to maximize interactions with all clinical faculty members. Rotators may also arrange to attend rounds with the consult resident and the hospital attending physician.

In addition, students attend regular department teaching rounds, didactic sessions, and biweekly one-hour lectures in basic dermatology given for students. The rotation hours are from 7:30 a.m. to approximately 6:00 p.m. Monday through Friday. There are no call or weekend requirements. While the clinical clerkship is directed by Dr. Colavincenzo, all full-time clinical faculty members, all dermatology residents, and some volunteer faculty participate in teaching and evaluating medical students during their clerkship in Dermatology.

Evaluation and persons performing the evaluation:
The student is evaluated by: 1) observation by faculty and residents based on attendance and participation in clinic, lectures, and conferences, 2) an end-of rotation case presentation given by each student, 3) an examination administered by the assigned resident during the final week of rotation. The standard Northwestern student evaluation form will be completed by Dr. Colavincenzo, following standards for feedback on performance during the rotation.

Number of M4 students per rotation (FSM and visiting): Four (1 Partner/ 3 LCME or Osteo). The total number may be reduced (during the Summer time frames) or increased up to six in selected situations.
Number of weeks: Four

Site: Dermatology Clinic, Outpatient Surgical Suite, 676 North St. Clair, Ste. 1600, NMH.

First day report to: Students will report to the residents’ room, in the Dermatology Department, at 8:30 a.m. on the first day of rotation.

Advanced Dermatology
DER.4205.04.NMH

Clerkship Director:
Maria Colavincenzo, MD

Clerkship Coordinator:
Trisha Gougis, 676 N. St. Clair, Ste. 1600, tgougis@nmff.org, 312/695-6837

Prerequisite:
Advanced dermatology applicants should complete at least a one-month elective in dermatology prior to this rotation, at Northwestern or another academic institution.

Background and Justification:
This rotation emphasizes advanced diagnostic skills and medical dermatology focusing on inpatient and complex medical dermatology patients as part of the dermatology consult service. Skills in formulating differential diagnoses and diagnostic procedures are emphasized. Presentation skills for dermatology grand rounds are also expected. Also helpful to this rotation is completion of: Inpatient Medicine, Rheumatology, Allergy and Immunology, and Infectious Disease electives (2-4 weeks each).

For rotations in Pediatric Dermatology at Lurie Children’s Hospital, please see Pediatric Dermatology listing in the elective catalog.

Goals:
Familiarize each student with advanced medical dermatology and functioning of a dermatology consult service. Students will give a short case presentation in a grand rounds setting as would be required of a dermatology resident.

Objectives:
The learner will be able to:
- Develop comprehensive dermatologic differential diagnoses
- Formulate treatment plans for common dermatologic complaints
- Deliver an appropriate case presentation in a grand rounds setting
- Administer local anesthesia, and properly perform diagnostic procedures
- Recognize and identify accurately on a written exam (including entities such as: allergic contact dermatitis, stasis dermatitis, morbilliform drug eruptions, Grover’s disease, erythema nodosum/panniculitis, Stevens-Johnson syndrome, purpura fulminans, psoriasis and other papulosquamous dermatoses, pemphigus vulgaris, deep fungal infections, leukemia/lymphoma cutis, vasculitis, common skin infections, common genodermatoses)

Course Format and Proposed Schedule:
Students spend their time in an academic clinical inpatient dermatology consult setting. They participate directly in the diagnosis and treatment of skin diseases. This may include learning a variety of routine procedures under the supervision of resident and attending staff members. Students are expected to attend all inpatient rounds with the consult resident and the hospital attending physician.

In addition, students attend regular department teaching rounds, didactic sessions, and biweekly one-hour lectures in basic dermatology given for students. The rotation hours are from 7:30 a.m. to approximately 6:00 p.m. Monday through Friday. Weekend call requirements may be a part of this rotation. An oral presentation of an interesting case will take place during monthly departmental grand rounds. The student will assist the consult resident with organizing grand round patient presentations and patient viewings. While the clinical clerkship is directed by Dr.
Colavincenzo, all full-time clinical faculty members, all dermatology residents, and some volunteer faculty participate in teaching and evaluating medical students during their clerkship in Dermatology.

**Evaluation and persons performing the evaluation:**
The student is evaluated by:
- Observation by faculty and residents based on attendance and participation on the consult service, lectures, and conferences
- The grand rounds case presentation
- And a written examination administered by the assigned resident during the final week of rotation.

The standard Northwestern student evaluation form will be completed by Dr. Colavincenzo, following standards for feedback on performance during the rotation.

**Number of M4 students per rotation (FSM and visiting):** One
**Number of weeks:** Four

**Sites:** NMH, LCH (on weekends), Outpatient clinics at 676 N. St. Clair, Suite 1600.

**First day report to:** Students will report to the residents’ room, Dermatology Clinic, at 7:30 a.m. on the first day of rotation at 676 N. St. Clair, Ste 1600.
Emergency Medicine
EME.4000.04.NMH

Clerkship Director:
Amy Kontrick, MD

Clerkship Coordinator:
Susan Heiniger, 211 E. Ontario St., Ste. 300, sheinige@nmff.org, 312/926-5874

*** This elective is not offered during Block 1, Block 2, or Block 20 ***

***Preference will be given to US medical students pursuing a career in EM and Global Partner Applicants***

Background and Justification:
Emergency Medicine will expose the student to the diagnostic, therapeutic, and procedural skills required for the management of acute illness and injury. The student will function at the level of a sub-intern and will be involved in all aspects of emergency care including the performance of all necessary procedures. From the patient’s initial presentation through diagnosis and development of the treatment plan, it is expected that the student will gain knowledge and confidence in his or her clinical skills. All patients will be concurrently managed by the Emergency Department attending and resident, who will provide immediate feedback, teaching, and support.

Goals:
- Recognize life-threatening patient presentations and demonstrate appropriate prioritization of initial interventions
- Enhance history and physical exam skills using a problem-focused approach
- Develop focused diagnostic plans for common acute illnesses and injuries
- Learn to effectively manage multiple patients simultaneously
- Improve existing procedural skills as well as learn new skills
- Describe common pathophysiologic processes that lead to emergent presentations
- Describe therapeutic interventions that are meant to respond to the underlying pathophysiologic events

Objectives:
Students will:
- The student will demonstrate the ability to generate appropriate differential diagnoses and develop diagnostic and therapeutic plans for patients presenting with the following complaints:
  - Chest pain
  - Shortness of breath
  - Abdominal pain
  - Vaginal bleeding and pelvic pain
  - Headache
  - Extremity trauma
  - Lacerations and other minor wounds
  - Fever
  - Acute weakness
  - Syncope
  - Altered mental status
  - Seizure
  - Environmental emergencies including hypothermia and/or hyperthermia
  - Acute psychiatric complaints
- The student will be able to recognize and initiate treatment of various cardiac dysrhythmias.
- Identify and treat the acutely poisoned patient.
- Recognize the common toxidromes and list the appropriate antidote and/or treatment.
- Describe the initial systematic approach to management of the trauma patient.
- Recognize and initiate treatment for immediately life threatening injuries in the trauma patient.
- Demonstrate appropriate wound management techniques including basic suturing skills.
• Describe appropriate wound care and management.
• Participate in adult and pediatric resuscitations and identify and describe the pathophysiology behind treatment protocols
• Demonstrate basic airway skills
• Recognize and describe treatment for common ophthalmologic emergencies
• Recognize and describe initial treatment and/or intervention for common ENT emergencies
• Describe appropriate interventions for victims of domestic violence
• Demonstrate competence in basic procedural skills including venipuncture, suturing, splinting, ABG and IV placement
• Assume responsibility for the management of patients at the level of a sub-intern

Course Format:
The student will meet the goals and objectives through:
• Clinical experience in the emergency department, primarily evaluating patients and devising diagnostic and therapeutic plans. The student’s focused history and physical examination findings will be immediately presented to a senior resident or attending. The student will be responsible for working with senior physicians to assure the implementation of diagnostic and therapeutic plans, assuring interpretation of the results, and then for the development of the on-going plans for care.
• Course reading materials and a core lecture series will be presented during the four-week rotation. These will cover the essential knowledge components and will help link the clinical experience with basic physiology, pharmacology, anatomy, and biochemistry.
• Special seminars will be presented to explore special topics in more detail. These will include an orientation to the emergency department, skill labs, special interactive sessions, and introduction to special topics in Emergency Medicine.

Evaluation:
The student will be evaluated on his or her clinical skills. At the end of each clinical shift, the student must present an evaluation form to the supervising resident and attending. Through each clinical shift, the supervising physicians will directly observe the students’ skills and will provide real-time, ongoing feedback. Interpersonal skills will also be assessed. The ability to effectively interact with patients and families, to demonstrate professionalism, communication skills, teamwork, and collegiality will be required. These qualities will be assessed through the end-of-shift evaluation forms. Conference participation will be evaluated. A comprehensive final examination is mandatory and will contribute to the final grade. In addition, students will be required to maintain a procedure log and a patient follow-up log. These must be turned in near the end of the rotation and will be evaluated.

**Letter of Recommendation**
One letter of recommendation, describing applicant’s interest and/or experience in Emergency Medicine and any extracurricular activities relating to the specialty are required with the completed visiting elective application. Letters should be addressed to: Amy Kontrick, MD, Director of Student Education.

Letter writer may be an EM advisor or senior faculty member who has supervised applicant during a junior core clerkship (Internal Medicine, Surgery, OB/GYN, or Pediatrics). Applications received without the required letter will not be considered.

Site: Available sites include Northwestern Memorial Hospital.

Number of M4 students per rotation (FSM and visiting): Two
Number of weeks: Four

First day report to: The student will be e-mailed instructions.
Background and Justification:
Clinical problems in allergy-immunology are seen in nine outpatient clinics on Monday to Friday. Formal inpatient rounds are scheduled for Monday and Thursday. The remainder of time is devoted to seeing inpatient consultations and participating in the Tuesday subspecialty conferences. Clinical problems seen in this service are the common respiratory and cutaneous allergic diseases, including asthma, urticaria, anaphylaxis, food allergies, rhinosinusitis, and immune deficiencies (mostly B cell). Experience is gained in evaluation, diagnosis, and management of these problems. More complex diagnostic problems are seen as inpatient consultations such as drug induced rashes and Steven Johnson Syndrome. There is some exposure to the broadening research areas of allergy-immunology. The student is asked to prepare a brief report for presentation during the rotation.

Goals:
- Know the pathophysiology of common allergic-immunologic diseases
- Understand principles of diagnosis and treatment of allergic-immunologic diseases
- Recognize features of deficient B Cell immunity

Objectives:
- Demonstrate presence of IgE antibody
- Correlate IgE antibody with occurrence of symptoms
- Establish the diagnosis of allergic rhinitis
- Learn how to diagnose and treat rhinosinusitis
- Understand mechanisms of asthma
- Learn principles of management of asthma
- Gain experience in severe allergic reactions such as anaphylaxis
- Become familiar with the workup for hypogammaglobulinemia
- Carry out management of allergic-immunologic disease if entering a primary care specialty

Number of M4 students per rotation (FSM and visiting): Two
Number of weeks: Four

Site: NMH

First day report to: Student will be emailed instructions.

Background and Justification:
The clerkship permits in-depth study of clinical and pathophysiological aspects of the rheumatic disease. Students evaluate patients under the supervision of faculty members and rheumatology fellows, with emphasis on outpatient clinical experience, key clinical and pathophysiological concepts, interpretation of serologic tests, imaging, and
synovial fluid analysis. A didactic lecture series of core rheumatology topics and case problems is presented by the faculty each week, along with other clinical and research conferences.

**Goal:**
An improved understanding of the clinical presentation, pathophysiology, and treatment of common rheumatologic disorders.

**Objectives:**
- Perform a competent rheumatologic history and physical examination
- Construct differential diagnoses and work-up plans for acute monarthritis and chronic polyarthritis
- Recognize and understand the multisystem involvement of systemic rheumatic diseases
- Be knowledgeable with the risks and benefits of nonsteroidal anti-inflammatory drugs
- Recognize benefits and risks of corticosteroids in treatment of rheumatic disease
- Gain experience in the use of immunosuppressive drugs for rheumatic disease
- Develop skill in performing arthrocentesis of the knee and synovial fluid analysis
- Improve physical examination and history taking skills related to the musculoskeletal system
- Understand the assessment of functional status in rheumatic disease patients
- Become familiar with indications, perioperative medical management, and rehabilitation following total joint replacement surgery
- Begin to learn the vocabulary of musculoskeletal diseases

Close liaison exists with orthopaedic surgery, rehabilitation medicine, and radiology. This course may prove helpful to those students with a potential interest in family practice or general internal medicine, rheumatology, orthopaedic surgery, plastic surgery, or rehabilitation medicine. Course designed by the faculty of the Division of Rheumatology.

**Number of M4 students per rotation (FSM and visiting):** Two
**Number of weeks:** Four

**Site:** Northwestern Memorial Hospital and clinics.

**First day report to:** Students assigned to this clerkship should report to Willie Southerns in the Medical Specialties Clinic, Galter Pavilion NMH 14-100, at 8:30 a.m. on the first day of clinic.

**Clinical Cardiology Consulting Service**
**MED.4554.04.NMH**

**Clerkship Director:**
Preeti Kansal, MD
**Clerkship Coordinator:**
Adriana Ohl, 676 N. St. Clair, Ste. 600, aohl@nmff.org, 312/695-0070

**Background and Justification:**
Experience in diagnosis and management of a broad range of cardiac disease, including preoperative evaluation for cardiac surgery, cardiac consultation, postoperative management of the cardiac surgical patient, cardiac evaluation of patients with cardiac disease scheduled for non-cardiac surgery, and evaluation of the pregnant cardiac patient. Opportunities to participate in outpatient cardiology are also available.

**Goals:**
- Diagnose and treat common cardiac disorders
- Understand use of cardiac diagnostic modalities

**Objectives:**
- Improve cardiac examination skills (history and physical)
- Understand common cardiac diseases: manifestations; diagnosis, and treatment
- Understand diagnosis and treatment of coronary artery disease, heart failure, valvular heart disease, and peripheral vascular disease
Course Format and Proposed Schedule:
The student is required to attend rounds, daily cardiology conferences and evaluate patients. The approximate hours are from 7:30 a.m. to 5:00 p.m. daily. There is no required call or weekend participation.

Evaluation and persons performing the evaluation:
The student will be observed and evaluated by Cardiology faculty and Fellows. Their participation in rounds and quality of patient presentations will comprise their grade.

Number of M4 students per rotation (FSM and visiting): Two
Number of weeks: Four

Site: NMH

First day report to: After visiting student registration, please report to: Students assigned to this clerkship report at 8:30 a.m. on the first day to the nurses station on the 10th floor of Galter. Please ask for the fellow on the rotation.

Cardiovascular Disease in Women
MED.4557.04.NMH

Clerkship Director:
Marla A. Mendelson, MD
Clerkship Coordinator:
Adriana Ohl, 676 N. St. Clair, Suite 600, aohl@nmff.org, 312/695-0070

*** This elective is not offered during Block 15 ***

Goals:
• Understand gender-specific differences in coronary artery disease
• Understand and use gender-specific cardiovascular risk assessment and modification
• Understand the manifestations of cardiovascular disease during pregnancy
• Enhance overall skills in cardiopulmonary examination and diagnosis

Objectives:
To fulfill these goals the student will:
• Attend daily outpatient general cardiology sessions weekly in an office setting with a high proportion of female patients
• Attend the weekly Heart Disease and Pregnancy Clinic
• Complete a research project or scholarly review paper on a mutually agreed upon topic

Course Format and Proposed Schedule:
Attend Cardiology Conferences and ECG reading with attending. The approximate hours are 7:30 a.m. to 5:00 p.m. There is no call or weekend participation.

Number of M4 students per rotation (FSM and Visiting): To be pre-approved by Dr. Mendelson.
Number of weeks: Four

Evaluation and persons performing the evaluation:
Evaluation is comprised of clinical skills and the required paper. The student will be evaluated by the Faculty for knowledge base, professional demeanor and significance of research paper.

Site: NMH

First day report to: After visiting student registration, please report to Adriana Ohl at 676 N. St. Clair, Suite 600, at 8:30 a.m.
Endocrinology and Metabolism Clerkship
MED.4562.04.VAR

Clerkship Director:
Allison Hahr, MD

Clerkship Coordinator:
Eunece V. Franklin, 251 E. Huron St., Ste. 3-150, efrankli@nm.org, 312/926-8601

Goals:
The goal of this elective is to develop an appreciation of the natural history and pathophysiology of endocrine and metabolic disorders and the effect of these disorders on other organ systems. This is obtained through closely supervised work with patients, formal conferences, and small-group didactic teaching. Students will see patients with diabetes mellitus, thyroid disorders, osteoporosis, hypogonadism, and pituitary disorders, among other conditions.

The outpatient experience is gained through supervised sessions at NMFF clinic and the Jesse Brown VA. Students will be assigned to different clinics throughout the rotation. Students will also join residents and endocrine fellows in the management of patients hospitalized at NMH. Inpatient consultations are supervised by an attending endocrinologist who makes daily rounds with the clinical team. Lastly, students will have the opportunity to work with the inpatient Glucose Management Service where glycemic control is provided to surgical and stroke patients.

Additional clinical teaching is provided through a weekly conference where faculty and fellows present clinical problems and reviews to the endocrine division. These clinical conferences are supplemented by the weekly didactic fellows’ conference reviewing major topics in endocrinology.

Number of M4 students (FSM and Visiting): Two
Number of weeks: Four

Site: NMH

First day report to: Students assigned to this clerkship will report to Galter, 14th fl., Ste. 14-100 at 9:00 a.m. on the first day, OR students will be emailed instructions.

Gastroenterology Clinical Clerkship
MED.4563.04.N/V

Clerkship Director:
Thomas Nealis, MD

Clerkship Coordinator:
Sana Khan, 676 N. St. Clair St., Ste. 1400, skhan10@nm.org, 312/695-5398

Background and Justification:
Gastroenterology has expanded dramatically in the past decade with tremendous advances in diagnostic and therapeutic strategies in acid-peptic disorders. Moreover, this has been coupled with a plethora of therapeutic and diagnostic endoscopic techniques. This clerkship emphasizes the pathophysiology of these gastrointestinal disorders and focuses on the application to commonly encountered clinical problems. Students are encouraged to concentrate on the organization and extraction of clinically relevant information by spending their time working up patients and then reading about their problems. Exposure to all gastroenterological procedures is offered to students; however, course participants will not spend undue time observing them.

Goals:
- Enhance ability to diagnose and treat common gastroenterological disorders
- Enhance knowledge of gastrointestinal pathophysiology

Objectives:
- Understand the causes of gastrointestinal bleeding, the differential diagnosis of upper and lower GI bleeding, and a related treatment plan
• Develop a differential diagnosis for common GI complaints such as odynophagia, dysphagia, abdominal pain, constipation, diarrhea and generate an appropriate diagnostic work-up and treatment plan. Recognize common endoscopic findings such as esophagitis, esophageal varices, gastric and duodenal ulcers, and colitis.

**Course Format and Proposed Schedule:**
Students will spend their time on the NMH GI service, which is primarily a consultative program, in which the student examines the patient, prepares and presents a work-up and relevant literature, and reviews the patient with the resident, fellow, and attending physician.

Students are expected to attend the following weekly conferences: Tuesday: GI oncology patient management conference and medical grand rounds; Wednesday: fellows teaching conference; Thursday: gastroenterology education conference; and Friday: hepatology conference.

*NU students will receive preference.*

**Number of M4 students per rotation (FSM and Visiting): Two**
**Number of weeks:** Four

**Site:** NMH

**First day report to:** Student will be emailed instructions.

**Geriatric Medicine Clinical Clerkship**
**MED.4564.04.NMH**

**Clerkship Director:**
June M. McKoy, MD

**Clerkship Coordinator:**
Tillie Moy, 251 E. Huron St., Ste. 3-150, 3rd fl., tmoy@nmff.org, 312/926-4118

**Background and Justification:**
This rotation emphasizes an interdisciplinary team approach to care of aging adults, with a focus on their medical, physical, emotional, and psychosocial needs. The students’ experience will be eclectic (inpatient, outpatient, and nursing home). The student will also become familiar with a variety of assessment tools, including screening questionnaires/tests (i.e. MOCA, MMSE, Mini-Cog, Geriatric Depression Scale, PHO-9, and the Timed Get-Up & Go Test); interpretation of routinely used laboratory testing, and brain imaging will be provided.

**Goal:**
Using the principles of geriatric medicine, the student will develop an integrated approach to the evaluation and care of the frail and healthy older adult.

**Objectives:**
• Develop a general understanding of the biology of aging
• Gain knowledge of the basic pharmacokinetic and pharmacodynamic changes associated with aging and become skilled at assessing the appropriateness of pharmacologic therapy.
• Determine rehabilitation needs
• Perform a functional assessment
• Develop a heightened awareness of the ethical issues related to patient care
• Develop an understanding of and approaches to common problems encountered in aging adults (i.e., falls, incontinence, dementia, depression, osteoporosis, deconditioning)
• Gain an understanding of the physician’s role in the patient’s transition between levels of care and the importance of continuity of care in the older adult.

**Course Format and Proposed Schedule:**
As part of the interdisciplinary geriatric team, the student participates in assessments in the outpatient clinic (Galter 18-200). The student is also involved in inpatient consultations on the medical, surgical and psychiatric wards.
Clinical exposure includes acute hospital care and institutional care (acute rehab, sub-acute rehab, and custodial or long-term care). There will be no weekend activity (details in proposed weekly schedule).

Students will be active participants in all educational activities. The student will give a brief presentation on a topic related to a patient seen in clinic, in-patient, or SNF during the tenure of the clerkship.

**Evaluation and persons performing the evaluation:**
Students are evaluated on the basis of their ability to integrate the principles of geriatric medicine in the assessment and care of the older adult. The evaluation will be performed by the Clerkship Director.

**Number of M4 students (FSM and Visiting): One**
**Number of weeks:** Four

**Sites:** NMH, NMG, *The Clare* (SNF rehab), Wesley Place (SNF rehab/LTC), Warren Barr (SNF/LTC)

**First day report to:** Page or text-page Dr. McKoy at 312/695-3161 at 8:00 a.m. The student will receive their written orientation material in advance and should follow their individual schedules for the rotation.

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**Infectious Diseases**
**MED.4566.04.NMH**

**Clerkship Director:**
Michael Angarone, MD

**Clerkship Coordinator:**
Marla Block, 645 N. Michigan, Ste. 900, marla.block@northwestern.edu, 312/695-5090

**Background and Justification:**
In this elective clerkship, the senior medical student shares responsibility for consultations, meets daily with the primary preceptor, and learns basic concepts relevant to the diagnosis and treatment of infectious diseases. In addition, the student participates at least one half day per week in the outpatient HIV clinic, at least once in the Monday evening Sexually Transmitted Disease Clinic and in all infectious disease conferences. Participation in the conference assures contact with the division’s faculty members, provides exposure to discussions on infectious disease issues, and offers an opportunity for the student to explore the infectious disease literature.

**Goal:**
The student will gain an increased understanding of the diagnosis and management of infectious diseases.

**Objectives**
Student will be better able to:
- Understand causes of infections
- Understand the principles of appropriate anti-infective therapy
- Understand host-pathogen interactions
- Understand problems unique to hospital-acquired infections

**Course Format and Proposed Schedule:**
Northwestern has three infectious disease services: 1) the Transplant ID Service that manages solid organ and bone marrow transplant recipients and patients with malignancies, 2) the Surgical/Heme-One/Ob-Gyne ID service cares for patients primarily managed by surgical services, obstetrics, and gynecology patients. Additionally, they care for most of the oncology patients; 3) the General ID Service sees a broad range of patients with infectious problems throughout the hospital including most of the patients with HIV. In order to provide a range of patient exposure, students typically spend two weeks on two of the three services.

There is no graded written examination. Students are expected to round Monday through Friday and join the ID fellow or attending for rounds on one weekend day. Night and holiday call are not expected.

**Evaluation and persons performing the evaluation:**
Observation performed by faculty.
Number of M4 students (FSM and Visiting): Four
Site: NMH

First day report to: Students assigned to this clerkship report to Marla Block (312/695-5090) at 8:45 a.m. in the Division of Infectious Diseases, 645 N. Michigan Ave. Ste. 900, on the first day. For interested students, eight weeks of research experience in studying infectious diseases may be arranged after an interview with Dr. Anderson. Students interested in research should phone 312/695-5090 for further information.

Nephrology Clinical Clerkship
MED.4568.04. NMH

Clerkship Advisor and Director:
James Paparello, MD

Clerkship Coordinator:
Tillie Moy, 251 E. Huron St., Ste. 3-150, tmoy@nmff.org, 312/926-4118

Background and Justification:
Nephrology is a subspecialty of internal medicine. The kidneys are often affected by systemic diseases and therefore the consult service is busy seeing three to six (or more) new patients a day. We emphasize physiology and pathophysiology to explain and treat illness. We are consulted by Surgery, Medicine, and OB services, and have a sizeable number of patients in the ICU. With this diversity, the rotation can be relevant to students going into any discipline. We can tailor the rotation to focus on outpatient nephrology, transplantation, or dialysis if requested.

Goals:
- Provide experience in the diagnosis and treatment of renal disease
- Provide didactic teaching on acid-base and electrolyte problems, hypertension, renal failure, and renal replacement therapies, which include dialysis and transplantation
- Provide insight into the consultation for nephrological problems, including end-stage renal disease
- Become adept at volume assessment via history and physical exam

Objectives:
Student will be better able to:
- Work up renal problems, particularly renal failure (acute & chronic), renal syndromes, and hypertension management
- Understand the staging of chronic kidney disease and its management
- Interpret electrolytes, arterial blood gas data, and urine electrolytes in clinical context

Course Format and Proposed Schedule:
Assignments are made by Dr. Paparello. Students are expected to attend rounds Monday through Friday. Students should check in with the Nephrology fellow after Medicine resident report at 8:30 a.m. Students see new patient consults and provide follow up care on the patients they have seen throughout the rotation. The timing of rounds is attending-dependent, although rounds usually end by 5:00 p.m. Students usually follow from 1-5 patients, depending on the size of the team. If students are specifically interested in transplantation, dialysis, or outpatient nephrology, the rotation can be tailored to focus on those areas.

Evaluation and persons performing the evaluation:
Nephrology attendings rotate every half month. The attending who is most familiar with the student will fill out the evaluation based on student performance, data accumulation, presentation skills, and knowledge base.

Number of M4 students per rotation (FSM and Visiting): Four
Number of weeks: Four

Site: NMH

First day report to: Students at NMH report on the first day to the inpatient dialysis unit, Feinberg 9-748 at 8:30 a.m.
Background and Justification:
Disorders of the respiratory system are among the most frequently encountered clinical problems in hospitalized patients. This rotation emphasizes the approach to diagnosis and treatment of common and unusual pulmonary disorders in the hospital setting. Students will participate in all facets of the work of the Pulmonary Consultation Service at Northwestern Memorial Hospital, which entails exposure to a broad range of diseases affecting the respiratory system and the consultant’s role in their diagnosis and management. Students will also gain exposure to chest radiology, interpretation of pulmonary function tests, flexible fiber optic bronchoscopy and other pulmonary diagnostic procedures. This rotation is especially useful for those planning to enter the fields of internal medicine (including the subspecialties of pulmonary and critical care medicine), anesthesiology, emergency medicine and radiology.

Goals:
- Understand, diagnose and treat common pulmonary problems
- Interpret pulmonary function tests and chest imaging studies
- Integrate principles of pulmonary physiology and pathophysiology with clinical information from patients with a variety of pulmonary diseases

Objectives
To understand the causes, evaluation, and treatment of:
- Obstructive lung disease
- Diffuse interstitial lung disease
- Pulmonary vascular disease
- Acute lung injury and respiratory failure of other causes
- Pulmonary infection
- Pulmonary malignancy
- Occupational and environmental lung disease
- Iatrogenic respiratory disease
- Disorders of the pleura
- Pulmonary manifestations of systemic disease

Course Format and Proposed Schedule:
Students will function as junior members of the Pulmonary Consultation Service team. The team will generally consist of 1 junior medical student, 1-2 senior medical students, 1-4 internal medicine residents, 1 pulmonary fellow, and an attending physician. Attending physicians are all full-time faculty in the Division of Pulmonary and Critical Care Medicine of the Feinberg School of Medicine. Students will share responsibility with the medical residents and pulmonary fellow for responding to all requests for pulmonary consultations on hospitalized patients. Students will individually evaluate patients and give oral presentations on attending rounds, which occur daily. Students will also be encouraged to observe and assist with fiber optic bronchoscopy and other pulmonary diagnostic procedures, including thoracentesis, needle biopsy of the pleura, and chest tube placement. Students will observe and learn to interpret pulmonary function tests. Students will participate in all Division of Pulmonary and Critical Care Medicine conferences, including Pulmonary Morning Report, Pulmonary Core Clinical Topics, Pulmonary and Critical Care Grand Rounds, Thoracic Oncology Conference, and Pulmonary Research Conference. The schedule for the rotation is approximately 8:00 a.m. to 5:00 p.m., Monday to Friday. There is no night call, and weekend rounding by students is not required.

Evaluation and persons performing the evaluation:
Written evaluation by Pulmonary Faculty, based on observation by Pulmonary Faculty and Pulmonary Fellows.
Background and Justification:
Palliative medicine focuses on quality of life for patients and their families. It is interdisciplinary in its approach and strives to address physical, psychological, social and spiritual aspects of suffering and of experience. It includes patients with serious illnesses including cancer, heart disease, and dementia, as well as patients who may be receiving active treatment for their disease. At Northwestern, the palliative care program consists of an inpatient unit, an inpatient consultation service, and an outpatient palliative care clinic.

The core of the student’s experience consists of participating in the care of patients in the Palliative Care Unit and on the Palliative Care Consult Service. Didactic, interactive sessions are held two times per week. Core topics covering not only basic principles and controversies of palliative medicine but also the management of common symptoms, including pain, nausea, fatigue, delirium, and dyspnea, are discussed. Relevant legal, ethical, spiritual, cultural, and psychological issues are emphasized during the clerkship. The foundations of palliative medicine, including good symptom management, excellent communication skills, comfort with limitations and potentials of modern medicine, and adherence to ethical precepts are important for physicians in any specialty.

Goals:
- To develop an understanding of palliative medicine approach toward patients with advanced disease.
- To experience the consultative, inpatient practice of palliative care.
- To gain confidence in appropriate delivery of bad news and discussing end-of-life issues with patients and families.
- To become accustomed to interdisciplinary (physician, nurse, social worker, chaplain) management of patients with chronic and advanced disease.

Course Format and Proposed schedule:
- Inpatient rounds are generally at 8:30 a.m. (Palliative Care Unit and Palliative Care Consult Service) each day
- You will receive a detailed schedule of didactic sessions upon enrollment.

Evaluation and persons performing the evaluation:
Standard Northwestern student evaluations will be completed by attending physician on the month of the rotation following standards for feedback on performance during the rotation.

Number of M4 students per rotation (FSM and Visiting): Two
Number of weeks: Four

Site: NMH

First day report to: Jackie Maller, 240 E. Huron St., McGaw M-325, (Mezzanine Level) at 9:00 a.m.
**Heart Failure**
MED.4592.04.NMH

**Clerkship Director:**
Sanjiv Shah, MD

**Clerkship Coordinator:**
Adriana Ohl, 676 N. St. Clair, Ste. 600, aohl@nmff.org, 312/695-0070

*** This elective is not offered during Block 15 ***

**Background and Justification:**
This rotation emphasizes the approach to the diagnosis and treatment of heart failure. Experiences in inpatient care and consultation on the general wards, cardiology unit, and the intensive care units will be provided. Familiarity with diagnostic testing including: echocardiography, cardiac MRI, Cardiac CT, Holter monitoring, cardiopulmonary stress testing, coronary angiography, invasive hemodynamic testing, and ICD/pacemaker technology. Exposure to high-risk cardiac surgery including: revascularization, valve repair, ventricular reconstruction, arrhythmia surgery, LVAD and transplantation will be provided.

**Goals:**
- Increase the ability to diagnose heart failure due reduced vs. preserved ejection fraction, and recognize the differing therapeutic approach to both syndromes
- Increase the ability to develop a diagnostic plan for heart failure
- Increase the ability to understand the rationale for the therapeutic approach to heart failure
- Increase the ability to appropriately utilize electrophysiologic interventions and the management of heart failure
- Understand when patients are truly refractory (Stage D) and require more definitive surgical therapies

**Objectives:**
Students will acquire basic ability to:
- Perform a competent history and physical examination with reference to heart failure
- Develop a diagnostic plan for the elucidation of etiologies and cofactors in heart failure
- Create an evidence-based therapeutic plan resulting from the diagnostic evaluation and the published guidelines
- Interpret echocardiographic evaluation of left ventricular function
- Assess those admitted for Acute Heart Failure Syndrome and apply appropriate therapy including diuretics and IV vasodilators and inotropes
- Recognize when conventional therapy fails and the indications for destination therapy and cardiac transplantation
- Understand at what point palliative care may be the best option

Students will be expected to work with the inpatient service, attend consult rounds and see patients in the ambulatory environment. An attending heart failure/transplant cardiologist and cardiology fellow will supervise the student. The student will attend the weekly Center for Heart Failure patient care meeting. Students should report to Adriana Ohl (see contact information below) and page the heart failure fellow to begin the rotation.

**Rationale:**
Heart Failure is a common syndrome with a high mortality (60% at 5 years from diagnosis; 50% at 2 years if NYHA Class IV – approximately twice that of breast cancer) affecting 5 million Americans and accounting for more hospitalizations than all forms of cancer. Because 80% of those with HF are 65 years of age or older, the economic burden on Medicare is alarming. It is the number one medical expense of the VA system.

In the past decade, newer pharmacologic modalities and electrophysiologic interventions have proven effective in randomized controlled trials adding to the complexity of management in this population. Additionally, newer surgical approaches and technologic advances in heart replacement (left ventricular assistance and transplantation) have led to a broader armamentarium in the treatment of this condition.
Through the Center for Heart Failure of the Bluhm Cardiovascular Institute, Northwestern has made a serious commitment to become a (inter)national leader in care and research in HF. The Center by its very nature will be active in multidisciplinary (cardiology, cardiac surgery, nursing, and radiology) care and research. A large regional network (The Northwestern Great Lakes Regional Heart Failure Network) of cardiologists (324) and primary care physicians (138) caring for more than 33,600 patients has been developed by the Center which will provide access for population-based studies and clinical trials. The proposed elective will teach the art and science of management of the entire spectrum of heart failure within the context of a multidisciplinary team.

Proposed schedule:
The student will attend ambulatory clinic two half days/week where instruction in the chronic management of HF will be provided. Students will see approximately 5-6 patients per clinic session. Students will initially obtain the history; examine the patients and then present to the attending physician. Didactic lectures will be given at least twice weekly and ad hoc. Lectures to be given include: diagnostic evaluation of HF, management of acute heart failure syndrome, chronic medical management of HF, electrophysiologic devices for HF and management of Stage D HF including high risk CV surgery, transplantation and left ventricular assistance. The student will make teaching rounds on the inpatient and consult service with the attending physician three days a week and will attend the weekly multidisciplinary Center clinical conference where all seriously ill patients are discussed and decisions regarding transplant, left ventricular assistance and advanced cardiac surgery will be made. The inpatient service has an average census of 12-14 patients daily. Independent reading assignments will be given throughout the rotation. Additionally, the student will have the opportunity to be present in the operating room during surgery on patients the student follows.

Number of M4 students per rotation (FSM and Visiting): Two
Number of weeks: Four

Site: NMH

First day report to: Adriana Ohl, 676 N. St. Clair, Ste. 600, 312/695-0070
Medical Informatics
MED.4595.04.NMH

Clerkship Co-Directors:
Abel Kho, MD
David Liebovitz, MD

*** This elective is not offered during Block 15 or Block 16 ***

This elective rotation will help empower medical students to become change agents for IT improvements and provide them with the background necessary to become meaningful contributors to IT projects. Students should be able to identify problematic workflows and suggest strategies for IT improvements. Students should leave the rotation with an understanding of what functionality is possible now using EHR systems and the steps required for improving these systems.

Goals:
- Know the scope of medical informatics from application of genomic data to population health
- Understand principles and organization of clinical terminologies
- Recognize opportunities for application of informatics principles

Objectives:
- Students will be able to describe differences among ontologies, taxonomies, and terminologies and provide examples.
- Students will be able to describe applications of natural language processing.
- Students will be able to describe goals and metrics for the Meaningful Use requirements for electronic medical records.
- Students will be able to propose and suggest models for analyzing decision support rules and alerts.
- Students will be able to list HIPAA and HITECH privacy and security related rules.
- Students will be able to list examples of inefficiencies in current health care delivery that may be improved through IT systems with an emphasis on transparency, patient empowerment, and shared decision making.

Course Format and Proposed Schedule:
Students will be involved with determining and describing differences among ontologies, taxonomies, and terminologies and providing examples; describing applications of natural language processing; describing goals and metrics for the Meaningful Use requirements for electronic medical records; and proposing and suggesting models for analyzing decision support rules and alerts.

**A personal statement is required.**

Evaluation and persons performing the evaluation:
To be announced at the start of the elective.

Number of M4 students per rotation (FSM and Visiting): Two
Number of weeks: Two

Sites: NMH, NMFF, FSM

First day report to: Please email both of the elective directors a week prior to the start of the rotation. First day report instructions will be relayed through email discussion.
Maternal-Fetal Medicine
OBG.4331.04.NMH

Clerkship Director:
Janelle Bolden, MD
Clerkship Coordinator:
Mallori Kelley, 250 E. Superior, Ste. 5-2179, makelley@nmh.org, 312/472-4672

*** This elective is not offered during Block 2, Block 15, Block 16, or Block 17 ***

Background and Justification:
This rotation emphasizes the approach to the diagnosis and management of high risk pregnancies. Students will care for patients on the antepartum in-patient service, Labor & Delivery, outpatient clinics (PAC-Diabetes, PAC-High-Risk Obstetrics and NMFF MFM office).

Goals:
Develop the ability to identify women with an increased risk of adverse pregnancy outcome, counsel them in the pre-conceptional period, diagnose and manage them during pregnancy and the intrapartum period.

Objectives:
• Student will develop the clinical skills to identify potential maternal and fetal complications of a high-risk pregnancy (including hypertension, Hx of prematurity, fetal anomalies, multiple gestation, diabetes, abnormal placentation, immune disorders and congenital infection/HIV).
• Student will develop the clinical skills to establish an appropriate plan of management of a high-risk pregnancy.
• Student will become familiar with diagnostic modalities and technology utilized in maternal and fetal surveillance, including fetal heart rate testing, biophysical testing, and ultrasound (including Doppler and 3-D).
• Student will develop an understanding of the indications, reliability and limitations of these diagnostic modalities.

Course Format and Proposed Schedule:
Students will be expected to work as part of the MFM service team and assume an individual case-load on the inpatient service. They will participate in rounds; see patients in the ambulatory prenatal clinics and ultrasound. Students will also be expected to observe and participate in prenatal counseling. Participation in weekly educational conferences is expected (Monday, Wednesday, and Friday a.m.). Independent reading assignments will be given throughout the rotation and students will give a 20-minute oral presentation to the MFM Division on a topic of their choice. Call is two 12-hour shifts over the 4-week rotation.

Evaluation and persons performing the evaluation:
Standard Northwestern student evaluations will be completed by the MFM physicians and fellows, antepartum residents and antepartum nursing staff, following standards for feedback on performance during the rotation. Students will also be evaluated on the oral presentation during the final week of the rotation. Students will meet with Dr. Bolden at the end of the rotation to ensure that the objectives of the rotations are met.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: Prentice Women’s Hospital, 250 E. Superior.

First day report to: Students assigned to this clerkship will report immediately following visiting student registration at 7:30 a.m. on the first day to the High Risk Team: Prentice 9th fl., Labor & Delivery.
Gynecologic Oncology
OBG.4332.04.NMH

Clerkship Director:
Emily Berry, MD

Additional Faculty:
Nikki Neubauer, MD, John Lurain, MD, and GYN-Oncology fellows

Clerkship Coordinator:
Mallori Kelley, 250 E. Superior, Ste. 5-2179, makelley@nmh.org, 312/472-4672

*** This elective is not offered during Block 2, Block 15, Block 16, or Block 17 ***

Background and Justification:
This rotation emphasizes the comprehensive management of women with gynecologic malignancy. Inpatient and outpatient experiences include clinical evaluation and management, surgery, chemotherapy and supportive care.

Goals:
- Student will learn methods of diagnosis and management of gynecologic cancer in both inpatient and outpatient settings
- Students will develop an understanding of the principles of radical surgery, radiotherapy and chemotherapy for the management of gynecologic cancer
- Students will increase their understanding of the psychological, economic and ethical problems associated with treating cancer patients

Objectives:
- Diagnose and manage gynecologic malignancies in both inpatient and outpatient settings
- Correlate clinical and pathologic findings related to gynecologic cancer
- Recognize the pathologic, social and economic aspects of cancer
- Care for dying patients and interact with their families
- Perform adequate gynecologic exams

Course Format and Proposed Schedule:
Students will evaluate and follow inpatients and outpatients and participate in surgical procedures on the Gynecologic Oncology Service at Prentice Women’s Hospital under the direction of resident, fellow, and attending staff. They will receive instruction in diagnostic procedures, pathologic findings, principles of treatment by radical surgery, radiation therapy and chemotherapy, and management of complicated medical, psychosocial and ethical problems in gynecologic oncology. They will be expected to attend conferences, to complete assigned reading in gynecologic oncology, and to prepare a topic for presentation. No call is required but students may request exposure to night float.

Evaluation and persons performing the evaluation:
Evaluation based on observation by Faculty and Fellows (90%), and based on an oral presentation at the end of the rotation on a self-chosen topic (10%). Dr. Berry will collate evaluations and provide a summary to the Dean’s office.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: Prentice Women’s Hospital, 250 E. Superior.

First day report to: Student will report to Prentice 14th fl. immediately following visiting student registration.
Reproductive Endocrinology and Infertility
OBG.4333.04.NMH

Course Director:
Ralph R. Kazer, MD
Clerkship Coordinator:
Mallori Kelley, 250 E. Superior, #5-2179, makelley@nm.org, 312/472-4672

*** This elective is not offered during Block 2 ***

Background and Justification
Reproductive Endocrinology and Infertility comprises one of the three major subspecialty areas in obstetrics and gynecology. New areas of investigation, including the assisted reproductive technologies, pre-implantation genetic diagnosis, and novel gamete preservation options for cancer patients render it a fascinating arena for study at the undergraduate level.

Goals
Student will increase their ability to evaluate and treat patients/couples complaining of either infertility or manifestations of various reproductive endocrinopathies.

Objectives
- Learn how to perform a proper history and physical examination on a patient presenting with infertility and develop a plan for assessment and treatment
- Learn how to assess and manage patients with amenorrhea, hirsutism and galactorrhea

Course Format and Proposed Schedule:
Students will have the opportunity to participate actively in the specialty clinics of the Section of Reproductive Endocrinology and Infertility. Students will evaluate new patients and formulate management plans for clinical problems including both female and male infertility, and various endocrinopathies. Students will observe assisted reproduction including IVF, and assist in the management of surgically treated patients. All students will be expected to participate in the conferences of Section and to give a short presentation on some aspect of reproductive endocrinology.

Evaluation and persons performing the evaluation:
The student will be evaluated by the attending faculty as a group. The final evaluation will be based on the performance of the student in the clinical setting as well as on their oral presentation. Dr. Kazer will prepare the final evaluation summarizing the student’s clinical performance. The student will be expected to attend all REI clinics and at least one operating room session per week. No call is required though weekend procedures are scheduled and participation is optional.

Number of M4 students (FSM and Visiting): One
Number of weeks: Four

Site: Northwestern Memorial Hospital

First Day Report To: After visiting student registration, students assigned to this clerkship report at 1:00 p.m. on the first day to 675 North St. Clair, Galter, 14th fl., Ste. 200.
Reproductive Genetics
OBG.4334.04.NMH

Course Directors:
Lee P. Shulman, MD and Jeffrey S. Dungan, MD

Clerkship Coordinator:
Mallori Kelley, 250 E. Superior, #5-2179, makelley@nm.org, 312/472-4672

*** This elective is not offered during Block 2, Block 15, Block 16, or Block 17 ***

Background and Justification:
Genetics is an integral part of women’s health care. Although the role of genetics has primarily been centered on prenatal diagnosis, genetics is now an important component of gynecology, reproductive endocrinology and oncology. This rotation will provide training in the application of genetics to all aspects of women’s health care.

Goals:
- Gain experience in genetic counseling
- Enhance skills in clinical genetics
- Learn elementary cytogenetic and Mendelian principles

Objectives:
- Interview patients and identify critical elements of the family history
- Construct and interpret a pedigree from a patient’s history
- Counsel families about genetic disorders
- Counsel patients about prenatal diagnosis
- Understand the role, risks and benefits of invasive genetic diagnosis
- Understand and apply carrier testing availability for specific genetic disorders
- Understand rudiments of chromosome analysis and molecular genetics/testing
- Assess the implications of genetic testing for women with gynecologic malignancies

Course Format and Proposed Schedule:
The student participates in all activities of the Division of Clinical Genetics (patient counseling sessions, clinical and educational conferences, prenatal diagnostic procedures). The commitment entails clinical and educational activities every day of the week from approximately 8am to 5pm. The course provides formal instruction (didactic lectures and directed readings) in medical genetics and genetic counseling. The extern participates in genetic counseling sessions regarding a range of indications, including advanced maternal age, positive maternal serum screens, ultrasound abnormalities, family histories of genetic disorders, the genetics of infertility and the genetics of gynecologic malignancies. No call is required but is optional (Labor and Delivery).

Evaluation and persons performing the evaluation:
Dr. Lee Shulman will be responsible for providing feedback to the student prior to the end of the clerkship and will write the clinical performance summary and assign a final grade to submit to the Dean’s office.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

First day report to: After visiting student registration, students assigned to this clerkship report at 8:30 a.m. on the first day to Prentice 5th Fl., Ste. 5-2168.
Background and Justification:
This elective provides the student with the opportunity to participate in the various aspects of ambulatory care of women with gynecologic and obstetrical problems. Students develop a schedule tailored to their own interests from among the numerous general and specialty clinics within the department that are located both on and off-campus. This allows the student to either broaden their understanding of the full spectrum of ambulatory gynecologic and obstetrical care or to focus on a personal area of interest. The available clinics include: pediatric gynecology (LCH), ultrasound (NMFF), family planning clinic (NMH), urogynecology (NMFF), general obstetrics and gynecology (NMFF), genetics (NMH), and ovarian cancer screening (NMFF).

Goals:
- To gain exposure to the different aspects of ambulatory obstetrics and gynecology practice and the principles of ambulatory care in women’s health
- To research an ambulatory reproductive health topic of their choice, critiquing the literature, developing evidence-based guidelines and presenting it the general ob-gyn section
- To develop their skills in the management of the obstetrics and gynecologic outpatients.

Objectives:
Through participation in the various ambulatory programs offered within our department students will further their understanding of the evaluation and management of ambulatory women’s health care, including:
- Routine outpatient gynecologic and obstetric care
- Ultrasound examination of obstetrical and gynecologic patients
- Diagnosis and treatment of sexually transmitted diseases
- Pediatric gynecology
- Urogynecologic issues
- Ambulatory surgical care
- Evaluation and treatment of the abnormal Pap smear
- Genetic counseling

Course Format and Proposed Schedule:
Students will have an opportunity to participate in selected regular and specialty departmental clinics, in the ambulatory surgical units and community obstetric-gynecologic programs affiliated with the department. Specialty clinics frequently attended include: pediatric gynecology (LCH), ultrasound (NMFF), family planning clinic (NMH), urogynecology (NMFF), general obstetrics and gynecology (NMFF and PAC), colposcopy (NMH), genetics (NMH), and ovarian cancer screening (NMFF).

Medical students are expected to participate in the weekly departmental M&M and Grand Round conferences Friday mornings from 7:00 a.m. – 9:00 a.m. Daytime hours vary with the different clinics attended. There are no mandatory night-call or weekend responsibilities; however, occasional students have elected to participate in activities on Labor and Delivery during off-hours.

Students participating in this rotation will be expected to give a 35-45 minute oral presentation to medical and nursing staff based on a review of the literature on a topic of their choice related to ambulatory care.

Evaluation and persons performing the evaluation:
Approximately 70% of grade is based on evaluations by faculty and possibly fellows and residents who have worked with the student. The student is responsible for distribution of evaluation forms to faculty/residents with whom they have worked. Approximately 30% of the grade is based on the student’s oral presentation. Dr. Keene will collate individual evaluations and write a summary of the student’s performance for the Dean’s Office.
Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Sites: Northwestern Medical Faculty Foundation offices, Northwestern Memorial Hospital, additional obstetrical and gynecological outpatient facilities.

First day report to: Student will be emailed instructions.

Women’s Health
OBG.4337.04.NMH

Course Director:
Cassing Hammond, MD

Clerkship Coordinator:
Mallori Kelley, 250 E. Superior, #5-2179, makelley@nm.org, 312/472-4672

*** This elective is not offered during Block 2, Block 15, Block 16, or Block 17 ***

Background and Justification:
“Women’s Health” encompasses far more than any single specialty, subspecialty, clerkship or rotation. Students interested in women’s health issues profess an array of career goals, but often experience difficulty designing relevant electives when their interests fail to neatly coincide with those of one particular mentor, program or department.

The Women’s Health Elective offers students the opportunity to tailor an elective to their own needs, simultaneously honing specialized expertise within one women’s health domain chosen by the student and course director. Although the four week duration precludes both the inception and completion of clinical trials, course instructors assist students developing a thesis which culminates either in the completion of a written paper or formal oral presentation. This occurs against a backdrop of the full range of clinical activities within the Northwestern’s Department of Obstetrics and Gynecology.

Students previously completing the Women’s Health elective have used their time to investigate a variety of issues including:

- Obstetric and Gynecologic Problems Confronting Women with Disabilities
- Ophthalmologic Complications of Pregnancy
- Menopause and Sleep Disorders
- Non-Cytologic Uses of Liquid Based Cytology Medium
- Reproductive Choice for HIV affected Couples

Goals:
- The student will gain in depth exposure to issues central to women’s health.
- The student will design or assist in a new or ongoing research project central to women’s health with 1 or 2 faculty members.
- The student will prepare a paper for possible submissions to a journal or give a formal “Grand Rounds” style presentation to the Division of General Obstetrics and Gynecology. Either the presentation or the paper must be completed by the end of the elective.
- The student will participate in clinical experiences within the department of obstetrics and gynecology germane to their stated goals in women’s health.

Objectives:
- To heighten awareness of women’s health issues
- To become acquainted with current literature regarding women’s health
- To participate in clinical experiences centering on women’s health
- To prepare a paper or formal presentation researching an area in women’s health
**Course Format and Proposed Schedule:**
The Women’s health elective permits students to focus intensely on one area of women’s health, developing expertise beyond the scope of either the third year clerkship or traditional sub-specialty elective. Although the primary goal is to develop either a paper or “grand rounds” style presentation regarding a particular topic, the course director anticipates that students will also shadow faculty during pertinent clinical activities at Prentice Women’s Hospital or other affiliate sites. The student desiring this course must be able to work independently, arrange and discipline his or her own time, and be dedicated to completing a project. Prior writing experience would be helpful. An exit interview at the end of the elective is required.

**Evaluation and persons performing the evaluation:**
Course evaluations derive from faculty interactions during clinical endeavors and faculty assessment of the quality of the student thesis, whether a paper or oral presentation. Evaluations from faculty monitoring the student’s thesis activities – including both preparation and execution of the project – will be emphasized in determining the final grade.

**Number of M4 students per rotation (FSM and Visiting):** One
**Number of weeks:** Four

**First day report to:** After visiting student registration, student will report to Dr. Hammond or his or her designee first day at 9:00 a.m. to 250 E. Superior St., 5th fl., Ste. 5-2168.
**Ophthalmology Clinical Clerkship**  
OPH.4353.04.NMH

**Clerkship Director:**  
Rukhsana Mirza, MD

**Clerkship Coordinator:**  
Raven Rodriguez, 645 N. Michigan Ave., Rm. 440, raven.rodriguez@northwestern.edu, 312/908-8152

***This elective is only offered during Blocks 15, 16, 17, 18 and 24. Blocks 16, 18, and 24 have limited availability, with preference given to Northwestern students.***

**Background and Justification:**  
This course offers exposure to ophthalmology with both medical and surgical experiences at one or more of the component units of Northwestern Medicine, LCH, Jesse Brown, and affiliate private practices. The clerkship will be under the direction of an ophthalmology attending physician and resident. Attendance is expected at weekly grand rounds conferences on Friday mornings and at lectures. Students are expected to achieve a working knowledge of the fundamentals of an ophthalmologic examination. Residents and attending physicians provide a written evaluation of each student and a final exam is given.

**Goals:**  
- To provide an understanding of the eye examination and ophthalmic diseases  
- To learn the physician’s role in the diagnosis and management of common eye conditions and when to make appropriate referral to an eye care specialist.

**Objectives:**  
- Take a thorough ophthalmologic history  
- Measure and record visual acuity  
- Detect strabismus and abnormal eye movements  
- Detect abnormal pupillary responses  
- Detect fluorescein staining of the cornea  
- Perform direct ophthalmoscopy  
- Recognize acute and chronic ophthalmologic problems

**A Personal Statement is required. The LOR must be from an ophthalmology professional or professor in the field.**

**Number of M4 students per rotation (FSM and Visiting):** Two  
**Number of weeks:** Four

**Site:** NMH

**First day report to:** Students will be emailed instructions.
Senior Clerkship in Orthopaedic Surgery
ORT.4000.04.NMH

Clerkship Director:
Matthew Dean Beal, MD
Clerkship Coordinator:
Susan Christmas, 676 N. St. Clair, Ste. 1350, schristmas@nm.org, 312/926-4444

Background and Justification
Musculoskeletal problems comprise a significant portion of general medicine practice. Clerkships in orthopaedic surgery are offered to provide experience in history taking and physical examination of patients with musculoskeletal symptoms as well as interpretation of laboratory and roentgenographic examinations and treatment of patients, including fundamentals of splinting, plaster cast techniques, and orthopaedic surgical techniques. The department encourages all students who plan to practice clinical medicine, regardless of intended career choice, to avail themselves of at least some exposure to orthopaedic surgery. Students are advised to limit their elective rotation in orthopaedic surgery to a four-week period. The remainder of the elective periods might be chosen from a broad selection, including neurology, cardiology, rheumatology, endocrinology, and psychiatry as well as basic science review courses prepared for surgical careers.

Goals:
To enhance the breadth and depth of a student understanding of the surgical principles involved in the management of fractures, total joint replacement, sport injuries, and spinal problems in orthopaedic surgery.

Objectives:
To enable the student to:
- Diagnose and treat common musculoskeletal complaints
- Diagnose and manage the treatment of fractures, their reductions and follow-up care
- Diagnose and treat arthritic conditions of the musculoskeletal system
- Diagnose and treat lower back and cervical spine disease

Course Format and Proposed Schedule:
The student is assigned under the supervision of an attending staff group with their house-staff members. Each clerk will participate in the examination and evaluation of the patients admitted to his/her service. He/she will make rounds with the staff, attend conferences, and be expected to participate in the discussion of the management of both orthopaedic inpatients and outpatients.

Inpatient orthopaedic surgery responsibilities include diagnostic workups using routine and special diagnostic examinations and therapeutic programs, including both operative and non-operative treatment regimes. Teaching rounds and teaching conferences are scheduled according to each institution’s needs.

Evaluation and persons performing the evaluation:
Attending physician for the four-week rotation will complete standard Northwestern student evaluations. The attending physician will use standard clinical scenarios to address any deficits in the objections as well as to assist in the evaluation of the students.

Number of M4 students per rotation (FSM and Visiting): Eight
Number of weeks: Four

Site: NMH

First day report to: Students will report to Dr. Beal at 676 N. St. Clair, Ste. 1350 at 9:00 a.m. on the first day.
Senior Clerkship in Pediatric Orthopaedic Surgery
ORT.4373.04.LCH

Clerkship Director:
Matthew Dean Beal, MD
Clerkship Coordinator:
Susan Christmas. 676 N. St. Clair, Ste. 1350, schristmas@nm.org, 312/926-4444

Background and Justification
Musculoskeletal problems comprise a significant portion of general medicine practice. Clerkships in orthopaedic surgery are offered to provide experience in history taking and physical examination of patients with musculoskeletal symptoms as well as interpretation of laboratory and roentgenographic examinations and treatment of patients, including fundamentals of splinting, plaster cast techniques, and orthopaedic surgical techniques. The department encourages all students who plan to practice clinical medicine, regardless of intended career choice, to avail themselves of at least some exposure to orthopaedic surgery. Students are advised to limit their elective rotation in orthopaedic surgery to a four-week period. The remainder of the elective periods might be chosen from a broad selection, including neurology, cardiology, rheumatology, endocrinology, and psychiatry as well as basic science review courses prepared for surgical careers.

Goals:
To enhance the breadth and depth of a student understanding of the surgical principles involved in the management of fractures, total joint replacement, sport injuries, and spinal problems in orthopaedic surgery.

Objectives:
To enable the student to:
- Diagnose and treat common musculoskeletal complaints
- Diagnose and manage the treatment of fractures, their reductions and follow-up care
- Diagnose and treat arthritic conditions of the musculoskeletal system
- Diagnose and treat lower back and cervical spine disease

Course Format and Proposed Schedule:
The student is assigned under the supervision of an attending staff group with their house-staff members. Each clerk will participate in the examination and evaluation of the patients admitted to his/her service. He/she will make rounds with the staff, attend conferences, and be expected to participate in the discussion of the management of both orthopaedic inpatients and outpatients.

Inpatient orthopaedic surgery responsibilities include diagnostic workups using routine and special diagnostic examinations and therapeutic programs, including both operative and non-operative treatment regimes. Teaching rounds and teaching conferences are scheduled according to each institution’s needs.

Evaluation and persons performing the evaluation:
Attending physician will complete Standard Northwestern student evaluations for the month of the rotation. The attending physician will use standard clinical scenarios to address any deficits in the objections as well as to assist in the evaluation of the students.

Number of M4 students per rotation (FSM and Visiting): Two
Number of weeks: Four

Site: LCH

First day report to: student will report to Dr. Beal at 676 N. St. Clair, Ste. 1350 at 9:00 a.m. on the first day.
Externship in Otolaryngology—Head and Neck Surgery
OTO.4000.04.NMH

Clerkship Director:
Alan G. Micco, MD
Clerkship Coordinator:
Jennifer Malloy, 676 N. St. Clair, Suite 1325, oto-hns@northwestern.edu, 312/695-3222

Rotations in the following areas are suggested for students who desire a career in Otolaryngology—Head and Neck Surgery: Anesthesiology/Critical Care; Allergy and Immunology; Dermatology; Infectious Disease; Neurology; Ophthalmology; Pediatrics; Pulmonary Medicine; Radiation Therapy; and Neuroradiology. In addition, OTO.4000.01.NMH and OTO.4383.04.NMH (see below) are recommended.

Prerequisites:
Prior to starting this elective, students must have completed their rotations in General Surgery, Internal Medicine, Obstetrics and Gynecology, Pediatrics, Neurology, and Psychiatry.

Background and Justification:
Students become proficient in the examination of the head and neck. They are assigned to an OTO-HNS service at Northwestern Memorial Hospital and gain experience in diagnosing and treating disorders of the head and neck and sensory organs. Students experience the surgical procedures done by this specialty and participate actively in pre- and postoperative care.

Objectives:
- Understand infectious process of tonsils and adenoids and evaluate and treat the disease
- Diagnose and treat various types of nasal hemorrhage
- Learn common causes of hoarseness and how to evaluate and treat
- Learn common causes of airway obstruction and its treatment
- Learn common causes of nasal obstruction and how to evaluate and treat
- Learn to evaluate patients with a lump in the neck
- Understand common causes of hearing loss and how to evaluate and treat
- Understand common causes of dizziness and how to evaluate
- Learn to evaluate and treat common facial fractures
- Understand common disease of the salivary gland and how to evaluate and treat

Course Format and Proposed Schedule:
Student Responsibilities: 60-80 HOURS per week; required conference on Thursdays from 5-7pm; call not required but suggested at least one night per week.

Outpatient Rotation:
The Ambulatory Otolaryngology experience is provided at NMH and consists of two half days a week with your assigned preceptor. The Otolaryngology Clinic is on the 15th floor of Galter Pavilion.

Inpatient Rotation:
To ensure a successful start to your rotation, please please page the ENT resident on-call at 312-695-5526 before 8am on your first day to confirm that you will meet at the Otolaryngology Physicians Conference Room, 251 E. Huron Street, 12 E. Feinberg, Room 12-752. You are expected to report here every day at 8:00 am or 1 pm (depending on your rotation schedule) unless otherwise instructed by the program director or chief resident. Lunch is between 12-1pm.

The chief resident will assign you to a hospital service. You will then either go to clinic or the OR with your assigned attending. The Department of Otolaryngology - Head and Neck Surgery clinic is located at 675 N. St. Clair, Galter Pavilion, 15th Floor, Room 200. If your attending does not have any clinical time on any day, you will act as a Sub-I with the resident service. If your assigned attending is away on vacation or at a conference, please page the ENT resident on-call at 312-695-5525 to make arrangements to shadow the chief residents.
If you need to reach your assigned attending, please speak to the Physician Assistant for your assigned attending.
Erin Hoke (Drs. Sidle and Patel): phone 312-695-0369 pager 312-695-9863
Katy Hassan (Dr. Dutra): phone 312-695-1463 pager 312-695-8292
Elizabeth Stanton (Drs. Kern and Chandra): phone 312-695-5892
Marissa VanderMeeder (Drs. Kern and Conley): phone 312-695-4349
Jennifer Lin (Dr. Bove): phone 312-695-2338 pager 312-695-9923
Audrey Leslie (Dr. Pelzer): phone 312-695-0657 pager 1-7546
Lauren Brome (Drs. Micco and Matsuoka): phone 312-695-1507
Jill Fredona, RN (Drs. Tan and Smith): phone 312-695-2370

**Department Policy on Dress Code:**
When making rounds or in clinic, medical students are expected to be in appropriate professional attire. OR scrubs are not acceptable. It is also unacceptable to enter or exit the hospital in OR scrubs, unless in cases of emergency.

**Evaluation and persons performing the evaluation:** Faculty and resident evaluations; no exam.

**Number of M4 students per rotation (FSM and Visiting):** Four

**Number of weeks:** Four

**Site:** NMH

**First day report to:** On the first day of your rotation, before 8:00 a.m., please page the ENT resident on call at 312/695-5526 to confirm that you will meet at the Otolaryngology Physicians Conference Room, 251 E. Huron St., 12 E. Feinberg, Room 12-752. You are expected to report here every day at 8:00 a.m. unless otherwise instructed by the program director or chief resident. The chief resident will assign you to a hospital service. If you have any questions about this procedure, please contact Jennifer Malloy, Residency Program Coordinator, at 312/695-3222.
Outpatient Otolaryngology—Head and Neck Surgery
OTO.4383.04.OUT

Clerkship Advisor and Director:
Gordon J. Siegel, MD
Clerkship Coordinator:
Sandra Patterson, 3 E. Huron, 1st fl., Sandra@midwestearnosethroat.com, 312/988-7777

Background and Justification:
The student is involved in an active general ENT practice. The student is given in-depth training in history and physical examination of ENT patients, both adults and children. A relatively active surgery schedule provides adequate exposure to a wide variety of otolaryngology – head and neck surgical procedures. Areas of common ENT pathology are discussed on an informal basis throughout the clerkship. Areas of special interest also may be discussed in an organized fashion at the student’s request.

Goals:
- Learn to understand and perform thorough ear, nose, and throat history and physical examination
- Learn to recognize most pathology appropriate for ENT referral
- Appreciate ENT disorders from medical and surgical perspectives

Objectives:
- Understand and interpret ear disease
- Diagnose and manage sinus disease
- Diagnose and manage acute and chronic tonsillitis
- Diagnose and manage head and neck cancer
- Understand and use basic concepts of audiology
- Diagnose and manage otolaryngologic allergy
- Diagnose and manage voice disorders

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Sites: ENT clinic close to Northwestern University Feinberg School of Medicine and Northwestern Memorial Hospital. Surgery at Northwestern Memorial Hospital.

First day report to: Student will receive instructions via email prior to the start of the rotation.
Pathology

Clerkship in Pathology
PAT.4000.04.NMH

Clerkship Advisor and Director:
Luis Z. Blanco, MD

Clerkship Coordinator:
Irene G. Parnell, 303 E. Chicago Ave., Ward 3-140, i-galace@northwestern.edu, 312/503-8223

***This elective is not offered during Block 15 or Block 16***

***There is no LOR requirement for this elective.***

**Background and Justification:**
Pathologists examine tissues and are responsible for the accuracy of laboratory tests. Pathologists interpret the results of these examinations and tests-information that is important for the patient's diagnosis and recovery. The pathologist and the patient's other doctors consult on which tests to order, test results, and appropriate treatments. As such, an understanding of the practice of pathology allows all physicians to provide better care for their patients.

The bulk of the four week rotation will be in surgical pathology. Two weeks are spent in surgical pathology and the remaining weeks students are asked to choose from a week in Hematopathology, Cytopathology, Microbiology, Blood bank/Transfusion Medicine or Neuropathology—depending on space availability. This rotation is more often customized to the specialty that the students choose for residency.

This elective provides an introduction to the field of diagnostic pathology for medical students going into pathology and non-pathology careers. The clerkship is comprised of observational experiences in the gross pathology and some hands on experience in gross dissection in surgical pathology and autopsy pathology, performing and reading frozen section, all under the guidance of senior residents and attending pathologists.

**Goals:**
To increase the understanding of how alterations at the molecular level translate into alterations at the level of the cell, tissues, and organism. As such, clinical-pathologic correlations are stressed. This rotation provides comprehensive understanding of all facets of surgical pathology by exposing the students to state-of-the-art diagnostic techniques that range from standard procedures to advanced molecular approaches.

**Objectives:**
Students will acquire basic ability to:
- Identify common gross and microscopic pathologic lesions
- Discuss the pathogenesis and clinical significance of common pathologic entities

**Evaluation and persons performing the evaluation:**
Standard Northwestern student evaluations will be completed by supervising faculty or residents.

**Number of M4 students per rotation (FSM and Visiting):** Two to four per four-week rotation

**Number of weeks:** Four

**Site:** Northwestern Memorial Hospital

**First day report to:** Students will report to Galter 7-100 Conference Room by 8:00 a.m. on the first day of the rotation.
Please apply promptly as many applications are received. Students interested in applying should refer to the Visiting Student website and VSAS. Do NOT contact physicians listed below.

Elective slots within Pediatrics are extremely limited. Preference will be given to students from LCME accredited institutions and Feinberg School of Medicine Global Partner institutions.

Clerkship Director
Dr. Jennifer Trainor

Pediatric Allergy/Immunology
PED.4421.04.LCH

Clerkship Director:
Rachel Robison, MD, and Division of Allergy and Immunology staff
Clerkship Coordinator:
Traci Williams, 225 E. Chicago Ave, Box 18, tcwilliams@luriechildrens.org, 312/227-4338

Goals:
Through participation in the ambulatory clinics, the student will develop knowledge and skills to evaluate and manage disorders in the field of allergy/immunology.

Objectives:
• Apply basic concepts of allergy/immunology to the evaluation and management of disorders such as asthma, cough, rhinitis, food hypersensitivity, drug hypersensitivity, atopic dermatitis, urticaria and primary immunodeficiency disorders, particularly recurrent or refractory infections, opportunistic infections or infections due to unusual organisms
• Obtain a history and perform physical examination appropriate for allergy/immunology disorders and distinguish normal from common allergy disease manifestations
• Recognize when evaluation of recurrent infections is warranted
• Formulate a differential diagnosis
• Present the evaluation in an organized fashion
• Initiate a planned evaluation and investigation utilizing allergy skin tests and laboratory tests as appropriate, as well as understand the advantages and disadvantages of in vivo and in vitro allergy testing
• Become familiar with medications (prescribing, monitoring and adverse effects) used in treatment of allergy/immunology disorders, particularly inhaled corticosteroids

Course Format and Proposed Schedule:
Responsibilities include participation in ambulatory clinics, Monday-Friday. The student will participate on the inpatient service when the schedule permits. There is no hospital-based night, weekend or call responsibility. The student participates in division conferences. In addition to patient presentations, the student is expected to present a short, relevant journal article to the division of their choosing. The student will be provided and directed to recommended reading.

Evaluation and persons performing the evaluation:
The student will interact daily with faculty members and is assessed on his or her knowledge, the skills developed in evaluating and managing patients, the collection and interpretation of clinical findings and a database as well as the quality of his or her formal and informal presentations.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Sites: Lurie Children’s Hospital and Clark Street Ambulatory Clinic

First day report to: The student will be e-mailed the clinic schedule, rotation welcome letter and recommended reading prior to rotation start.
Clinical Pediatric Neurology
PED.4422.04. LCH

Clerkship Director:
Joanna S. Blackburn, MD, and staff
Clerkship Coordinator:
Traci Williams, 225 East Chicago Ave., Box 18, tcwilliams@luriechildrens.org, 312/227-4338

Goals:
The student sees a spectrum of neurological disorders in children by active participation in clinical activities. Those electing to spend longer periods of time on the service have an opportunity to become involved in clinical and basic research projects relating to abnormalities in the developing central nervous system.

Objectives:
• Become skillful in obtaining histories and performing neurological examinations, allowing anatomic localization of lesions within the central nervous system; using this information, recognize and differentiate the common neurological problems of childhood
• Develop some skill in using available neurodiagnostic procedures in confirming clinical impressions of neurological disorders
• Develop an appreciation of the particular neurological problems unique to the developing nervous system

Course Format and Proposed Schedule:
The student is an active participant in the neurology training program. He/she works up patients on the inpatient service and participates in rounds and consultations. The student is actively involved in neurological evaluations conducted in the outpatient clinic. Participation in neurology conferences is required. Assigned blocks of time in the neurophysioloical laboratories are available, considering the individual student objectives for the course and the length of the rotation. Clinical, reading, laboratory, and study assignments are jointly determined. The student will be expected to attend Monday through Friday every week. There is no hospital-based night, weekend, or call responsibility while on the service.

Evaluation and persons performing the evaluation:
Students will be evaluated by the fellow and attending staff periodically during the rotation on the basis of their clinical expertise. In addition, the student will be asked to study a particular facet of pediatric neurology in depth and present the findings to the group.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: LCH

First day report to: The student will be emailed specific instructions prior to their start date.

Pediatric Cardiology
PED.4423. 04.LCH

Clerkship Director:
Joshua D. Robinson, MD
Clerkship Coordinator:
Traci Williams, 225 East Chicago Ave., Box 18, tcwilliams@luriechildrens.org, 312/227-4338

Goals:
To learn to diagnose, evaluate, and manage a variety of medical and surgical problems associated with heart disease in children.

Objectives:
• Become skillful in the auscultation of the heart and the physical diagnosis of cardiovascular disease in the infant, child, and young adult
• Understand pathophysiology of common congenital heart malformation such as atrial septal defects, ventricular septal defects, pulmonary and aortic stenosis, transposition of the great arteries, and tetralogy of Fallot
• Learn basic interpretation of cardiovascular diagnostic exams, including x-ray, EKG, echocardiography, cardiac MRI/CTA, and cardiac catheterization
• Observe at least one of each of the following: cardiac catheterization, electrophysiology study, echocardiogram, cardiac MR, and cardiac CTA
• Participate in evaluation of physiologic and anatomic exam findings

Course Format and Proposed Schedule:
The student participates actively in all the clinical activities in the division. He/she may be assigned a formal case presentation or, alternatively, a specific topic in the literature to review in a brief oral report to the cardiology housestaff and teaching faculty. The student is expected to attend all cardiac conferences during the clerkship. The student will be expected to attend Monday through Friday every week. There is no hospital-based night, weekend, or call responsibility while on the service.

Evaluation and persons performing the evaluation:
• The student and the members of the cardiology staff have a close working relationship.
• Motivation and the extent of mastering the stated Objectives play a primary role in student assessment.
• The course director meets with students for in-person feedback sessions at the mid-point and end of the rotation. The course director compiles a summary evaluation based on formal, written feedback from residents, nurse practitioners, cardiology fellows, and faculty.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: LCH

First day report to: The student will be emailed specific instructions prior to their start date. 6 weeks’ notice is required if canceling an elective.

Pediatric Dermatology
PED.4425.04.LCH

Clerkship Director:
Anthony J. Mancini, MD

Clerkship Coordinator:
Traci Williams, 225 E. Chicago Ave., Box 18, tcwilliams@luriechildrens.org, 312/227-4338

Goals:
The student has the opportunity in a variety of clinical settings to develop a sound approach to the diagnosis and management of a broad spectrum of dermatologic conditions.

Objectives:
• Examine the skin of a patient in any pediatric age group and give an accurate description of the findings employing appropriate dermatologic terms. Be able to distinguish normal findings and those that signify a disease process
• Distinguish primary lesions, secondary lesions, configuration, and distribution patterns of skin lesions and typical sites of involvement for specific diseases.
• Appropriately classify a given skin condition in general terms such as dermatitis, vesiculobullous disease, vascular lesion, papulosquamous disorder, pigmentary disorder or exanthema, and develop a differential diagnosis within that disease category
• Appreciate the types of skin changes that suggest the possible presence of a systemic disease
• Assist in simple diagnostic tests such as KOH preparation, scraping for mites, fungal culture and hair mounts, and know when they are appropriate
Become familiar with the categories of topical preparations used in dermatologic conditions and be able to prescribe one or two preparations in each category with correct instructions for patient care.

**Course Format and Proposed Schedule:**
Students are expected to participate in the evaluation and management of patients in the clinics and on the inpatient service, attend the once monthly dermatology divisional conference, be guided in reading throughout the clerkship and have access to textbooks of skin disease for additional study. The student will be expected to attend Monday through Friday every week. There is no call, night, or weekend attendance at the hospital.

**Evaluation and persons performing the evaluation:**
The student will be evaluated by the attending dermatology staff on his or her approach to the patient, collection of data, interpretation of the clinical findings, and verbal and written presentation of the patient to the attending physician and/or fellow.

**Number of M4 students per rotation (FSM and Visiting):** One
**Number of weeks:** Four

**Site:** LCH

**First day report to:** The student will be e-mailed instructions.

*Please note:* Pediatric Dermatology requires a minimum of 6 weeks’ notice if canceling an elective.

**Senior Pediatric Emergency Medicine**
**PED.4426.04.LCH**

**Clerkship Director:** Suzanne Schmidt, MD

**Clerkship Coordinator:** Traci Williams, 225 E. Chicago Ave., Box 18, tcwilliams@luriechildrens.org, 312/227-4338

**Goals:**
The student will gain an appreciation for the broad spectrum of acute illness in children. The student will learn to evaluate and treat patients with acute illnesses in an efficient manner with attention appropriately focused on the presenting problems and their implications. He/she will gain an appreciation for the importance of accidents and injuries in childhood. He/she will also learn about the impact of psychosocial problems on acute and chronic illness in children.

**Objectives:**
- Recognize and initiate treatment for a variety of acute illnesses and injuries in children
- Evaluate common childhood problems such as fever, vomiting and diarrhea, constipation, otitis media, bronchiolitis, asthma, minor trauma, abdominal pain, urinary tract infections and rash
- Perform common pediatric procedures including lumbar punctures, suturing minor wounds, splinting extremities and arterial punctures
- Learn a general approach to childhood poisonings
- Learn about signs and evaluation of non-accidental trauma

**Course Format and Proposed Schedule:**
The student is assigned daily to an area of the emergency. The student is expected to do up to five 8- or 10-hour shifts per week, which may include some Saturday and/or Sunday shifts. Most ED shifts will be daytime hours between 7:00 a.m. and 5:00 p.m., but there may be some evening shifts scheduled. There are no overnight shifts. All patient care is supervised by a pediatric emergency medicine or general pediatric attending, fellow or senior pediatric resident. In addition, the student must attend pediatric emergency medicine lectures every Monday morning (except holidays).

**Evaluation and persons performing the evaluation:**
The student is evaluated by the pediatric emergency medicine and urgent care staff on the basis of development of expertise in evaluating children, formulation of assessment and treatment plans, focused oral case presentation skills,
interacting with families and the health care team and overall patient care. In addition, participation in conferences and acquisition of knowledge and skills are considered. Standard Northwestern evaluation forms are used.

**Number of M4 students per rotation (FSM and Visiting):** One to two  
**Number of weeks:** Four

**Site:** LCH

**First day report to:** The student should report to the Department of Pediatrics, Lurie Children’s Hospital, 12th fl. Administration, at 9:00 a.m. the first day of the rotation. Afterwards, report to 155 E. Superior St., 1st fl. Division of Emergency Medicine. The student will be emailed additional instructions prior to their start date.

**Pediatric Endocrinology**  
**PED.4427.04.LCH**

**Clerkship Director:**  
Reema Habiby, MD

**Clerkship Coordinator:**  
Traci Williams, 225 East Chicago Ave, Box 18, twilliams@luriechildrens.org, 312/227-4338

**Goals:**  
Student will increase his/her ability to:
- Identify and treat common clinical disorders
- Interpret common endocrinology laboratory tests
- Recognize normal and abnormal variants of growth and how nonendocrine factors influence growth
- Recognize normal and abnormal variants of pubertal development
- Recognize effects of thyroid disorders on growth and development

**Objectives:**
- Perform a physical examination directed toward the detection of endocrine problems
- Take a history directed toward the detection of endocrine problems
- Recognize signs and symptoms of hypopituitarism
- Understand the concept of skeletal age
- Understand the Tanner method of pubertal staging
- Understand the management of abnormal endocrine screening tests
- Understand elementary principles of outpatient management of diabetes
- Know the common causes and treatments of growth abnormalities
- Know the common causes and treatments of thyroid abnormalities

**Course Format and Proposed Schedule:**  
The student is mostly outpatient based. The student is responsible for the initial and return evaluation of selected referral patients. He/she may also accompany the service on ward rounds and inpatient consultations. The student is also expected to attend and participate in Pediatric Endocrine Conferences when they occur. The student is guided in reading about patients’ problems and may be asked to give a talk on a pediatric endocrine topic. The student will be expected to attend Monday through Friday every week. There is no hospital-based night, weekend, or call responsibility while on the service.

**Evaluation and persons performing the evaluation:**  
Assessment will be done by the attending endocrinologists who have worked with the student and will be based on the quality of patient evaluations and ability to display knowledge of endocrine physiology and pathophysiology.

**Number of M4 students per rotation (FSM and Visiting):** One  
**Number of weeks:** Four

**Site:** LCH
First day report to: The student will be emailed specific instructions prior to their start date.

**Pediatric Gastroenterology**  
PED.4429.04.LCH

**Clerkship Director:**  
Jennifer A. Strople, MD

**Clerkship Coordinator:**  
Traci Williams, 225 E. Chicago Ave., Box 18, tcwilliams@luriechildrens.org, 312/227-4338

**Goals:**
- Diagnose and treat common GI disorders  
- Diagnose and treat pediatric liver disease

**Objectives:**
- Become proficient in history taking and physical examination in a variety of pediatric gastrointestinal disorders such as chronic diarrheas, nutritional and malabsorptive disorders, liver diseases, chronic inflammatory bowel disease, and certain psychosomatic disorders  
- Learn how to evaluate the history and physical examination to come to a differential diagnosis of various pediatric gastrointestinal disorders  
- Learn some skills necessary to relate to a child with chronic disease and the family. The student learns approaches to chronic disease at initial diagnosis and when the disease has become more serious

**Course Format and Proposed Schedule:**

The student:
- Performs the initial evaluation on most referred patients  
- Evaluates all consultations on the inpatient service and participates in the daily inpatient ward rounds  
- Attends and participates in the weekly GI and liver biopsy rounds  
- Becomes familiar with and participates in certain specialized procedures such as intestinal biopsy, sigmoidoscopy, other endoscopies, and biopsies  
- Will be expected to make a PowerPoint presentation on a clinical topic in the field or relating to a clinical case encountered during the rotation

Further detailed study of patient’s problems will be stressed by guidance in review of the literature. Special encouragement will be given to pursue some specialized area that the student wishes to study in depth. The student will be expected to attend Monday through Friday every week. There is no hospital-based night, weekend, or call responsibility while on the service.

**Evaluation and persons performing the evaluation:**

The student will be assessed by the gastroenterology and hepatology faculty on his/her ability to evaluate and manage those problems that he/she has encountered, by quality of in-depth workups of specific problems, and by relationships with other division members.

**Number of M4 students per rotation (FSM and Visiting):** One  
**Number of weeks:** Four

**Site:** LCH

First day report to: The student will be emailed specific instructions prior to their start date.
Clinical Genetics  
PED.4430.04.LCH

Clerkship Director:  
Joel Charrow, MD

Clerkship Coordinator:  
Traci Williams, 225 East Chicago Avenue, Box 18, tcwilliams@luriechildrens.org, 312/227-4338

Goals:  
The student, as a member of the clinical genetics staff at LCH, learns the approach to the evaluation and diagnosis of birth defects and genetic disorders.

Objectives:  
• Learn the common modes of inheritance (Mendelian and non-Mendelian)
• Learn and apply the special requirements of the “genetic” history and physical examination
• Identify the risk factors associated with congenital diseases
• Develop a differential diagnosis of genetic disorders
• Learn available methods for screening and prenatal diagnosis and how and when they are applied
• Learn the basic available laboratory procedures such as cytogenetics, biochemistry, and tissue culture
• Learn how to approach the evaluation of storage diseases and inborn errors of metabolism, wisely use the laboratory for diagnosis and management, and evaluate laboratory results
• Develop insight into the impact of genetic disorder on a family and how the genetic counselor and community resources interface with the family

Course Format and Proposed Schedule:  
The student is an active participant in a variety of outpatient clinics, including those focused on: General Genetics, Neurofibromatosis, PKU and Metabolic Disorders, Marfan syndrome, 22q Deletion, and Skeletal Dysplasias. He/she is assigned patients in these clinics and inpatient consultations, evaluates these patients, and develops a differential diagnosis plan. He/she prepares a presentation on a genetics topic of interest. Participation in the biochemistry lab is optional. The student will be expected to attend Monday through Friday of every week. There is no hospital-based night, weekend, or call responsibility while on the service.

Evaluation and persons performing the evaluation:  
Regular meetings with staff members. Evaluation is based on written consultations, reports, clinical presentations, and the extent of knowledge and learning during the clerkship.

Number of M4 students per rotation: One  
Number of weeks: Four

Site: LCH

First day report to: Annette Calixto-Logan, office coordinator for Genetics, 155 E. Superior St., Rm. 340F at 9:00 a.m. Additional instructions will be emailed by Traci Williams prior to their start date.

Pediatric Pulmonology  
PED.4431.04. LCH

Clerkship Director:  
Mary A. Nevin, MD, and Division of Pulmonary Medicine faculty

Clerkship Coordinator:  
Traci Williams, 225 East Chicago Ave., Box 18, tcwilliams@luriechildrens.org, 312/227-4338

Goals:  
The student participates in patient care and academic activities of the division, with a focus on diagnostic evaluation of patients with respiratory disorders. Inpatient and outpatient experiences include care of patients with cystic fibrosis, asthma, and other diseases. A multidisciplinary approach to care is emphasized.
Objectives:
• Become proficient in history and physical examination skills pertinent to pediatric respiratory disorders.
• Become familiar with interpretation and use of pulmonary function studies in children and adolescents.
• Generate a differential diagnosis and plan of diagnostic studies and therapy based on history, physical examination, and physiologic studies.
• Perform an in-depth review of a topic related to pediatric pulmonary medicine.

Course Format and Proposed Schedule:
• Participate in inpatient rounds, pulmonary consultation services, and outpatient clinics in general pulmonology and cystic fibrosis
• Participate in resident and divisional conferences
• Choose a topic with the assistance of a faculty supervisor related to pulmonary medicine and prepare a talk to be given at a divisional meeting
• Review supplied readings
• The student will be expected to attend Monday through Friday every week. There is no hospital-based night, weekend, or call responsibility while on the service.

Evaluation and persons performing the evaluation:
The student will receive continuous feedback from pulmonary staff members. Students will be assessed based on knowledge, clinical skills, and quality of formal and informal presentations. The final evaluation will be completed by the pulmonary divisional faculty.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: LCH

First day report to: The student will be emailed specific instructions prior to their start date.

Pediatric Hematology and Oncology
PED.4432.04.LCH

Clerkship Director:
Elaine Morgan, MD

Clerkship Coordinator:
Traci Williams, 225 E. Chicago Ave., Box 18, tcwilliams@luriechildrens.org, 312/227-4338

*** This elective is not offered during Block 15 ***

Goals:
• Gain an understanding of interpretation of bone marrow and peripheral blood preparations
• Learn the pathophysiologic concepts as applied to hemostatic disorders, anemia, and childhood malignant diseases; understand these concepts as applied in the clinical setting for the diagnosis and rational treatment of patients’ problems
• Develop an appreciation of the acute impact of a disease on the patient and family as well as the impact of chronic disease.

Objectives:
• Learn the presentation of common hematological and oncological disorders in children
• Learn to evaluate and interpret lab data (CBC, smear, bone marrow, coags) and develop appropriate differential diagnosis
• Learn the course and general principles of treatment of common hematological and oncological disorders

Course Format and Proposed Schedules:
The student participates in the ambulatory program of the department, makes rounds on inpatients, attends clinical and research conferences, and assists in consultations. He/she will be guided in reading in the field. A laboratory
course will be designed for interested students. The student will be expected to attend Monday through Friday every week. There is no hospital-based night, weekend, or call responsibility while on the service.

**Evaluation and persons performing the evaluation:**
The student will be evaluated by hematology/oncology staff members on the use of knowledge and concepts in interpreting and managing patients’ problems.

**Number of M4 students per rotation (FSM and Visiting):** One  
**Number of weeks:** Four

**Sites:** LCH

**First day report to:** The student will be emailed specific instructions prior to their start date. In addition, the student should report to the outpatient conference room on Lurie 19th fl., Rm. 18-320, at 9:00 a.m.

**Clinical Pediatric Rheumatology**  
**PED.4433.04. LCH**

**Clerkship Director:**  
Megan Curran, MD

**Clerkship Coordinator:**  
Traci Williams, 225 E. Chicago Ave., Box 18, tcwilliams@luriechildrens.org, 312/227-4338

**Goals:**  
The student will learn general principles regarding the clinical approach, laboratory evaluation and treatment of children with rheumatic diseases.

**Objectives:**
- Obtain historical information and physical findings that lead the practitioner to consider whether a patient has a pediatric rheumatic disease.
- Develop a plan of investigation to define whether the patient has a rheumatic disease.
- Learn the basic principles of how to interpret rheumatic disease laboratory and radiologic studies.
- Gain knowledge about the treatment of pediatric rheumatic diseases including the importance of a team approach to care.
- Master the differential diagnosis of a child with a limp.
- Understand the difference between common rheumatic complaints that can be treated by a pediatrician and when to refer a patient to a subspecialist.

**Course Format and Proposed Schedule:**  
The student will become an active part of the rheumatology team, mainly in our outpatient clinic sites. When not attending clinic, students will participate in inpatient rounds and patient care. The student will have the option of traveling to outreach clinics for a full day experience of outpatient pediatric rheumatology care. The student will participate in a weekly multidisciplinary post-clinic review conference in which clinic patients are discussed, journal club and radiology conferences. The student will give a formal presentation during the rotation about a clinical topic of his or her choice. Opportunities to write publishable case reports and participate in research projects are available for interested students.

**Evaluation and persons performing the evaluation:**  
The student is evaluated by the clerkship director on the acquisition of knowledge, presentation of cases/journal club, professionalism and patient care skills.

**Number of M4 students per rotation (FSM and Visiting):** One to two  
**Number of weeks:** Four

**Site:** LCH

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First day report to: The student will be emailed specific instructions prior to their start date. In addition, they will be expected to report to the Rheumatology Program Coordinator in Division offices at 9:00 a.m. The offices are located at 155 E. Superior St., 4th fl.

Child Abuse and Neglect
PED.4434.04.LCH

Clerkship Director:
Norell Rosado, MD, and Protective Service Team staff
Clerkship Coordinator:
Traci Williams, 225 E. Chicago Ave., Box 18, tcwilliams@luriechildrens.org, 312/227-4338

*** This elective is not offered during Blocks 15, 16, 18, 19, or 24. ***

Goals:
The student increases his or her knowledge and skills to identify and treat abused and neglected children within the context of the behavioral, developmental, and psychological maturation of the child.

Objectives:
• Know a physician’s legal obligation to report suspicions of child abuse and neglect
• Describe factors that place a child at risk for abuse or neglect
• Describe the incidence and spectrum of presentation of child maltreatment
• Obtain a history and collect the appropriate information when abuse or neglect is suspected
• Become familiar with the appropriate forensic evaluation and the interdisciplinary assessment needed to evaluate the possibility of abuse or neglect
• Become familiar with the legal process initiated by a report made for suspicions of child maltreatment

Course Format and Proposed Schedule:
In preparation for this course, the student reads selected articles. The student then becomes an active member of the Lurie Children’s Protective Service Team (PST). While other various activities may be scheduled, patient care is the main responsibility. The student assists with protective service team consultations on the inpatient unit. All patient care is supervised by the PST attending physician. As a follow up, the student attends the weekly PST staffing and assists in presenting/discussing specific cases. The student chooses one aspect of child abuse and neglect and reviews the literature on that topic. During the final week of the clerkship, the student gives a ten-minute presentation discussing this topic. The student will learn about the roles of other professionals who investigate and prosecute possible child maltreatment. The student is encouraged to complete learning modules that have been developed to educate about different aspects of child maltreatment. To supplement this learning, the student will attend a county child death review team meeting, shadow a DCFS investigator, observe legal proceeding in Juvenile Court, and observe the courtroom testimony of PST physicians or social workers if court is scheduled during the rotation.

Evaluation and persons performing the evaluation:
Students will be evaluated on their acquisition of knowledge and skills, their interactions with the family, their teaching presentation, and their participation in conferences and other scheduled activities. The student will meet with one of the child abuse pediatricians at the beginning and end of the course. Other meetings will be scheduled as needed.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: LCH

First day report to: The student will be emailed specific instructions prior to their start date.
Pediatric Infectious Disease
PED.4435.04. LCH

Clerkship Director:
Ellen Chadwick, MD
Clerkship Coordinator:
Traci Williams, 225 E. Chicago Ave., Box 18, tcwilliams@luriechildrens.org, 312/227-4338

Goals:
- Be an actively functioning member of the Division of Infectious Diseases Team
- Learn general principles of infectious disease
- Learn to recognize and treat pediatric infectious diseases: viral, bacterial, and others
- Learn principles of patient management
- Learn to use library and internet resources

Objectives:
- Understand the organization of the clinical microbiology laboratory and begin to recognize common pathogens by their characteristic morphology and biochemical reactions
- Recognize signs of pediatric infections including pneumonia, meningitis, osteomyelitis, urinary tract infections, HIV, and Kawasaki Disease
- Become familiar with the current management of serious pediatric infections treated in the hospital setting, including nosocomial infections
- Recognize important patient variables that influence the management of infectious diseases
- Extract from the literature data relevant to a particular infectious problem

Course Format and Proposed Schedule:
- Spend one hour weekly in the diagnostic microbiology laboratory during the clerkship
- Make daily rounds with the pediatric residents and/or fellow and the attending physician on the infectious disease service
- Attend General ID clinic once every week and 1-2 Pediatric HIV clinics in the month
- Participate in the teaching conferences, including the weekly general pediatric conferences, the monthly Joint Clinical conferences held in combination with the adult Infectious Disease group from NMH, and the monthly Journal Club and Research Conferences
- See/evaluate requested Infectious Diseases consults
- Students will be expected to attend Monday through Friday every week
- There is no hospital-based night, weekend, or call responsibility while on the service
- Schedules will be sent by the Infectious Diseases office coordinator prior to the start of each rotation

Evaluation and persons performing the evaluation:
During the clerkship, the student will be assessed by the fellow and attending physicians daily on rounds and in conferences on his/her ability to acquire and apply knowledge in the field.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Sites: LCH

First day report to: The student will be emailed specific instructions prior to their start date.
Subinternships in Neonatology

A subinternship rotation is offered at two neonatal intensive care units in the Department of Pediatrics. Each provides an in-depth exposure to neonatal medicine by incorporating the student as an integral member of the NICU team. The unit at Prentice relates directly to a high volume delivery service; the LCH unit contains newborns with severe medical and surgical conditions, all of which are transported to LCH from outlying hospitals.

Neonatology – Lurie
PED.4436.04. LCH

Clerkship Director:
James W. Collins, MD and staff
Clerkship Coordinator:
Traci Williams, 225 E. Chicago Ave., Box 18, tcwilliams@luriechildrens.org, 312/227-4338

Goals:
This elective is designed as a sub-internship in the Neonatal Intensive Care Unit at LCH. As a member of the neonatal ICU team, the student becomes familiar with the initial observation and management of high-risk neonates having one or more of the following problems: prematurity, respiratory failure, and congenital malformations requiring neonatal intensive care. Special emphasis is directed to the pathophysiology of neonatal diseases and the physiologic basis for current therapeutic interventions. Each student is assigned primary responsibility for management of a limited number of high-risk patients.

Objectives:
- Develop beginning skills in the evaluation and management of high-risk neonates, with emphasis on respiratory care, fluid and electrolyte management, and nutritional management of patients with medical and surgical problems
- Develop beginning competence in the technical procedures required to manage high-risk neonates such as intubation, chest tubes, and umbilical catheterization; laboratory instruction on these procedures is also available
- Develop an understanding of the physiology of the various neonatal disorders and relate these basic physiologic concepts to the diagnosis and treatment of such disorders
- Participate in multidisciplinary management required for critically ill neonates
- Participate in interactions between the health care team and the families of critically ill neonates, developing an initial appreciation of the emotional and ethical dilemmas that are critical elements in the care of high-risk neonates
- Become skillful in the organization and recording of critical data for patients with complex, multisystem disease

Course Format and Proposed Schedule:
- Participate as an active member of the neonatal ICU team
- Participate in the diagnosis and management of patients
- Take night call every fourth night with the senior pediatric resident assigned to the service
- Manage a limited number of patients under the direct supervision of the senior resident and faculty members
- Write all progress notes and physician orders

Evaluation and persons performing the evaluation:
The student will be assessed by the senior resident and faculty members on the basis of overall clinical performance and understanding of the pathophysiology of problems existing in the patients.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: LCH

First day report to: The student will be emailed specific instructions prior to their start date.
**Neonatology - Prentice**  
**PED.4436.04.NMH**

**Clerkship Director:**  
Janine Yasmin Khan, MD and staff  
**Clerkship Coordinator:**  
Traci Williams, 225 E. Chicago Ave., Box 18, tncwilliams@luriechildrens.org, 312/227-4338

**Goals:**  
This course is recommended for careers in neonatology, pediatrics, family medicine, obstetrics, and anesthesiology. The student will learn to recognize and manage many common neonatal problems that present in the delivery room or shortly after birth. He/she will become aware of the range of severity of neonatal diseases and that the neonate has been influenced by genetic input as well as by months of environmental conditions. The student will also learn that hospitalization in the neonatal intensive care unit is just the beginning of a life-long program of preventive health care.

**Objectives:**
- Learn the basic physiologic differences between neonates and older children and adults  
- Recognize the common deviations from normal, for example, prematurity, as well as respiratory, metabolic, and hematologic problems and evaluate their etiologies and perform routine management  
- Develop an understanding of fetology and the management of high-risk pregnancy, labor, and delivery  
- Develop a deeper knowledge of related disciplines such as pulmonary physiology, hematology, immunology, and genetics

**Course Format and Proposed Schedule:**  
The objectives are met by a supervised clinical experience in the hospital nurseries, delivery room and neonatal intensive care unit, rounds, special teaching sessions, presentations, and guided readings. The student takes night call in the Neonatal Intensive Care Unit every fourth night during the clerkship.

**Evaluation and persons performing the evaluation:**  
The student will be evaluated by the attending staff at Prentice several times during the course of the clerkship on the basis of his/her knowledge, workups, performance, and ability to relate with others.

**Number of M4 students per rotation (FSM and Visiting):** One  
**Number of weeks:** Four  
**Site:** Prentice Women’s Hospital  
**First day report to:** The student will be emailed specific instructions prior to their start date.

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**Pediatric Kidney Diseases**  
**PED.4440.04.LCH**

**Clerkship Director:**  
Craig B. Langman, MD  
**Clerkship Coordinator:**  
Traci Williams, 225 E. Chicago Ave., Box 18, tncwilliams@luriechildrens.org, 312/227-4338

**Background and Justification:**  
Pediatric Kidney Disease represents a broad spectrum of congenital, genetic and acquired entities that may occur from birth through late adolescence. The increased survival of premature infants into childhood years, the epidemic of childhood obesity, and an unraveling of the human genome have made chronic kidney disease a measurable entity in pediatric medicine. The successes of maintenance dialysis and kidney transplantation have increased the numbers of patients requiring these therapies during the childhood years. The student is exposed to the breadth and depth of kidney diseases while on the elective.
Goals:
By active participation in the clinical activities of the Pediatric Kidney Diseases Division, the student learns the scope of kidney diseases that occurs in infants, children and adolescents.

Objectives:
Recognize and differentiate the most common pediatric kidney problems, and learn the pathogenesis, pathophysiology, and modern therapy for the various problems encountered; participate in the educational activities of the Division; and understand the psychosocial aspects of chronic illness on the patient, family, and health care provider. More specifically, the student will learn to recognize and differentiate: the various types of glomerulonephritides, forms of childhood nephrotic syndrome, types of microangiopathies that affect the kidney, types of renal tubular acidosis, forms of hypertension that occur, conditions leading to kidney stones, genetic and acquired metabolic bone diseases, kidney transplant indications and the immunology of transplantation.

Course Format and Proposed Schedule:
The student will work primarily in the large, outpatient practices of the Division Faculty, and see patients in conjunction with them. The student will work Monday through Friday, generally from 8:00 a.m. through 5:00 p.m., but without hospital-based night, weekend call responsibility. The student is provided with ample selections of current literature relevant to the patients seen, and participates in informal and formal teaching sessions around them. The student is asked to prepare and deliver in an informal setting comprised of Divisional Faculty and Fellows, a presentation based on a topic of their choosing, often in consultation with a Faculty member, from the field of pediatric kidney diseases.

Evaluation and persons performing the evaluation:
All Faculty members with whom they work will evaluate the student, and, in addition, any Fellows with whom they work, and are provided at the end of the rotation that evaluation based on the basis of knowledge, performance, and contribution to the program.

Number of M4 students per rotation (FSM and Visiting): One to two
Number of weeks: Four

Site: LCH

First day report to: The student will be emailed specific instructions prior to their start date. In addition, the student should report to the Outpatient Practice site of the Division of Pediatric Kidney Diseases, 4th fl., Lurie Children’s Hospital at 9:00 a.m.

See Surgery Section for:
Pediatric Surgery for Pediatricians
PED.4446.04.LCH

Pediatric General Surgery
PED.4428.04.LCH

Pediatric Cardiothoracic Surgery
SUR.4855.04.LCH

See respective Specialty Sections for:

Pediatric Essentials of Diagnostic Radiology, Pediatric Urology, Pediatric Orthopaedic Surgery, Pediatric Rehabilitation Service (PM&R), and Child and Adolescent Psychiatry.
Clinical Adult Inpatient Service  
PMR.4941.04.RIC

Clerkship Advisor:  
James A. Sliwa, DO, and faculty  

Clerkship Director:  
Nicole Wysocki, MD  

Clerkship Coordinator:  
Diane Ross, RIC, 345 E. Superior St., dross@ric.org, 312/238-2870

Goals:  
- Enhance ability to provide medical and rehabilitative care for disabled patients in a multidisciplinary team approach  
- Provide experience in writing appropriate therapy prescriptions and determining long and short-term rehabilitative goals

Objectives:  
- Differentiate between disease, impairment, disability, and handicap  
- Understand the pathophysiology and treatment options for spasticity, pressure sores, neurogenic bowel and bladder, autonomic hyperreflexia, and joint contractures  
- Understand the prophylaxis, diagnosis, and treatment of DVT  
- Understand the pathophysiology and treatment of traumatic brain injury  
- Describe the classification of spinal cord injury and rehabilitative needs  
- Understand the mechanisms of stroke syndromes and resultant rehabilitative needs  
- Understand the pathophysiology of arthritis and resultant cause of physiatric intervention

Course Format:  
Students have the responsibility for the initial workup, the prescription of allied health services, and medical coverage of physically and/or cognitively disabled inpatients. Students initially attend and later participate in the direction of patient staffings by the allied health team and will learn to appreciate the contributions of all members of this team. This clerkship also incorporates some outpatient clinic exposure (up to approximately 20 percent outpatient; 80 percent inpatient). Focus areas may include spinal cord injury, head trauma, osteoarthritis, stroke, amputee, and general rehabilitation. Supervisory attending physicians: department faculty.

Evaluation and persons performing the evaluation: To be determined.

Number of M4 students per rotation (FSM and Visiting): Four  
Number of weeks: Four

Site: Rehabilitation Institute of Chicago

First day report to: Student will be emailed instructions.
Clinical Pediatric Rehabilitation Service
PMR.4942.04.RIC

Clerkship Director:
Charles E. Sisung, MD

Clerkship Coordinator:
Diane Ross, RIC, 345 E. Superior St., dross@ric.org, 312/238-2870

Goals
• Provide insight and experience with the direction and coordination of an interdisciplinary rehabilitation team in the care of children with a disability
• Understand pediatric outpatient care and long-term management of disabled children, including community and school reintegration

Objectives
• Perform a pediatric history and physical examination.
• Formulate therapeutic plans based on stage of growth and development.
• Apply intervention in communication disorders in children.
• Manage myelodysplasia in children.
• Prescribe prosthesis and training programs for children with congenital or acquired limb impairments.
• Develop knowledge in diagnosis and treatment of scoliosis and hip problems in children.
• Develop knowledge of diagnosis of cerebral palsy, its clinical spectrum, and comprehensive management.
• Manage behavior in children with disabilities.
• Apply knowledge of pathophysiology to the treatment of head injury in children.
• Manage learning disabilities and mental retardation.
• Manage joint and connective tissue disease and chronic pain.

Course Format:
Students work directly with family units, do initial history and physical examination on new patients admitted to the pediatric service, and have the opportunity to participate in the evaluation and care of the patients in a multidisciplinary team approach. Students also have the opportunity to participate in the Rehabilitation Consult Service at CMH and visit other institutions in the metropolitan area that serve disabled children as well as attend outpatient clinics at RIC.

Number of M4 students per rotation (FSM and Visiting): Two
Number of weeks: Four

Site: RIC

First day report to: Student will be emailed instructions.
Clinical Management of Chronic Pain  
PMR.4951.04.RIC

Clerkship Director:
James Atchison, DO

Clerkship Coordinator:
Diane Ross, RIC, 345 E. Superior St., dross@ric.org, 312/238-2870

Goals:
Provide understanding of the principles of diagnosis and treatment of chronic pain, competence in its evaluation, and ability to differentiate treatment approaches for chronic versus acute pain.

Objectives:
- Assess the impact of pain on the life of a patient
- Perform a complete history and physical examination
- Assess and treat the psychological impact of pain when appropriate
- Provide rehabilitative treatment to the chronic pain patient
- Understand the legal issues of workers compensation and disability

Course Format:
Students gain an understanding of principles of diagnosis and treatment of acute and chronic low back and neck pain, and other neurological chronic pain syndromes. They learn how to examine and evaluate the spine. They attend staffings and participate in the interdisciplinary management of outpatients with severe chronic pain problems. In addition, they observe the physical treatment of patients, including all therapies. They observe techniques of biofeedback, relaxation therapy, and behavior modification and become familiar with rational pharmacotherapeutic strategies in pain management.

Number of M4 students per rotation: Two
Number of weeks: Four

Site: Rehabilitation Institute of Chicago. Time will be also be spent in the outpatient clinic at the RIC Center for Pain Management, 980 N. Michigan Ave., 8th fl.

First day report to: Student will be emailed instructions.
Clerkship in Consultation-Liaison Psychiatry
PSY.4703.04.NMH

Clerkship Supervisor:
Lisa Rosenthal, MD, Robert Lloyd, MD
Clerkship Director:
Gaurava Agarwal, MD
Clerkship Coordinator:
Rachel Rodriguez, 446 E. Ontario, #7-200, rodrig3@nm.org, 312/926-8097

Background and Justification:
This rotation builds on the core M3 clerkship in psychiatry, providing students with exposure to psychiatry in inpatient medical and surgical settings. The rotation offers intensive, practical teaching in psychopharmacology, psychotherapy, mental health law, medical ethics, spiritual issues related to health and disease, end of life care, health care administration, health economics, and public policy.

Goals:
• Perform psychiatric consultations in medical and surgical settings
• Develop the ability to work with a multidisciplinary patient care team in a liaison and teaching role

Objectives:
• Perform and document concise yet thorough psychiatric diagnostic evaluations in the medical setting
• Formulate a balanced biopsychosocial formulation to explain and understand the patient’s medical and psychological responses to illness and stress
• Develop a treatment plan drawing from this formulation
• Make use of the entire treatment team and the patient’s social resources to enhance the patient’s recovery
• Provide brief supportive psychotherapy in the medical setting
• Assess and make appropriate inpatient and outpatient referrals

Course Format and Proposed Schedule:
The student performs psychiatric consultations independently and with resident and attending and receives observation and feedback. She/he participates in daily rounds and attends weekly case conferences. Each student is expected to give a formal case presentation by the end of the clerkship. Students work Monday through Friday. There is no call on this rotation.

Evaluation and persons performing the evaluation:
The student will be evaluated by the C-L director, C-L attending physician, and C-L residents. Students will be coached and helped to perform to their maximum potential in this interesting, diverse, and challenging learning environment.

Number of M4 students per rotation: One
Number of weeks: Four

Site: NMH

First day report to: Students will be emailed instructions.
Goals:
To evaluate, diagnose, and formulate treatment plans for psychiatric patients in an emergency setting.

Objectives:
- Improve interviewing skills, focusing on eliciting pertinent information in a focused, respectful, empathic manner
- Choose and prescribe psychotropic medications
- Consider legal ramifications of emergency psychiatry situations
- Understand local resources and disposition plans
- Work with a multidisciplinary team in the evaluation of emergency psychiatry patients
- Diagnose and treat acute agitation

Course Format and Proposed Schedule:
The student actively participates in the evaluation of patients who present in the emergency room. Initially he/she sits in on the crisis worker and psychiatry evaluation followed by discussion. By the end of the clerkship, the student evaluates patients with supervision. Selected readings in emergency psychiatry are assigned to the student.

Evaluation and persons performing the evaluation: The student will be evaluated in his/her daily work by the director.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: NMH

First day report to: Students will be emailed instructions.
Child and Adolescent Psychiatry
PSY.4706.04.LCH

Clerkship Supervisors:
Nicholas Hatzis, MD (PHP)
Clerkship Director:
Gaurava Agarwal, MD
Clerkship Coordinator:
Rachel Rodriguez, 446 E. Ontario, #7-200, rodrig3@nm.org, 312/926-8097

Goals:
To provide students with an opportunity to observe and participate in psychiatric evaluations and comprehensive
treatment for children and adolescents and families. Students will have an opportunity to participate in the child
partial hospitalization program/day treatment (PHP) which will allow exposure to outpatient psychiatry in addition
to child psychiatry. Students should gain exposure in the diagnostic assessment and management of youth with
psychiatric illnesses, as well as multi-disciplinary treatment planning for families at CMH and in the community
(including school). Medical students also learn about behavioral management techniques and are exposed to milieu
and group therapy and parent training family therapy sessions.

Objectives:
A student will be able to:
• Assist in completing a diagnostic evaluation of a child or adolescent and developing a differential diagnosis
• Assist in developing a biopsychosocial formulation as a basis for a multi-modal treatment plan
• Assist in devising and implementing a comprehensive treatment plan
• Understand the roles of various mental health and education disciplines in the treatment team for the
specific setting of the elective work
• Appreciate the importance of collaboration with primary care/pediatric health care providers to address
medical and preventative health care concerns
• Develop an awareness of the role of advocacy in providing mental health treatment
• Learn the procedures for mandatory abuse reporting to the Department of Children and Family Services
(DCFS)

Course Format and Proposed Schedule:
Students will observe and be observed evaluating patients and their families. They will participate in
multidisciplinary treatment team meetings and family sessions.

Evaluation and persons performing the evaluation:
Students will receive a composite grade from the evaluations of the faculty and child and adolescent psychiatry
fellows based on their observed clinical work and presentations.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: Lurie Children’s Hospital

First day report to: Students will be emailed instructions.
The Clinical Basis of Nuclear Medicine
RAD.4641.04.NMH

Clerkship Director:
William Spies, MD
Clerkship Coordinators:
Michelle Bolivar, 676 N. St. Clair, #800, mbolivar@nmff.org, 312/925-4068

*** This elective is not offered during Block 14, Block 19, or Block 20 ***

Background and Justification:
The aim of this course is to orient the student to the clinical practice of Nuclear Medicine. Emphasis is on the clinical settings in which Nuclear Medicine can contribute to patient care. A basic clinical textbook of Nuclear Medicine is required reading, supplemented by other references related to studies being performed, seminar topics, and other materials of interest to the students. Indications and limitations of diagnostic studies and therapeutic applications are discussed in seminar format and in conjunction with daily film reading sessions. The student is provided with the opportunity to observe and participate in routine functions of the Section of Nuclear Medicine. Additionally, the student is encouraged to present a one-hour talk at the conclusion of the course.

Goals:
- Introduction to the scientific principles underlying radionuclide diagnostic and therapeutic procedures
- Exposure to the major areas of radionuclide imaging and therapy with unsealed sources
- Familiarity with the indications for radionuclide studies in clinical practice, as well as the advantages and limitations of Nuclear Medicine procedures relative to other modalities

Objectives:
The student acquires insight into:
- Applications of bone scintigraphy
- Radionuclide thyroid, parathyroid and other endocrine diagnostic studies and therapy
- Use of ventilation-perfusion imaging in suspected pulmonary embolism and in pre-operative assessment
- Applications of scintigraphy in renal and urologic disorders
- Radionuclide imaging of the gallbladder and biliary tree, liver, and stomach, and its use in localizing sites of gastrointestinal hemorrhage
- Use of radionuclide imaging in suspected infection and fever of unknown origin
- Radionuclide imaging and treatment of patients with known or suspected malignancies
- Bone mineral density measurement
- Nuclear cardiology diagnostic studies
- Applications of positron emission tomography (PET and PET-CT) imaging in oncology, neurology, cardiology, and other clinical settings
- Other radionuclide imaging, SPECT-CT imaging, laboratory, and therapeutic procedures

Conferences:
- Review and interpretation of examinations, daily, 10:30 a.m.-noon and 2:30-5:30 p.m.
- Interdepartmental conferences, as scheduled

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

First Day Report To: Nuclear Medicine Laboratory, Galter 8th Floor.
Background and Justification:
This course is an introduction to diagnostic pediatric radiology, including inpatients and outpatients. All imaging modalities are covered, including plain radiography, ultrasound, CT, MRI, fluoroscopy and interventional radiology. The student will be expected to work with radiology residents and attendings, and observe and participate in discussions during read out sessions. The student is also expected to attend interdepartmental and teaching conferences. This course may be helpful to any student with a special interest in either pediatrics or radiology.

Objectives:
- Learn the appropriate utility of different imaging modalities for the work up of common clinical problems and how the work up differs from the adult population
- Recognize the basic normal radiographic appearance of the bones and soft tissues on different imaging modalities, and understand how this changes with growth
- Understand what patients experience for different radiological exams, including sedation

**A personal statement is required. The LOR must be from a professor in the field.**

Evaluation and persons performing the evaluation: To be determined.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: LCH

First day report to: Student will be emailed instructions.
Background and Justification:
The main introductory course to general diagnostic radiology offered at NMH, this clerkship is designed to impart a broad basic understanding of the role of radiology in diagnosis. Emphasis is placed on terminology, proper workup, and the fundamentals of film interpretation. The student has the additional opportunity of working closely with staff members and residents, observing and participating in all phases of their daily work. Daily dedicated medical student conferences are also held.

Goals:
- Increase ability to order appropriate tests that facilitate efficient cost-effective patient care
- Develop a better understanding of the wide range of radiologic tests and procedures
- Learn fundamentals of interpretation of certain plain film studies

Objectives:
- Learn appropriate terminology used in describing images
- Develop a logical approach to choosing imaging tests that solve various clinical problems
- Know how various common diagnostic studies are performed
- Know morbidity and mortality risks for various common tests
- Know indications for various common diagnostic studies
- Know contraindications of various common diagnostic studies
- Learn fundamentals of interpreting chest, abdominal, and skeletal radiographs

Course Format and Proposed Schedule:
Students will be assigned to a particular section of radiology to observe for a morning. Students will observe radiologists day-to-day and observe the radiology technologists as they perform certain studies. Also, we encourage students to meet patients in the department and to observe procedures from a patient’s perspective. On most days at 1:00 p.m. and occasionally at 2:00 p.m., a member of the radiology department will give a lecture, usually in a case presentation format. The topics will vary widely just as radiology does. A Noon resident conference occurs most days and is also a requirement. There may also be special lectures on additional days.

Evaluation and persons performing the evaluation:
Final evaluation will be based upon input from attendings and residents as well as attendance, student’s presentation, and exam performance. The exam will be given on the final day of the rotation and will consist of written questions drawn from the assigned readings and observational objectives. The exam will also have radiological unknowns to evaluate.

Number of M4 students per rotation: Two
Number of weeks: Four

Site: Northwestern Memorial Hospital

First day report to: Students will report at 10:00 a.m. to Michelle Bolivar, Arkes Family Pavilion, 676 N. St. Clair St., Ste. 800.
Pre-requisite: Students must complete an Essentials of Diagnostic Radiology elective before taking any of the following electives. This can be completed at Northwestern or be shown on their transcript if completed at other institution. If an Essentials of Diagnostic Radiology does not appear on a student’s transcript, a letter from their Dean or Registrar must be submitted to serve as proof a clerkship has been completed.

**Neuroradiology**
RAD.4645.04.NMH

Clerkship Director:
Tarek Hijaz, MD

Clerkship Coordinators:
Michelle Bolivar, 676 N. St. Clair St., Ste. 800, mbolivar@nmff.org, 312/926-4068

*** This elective is not offered during Block 2, Block 14, Block 19 or Block 20 ***

Pre-requisite: Students must complete an Essentials of Diagnostic Radiology elective before taking this elective. This can be completed at Northwestern or be shown on their transcript if completed at other institution. If an Essentials of Diagnostic Radiology does not appear on a student’s transcript, a letter from their Dean or Registrar must be submitted to serve as proof a clerkship has been completed.

Background and Justification:
This clerkship gives the interested student a deeper look into Neuroradiology than can be provided in a general radiology course.

Course Format and Proposed Schedule:
Students are assigned to observe all clinical imaging interpretation sessions and should participate actively in case readouts in CT and MRI. Students should read a text on neuroradiology during the month. One oral presentation should be prepared and presented based on interesting case material reviewed during the first or second week on the service.

Evaluation and person performing the evaluation: Final evaluation will be based upon input from attendings and residents.

Number of M4 students per rotation (FSM and Visiting): Two
Number of weeks: Four

Site: Northwestern Memorial Hospital

First day report to: Unless otherwise instructed, students will report to Michelle Bolivar on the first day of the rotation at 9:30 a.m.: 676 N. St. Clair St., Ste. 800.

**Body Imaging**
RAD.4655.04.NMH

Clerkship Director:
Paul Nikolaidis, MD

Clerkship Coordinators:
Michelle Bolivar, 676 N. St. Clair, #800, mbolivar@nmff.org, 312/926-4068

*** This elective is not offered during Block 2, Block 14, Block 19, or Block 20 ***

Prerequisite:
Students must complete an Essentials of Diagnostic Radiology elective before taking this elective. This can be completed at Northwestern or be shown on their transcript if completed at other institutions. If an Essentials of
Diagnostic Radiology does not appear on a student’s transcript, a letter from their Dean or Registrar must be submitted to serve as proof a clerkship has been completed.

**Background and Justification:**
This clerkship gives the interested student a deeper look into cross-sectional imaging of the chest, abdomen, and pelvis than can be provided in a general radiology course.

**Course Format and Proposed Schedule:**
The student spends one week each in CT, ultrasound, and MRI. The fourth week is spent in the area of particular interest to the student. He/she is expected to attend body imaging conferences and may attend additional department conferences designed for residents and medical students. The student should read basic radiology texts on CT, US, and MRI to enhance the observational experience.

**Evaluation and person performing the evaluation:** Final evaluation will be based upon input from attendings and residents

**Number of M4 students per rotation (FSM and Visiting):** Two
**Number of weeks:** Four

**Site:** Northwestern Memorial Hospital

**First day report to:** Unless otherwise instructed, students will report to Michelle Bolivar on the first day of the rotation at 9:30 a.m., Arkes Family Pavilion, 676 N. St. Clair St., 8th fl., Ste. 800.

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**Interventional Radiology**

**RAD.4657.04. NMH**

**Clerkship Director:**
Richard Chen, DO

**Clerkship Coordinators:**
Michelle Bolivar, 676 N. St. Clair St., 8th fl., Ste. 800, mbolivar@nmff.org, 312/926-4068

*** This elective is not offered during Block 2, Block 14, Block 19, or Block 20 ***

**Pre-requisite:** Students must complete an Essentials of Diagnostic Radiology elective before taking this elective. This can be completed at Northwestern or be shown on their transcript if completed at other institution. If an Essentials of Diagnostic Radiology does not appear on a student’s transcript, a letter from their Dean or Registrar must be submitted to serve as proof a clerkship has been completed.

**Background and Justification:**
The goal of the medical student clerkship is to provide a well-rounded blend of the clinical and didactic elements on the vascular and interventional radiology (VIR) service.

**Course Format and Proposed Schedule:**
Clinical expectations include assistance and performance of cases under the direct supervision of VIR attending physicians and fellows, daily rounds on all inpatients on the service, and evaluation and management of outpatients. Participation in all VIR cases and didactic conferences is expected as well as attendance at all diagnostic radiology resident conferences. In addition, a brief presentation on a VIR topic of interest is required toward the end of the clerkship.

**Evaluation and person performing the evaluation:** Final evaluation will be based upon input from attendings and residents.

**Number of M4 students per rotation (FSM and Visiting):** Two
**Number of weeks:** Four

**Site:** Northwestern Memorial Hospital
First day report to: Unless otherwise instructed, students will report to Michelle Bolivar on the first day of the rotation at 9:30 a.m., Arkes Family Pavilion, 676 N. St. Clair St., 8th fl, Ste. 800.

Breast Imaging
RAD.4658.04.NMH

Clerkship Director:
Julie M. Franz, MD

Clerkship Coordinator:
Michelle Bolivar, 676 N. St. Clair, #600, mbolivar@nmff.org, 312/926-4068

*** This elective is not offered during Block 14, Block 19, or Block 20 ***

Pre-requisite:
Students must complete an Essentials of Diagnostic Radiology elective before taking this elective. This can be completed at Northwestern or be shown on their transcript if completed at other institution. If an Essentials of Diagnostic Radiology does not appear on a student’s transcript, a letter from their Dean or Registrar must be submitted to serve as proof a clerkship has been completed.

Background and Justification:
The objectives of this elective clerkship are to broaden the student’s knowledge of imaging diagnosis of breast cancer and evaluation of benign breast disease. The student will participate in interpretation sessions of screening and diagnostic mammograms, breast US examinations and breast MRI studies.

Course Format and Proposed Schedule:
The student will also observe and participate in stereotactically-, US-, and MRI-guided breast interventional procedures, including percutaneous core and vacuum-assisted biopsies and presurgical localizations. Readings will be assigned, and the student will be expected to attend the weekly Interdisciplinary Breast and Breast Imaging-Pathology Concordance Conferences. A brief presentation on a topic or case of interest is required during the last week of this 4-week elective.

Evaluation and person performing the evaluation: Final evaluation will be based upon input from attendings and residents.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: Northwestern Memorial Hospital; Prentice Women’s Hospital

First day report to: Unless otherwise instructed, students will report to Michelle Bolivar on the first day of the rotation at 9:30 a.m.; Arkes Family Pavilion, 676 N. St. Clair, 8th fl., Ste. 800.
Introduction to Radiation Oncology
RAD.4644.02.NMH

Clerkship Advisors:
Eric Donnelly, MD, and Radiation Oncology attending staff
Clerkship Director:
Eric Donnelly, MD
Clerkship Coordinator:
Angela Salley, 676 N. St. Clair, Ste. 1820, asalley@nmff.org, 312/695-1787

*** This is a 2-week introduction elective ***

Background and Justification:
This elective introduces the student to the use of radiation therapy in the care of cancer patients. 50% of all cancer patients will be treated with radiation therapy, either curatively or palliatively. Since this is a common treatment modality in the care of cancer patients, all physicians should be aware of the indications and consequences of radiation therapy.

Goals:
- Understand how radiation affects normal and neoplastic tissue
- Increase knowledge and understanding of different cancers and the modalities used in different cancers

Objectives:
The student will be better able to understand:
- The indications for radiation therapy
- Normal tissue tolerance of radiation therapy
- How radiation therapy is planned and delivered
- Behavior of common neoplasms
- The Multidisciplinary approach to cancer care
- Cancer symptom palliation

Course Format and Proposed Schedule:
This is a 2 week introduction. Students will be assigned to different attendings to obtain a wide exposure to different cancers. Students will be expected to be available for all activities of the assigned attending, attend all conferences in the department, and attend multidisciplinary conferences. Students will see consultations and follow-ups and report on those patients to the service. No weekend call is required. Typical days last from 7:00-8:00 a.m. through 5:00-6:00 p.m.

Evaluation and persons performing the evaluation: Grades are assigned by the attendings, based on performance and learning. There are no exams.

Number of M4 students per rotation (FSM and Visiting): Two (total at any one time including those students on the 4 week elective)
Number of weeks: Two

Sites: NMH

First day report to: Senior Resident, Galter LC-178, 9:00 a.m.
Radiation Oncology
RAD.4643.04.NMH

Advisors:
Eric Donnelly, MD, and Radiation Oncology attending staff

Clerkship Director:
Eric Donnelly, MD

Clerkship Coordinator:
Angela Salley, 676 N. St Clair, Ste. 1820, asalley@nmff.org, 312/695-1787

Background and Justification:
This clerkship introduces the student to the use of radiation in the care of cancer patients. Fifty percent of all cancer patients receive radiation, either curatively or palliatively. The student works with a resident and attending physician seeing patients under treatment, during consultations, and in follow ups. The student will see consultations and follow-ups and present these to the attending physician and in departmental conferences. The student will be assigned to different attendings during the rotation to observe a wide scope of different types of patients and procedures. He/she will attend multidisciplinary conferences at NMH and CMH. Students considering a career in any specialty where cancer patients are encountered (primary care, surgery, gynecology, and medical oncology) will find this course useful.

Goals:
- Understand the indications for radiation therapy
- Understand how radiation affects normal and neoplastic tissue
- Increase knowledge of neoplastic processes

Objectives:
The student will be better able to understand:
- The indications for radiation therapy for the cancer patient
- Normal tissue tolerance of radiation
- How radiation therapy is planned and delivered
- Behavior of common neoplasms
- Multidisciplinary approach to cancer care
- Cancer symptom palliation

Course Format and Proposed Schedule:
Students will be assigned to different attendings to obtain a wide exposure to different cancers. Students will be expected to be available for all activities of the assigned attending, attend all conferences in the department, and attend multidisciplinary conferences. Students will see consultations and follow-ups and report on those patients to the service. The student will be involved in treatment planning, and observe the treatment process. No weekend call is required. Typical days last from 7:00-8:00 a.m. through 5:00-6:00 p.m.

Evaluation and persons performing the evaluation:
Grades are assigned by the attendings, based on performance and learning. A 45 minute talk will be presented to the department, on a topic related to radiation oncology of the student’s choice. There are no exams. This elective is intended for students considering radiation oncology residency.

Number of M4 students per rotation (FSM and Visiting): Two (total at any one time, including students on 2 weeks elective rotation)
Number of weeks: Four

First day report to: Senior Resident, Galter LC-178 at 9:00 a.m.
Pediatric General Surgery
PED.4428.04.LCH

Clerkship Director:
Erin Rowell, MD
Clerkship Coordinator:
Bianca Marquez, 225 E. Chicago Ave., Box 63, bmarquez@luriechildrens.org, 312/227-4732

Background and Justification:
A four week clerkship for senior medical students is offered by the pediatric general surgery staff of Ann & Robert H. Lurie Children’s Hospital. This clerkship is designed to serve as a sub internship for students interested in the surgical care of children. It is an excellent opportunity to explore whether a career in general surgery or pediatric surgery is an appropriate long term professional choice. Registration is possible only by prior approval of the course director.

Goal:
Provide education and firsthand experience in pediatric surgery for students interested in a surgical medical career

Objectives:
The student will continue to develop skills in history taking and physical diagnosis as they relate to pediatric problems. There is an opportunity on a daily basis to be involved in ongoing pediatric surgery outpatient clinics. There are 50 cases each week that are open for student participation plus the regularly scheduled conferences, grand rounds, tumor boards, etc., of both the Departments of Pediatrics and Division of Pediatric Surgery.

Course Format and Proposed Schedule:
Students will make rounds on inpatient floors in either the morning or evening with the pediatric surgery team. They are also expected to observe surgical cases, attend outpatient clinics, attend conferences, and take call with residents.

Evaluation and persons performing the evaluation:
Dr. Rowell and/or attending staff will complete standard Northwestern student evaluations at the end of the rotation.

**A personal statement is required. The LOR must be from a professor in the field.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: LCH

First day report to: Student will be emailed instructions prior to the start date.

Pediatric Surgery for Pediatricians
PED.4446.04.LCH

Clerkship Director:
Erin Rowell, MD
Clerkship Coordinator:
Bianca Marquez, 225 E. Chicago Ave., Box 63, bmarquez@luriechildrens.org, 312/227-4732

Background and Justification:
Pediatricians must recognize surgical illness in their patients and often are asked to give advice concerning the advisability of surgical treatment. This clerkship provides an overview of the pediatric surgical specialties, enriching the experience of both the pediatric and surgical clerkships.
Goal:
Provide education and firsthand experience in pediatric surgery for students interested in a pediatric medical career.

Objectives:
Students will gain the knowledge of common pediatric surgical problems, their evaluation, and management.

Course Format and Proposed Schedule:
During this clerkship the student will evaluate children with a variety of surgical diseases, observe in the operating room, and attend conferences and outpatient clinic. LCH cares for children with problems ranging from newborn infants with surgical emergencies to older youngsters with complex tumors and congenital anomalies.

Evaluation and persons performing the evaluation:
Dr. Rowell and/or attending staff will complete standard Northwestern student evaluations at the end of the rotation.

**A personal statement is required. The LOR must be from a professor in the field.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

First day report to: Student will be emailed instructions prior to first day of rotation.

Neurological Surgery
SGY.4846.04.NMH

Clerkship Advisor and Director:
Aruna Ganju, MD

Clerkship Coordinator:
Samantha Lauren, Arkes Pavilion, 676 N. St. Clair St., Ste. 2210, slauren@nmff.org, 312/695-4164

*** This elective is not offered during Block 2 ***

Background and Justification:
Neurosurgery is the medical specialty concerned with the diagnosis of disorders that affect the central and peripheral nervous systems. The M4 student who chooses this elective intends on pursuing a career in neurological surgery. Under the supervision of the attending faculty and residents, the student will participate in patient care in both the in- and out-patient settings. These activities provide a valuable experience for those interested in neurosurgery as a career, and a unique look at inside a high-volume, cutting-edge neurosurgical residency program.

Goals:
In the inpatient setting, the student will enhance their skills in:
- Performing the neurologic history and physical exam
- Evaluating patients with changes in medical or neurologic condition
- Communicating with members of the healthcare team
- Evaluating postoperative patients

In the clinical setting, the student will demonstrate maturation of skills in the following areas:
- Interpretation of imaging studies
- Generation of differential diagnoses
- Formation of diagnostic and treatment plans

Course Format and Proposed Schedule:
Students will be an integral member of the resident team, making daily in-patient rounds. Daily assignments may include assisting in the operating room, evaluating patients, and performing consults. Didactic conferences are held every Friday; these include Grand Rounds, Journal Club, and other didactic conferences. Students typically take call every fourth night and may be assigned weekend duty. Students are invited to present a talk during the clerkship on a subject of their choosing.
Evaluation and persons performing the evaluation: The clerkship director will evaluate the student incorporating feedback of faculty and residents.

Number of M4 students per rotation (FSM and Visiting): Four
Number of weeks: Four

Site: Northwestern Memorial Hospital; Students with an interest in pediatric neurosurgery may request to rotate for one week at Lurie Children’s Hospital on the pediatric neurosurgery service. This request should be included in the personal statement.

First day report to: Students will report to the Chief Resident after completing Visiting Student registration.

Plastic and Reconstructive Surgery
SUR.4845.04.VAR

Advisor:
Victor L. Lewis, MD

Clerkship Director:
Mohammed Alghoul, MD

Clerkship Coordinator:
Margeaux Appold, 675 N. St. Clair St., 19-250, mappold@nm.org, 312/692-6022

Background and Justification:
The clerkship is intended to offer an outstanding educational experience to medical students from other programs who are pursuing Plastic Surgery residency training and are interested in the Northwestern Plastics program. Visiting students whose application is accepted and perform well during the clerkship have a favored status when considering future residency candidates.

The student participates in the evaluation and management of patients with plastic surgical problems. Three weeks of the rotation are spent at Northwestern Memorial and Prentice Women’s Hospitals where the student will be exposed to the full spectrum of plastic surgical procedures, including surgical management of wounds and closure with local flaps and grafts, microsurgical reconstruction of the head and neck, breast and extremities after traumatic injury or cancer resection, breast surgery, hand surgery, facial reconstruction after Mohs excision of skin cancer, abdominal wall reconstruction, peripheral nerve surgery and aesthetic surgery. The fourth week is spent at Lurie Children’s Hospital where the student learns about congenital anomalies, pediatric plastic surgery and craniofacial surgery. The student participates in the care of patients in both the inpatient and outpatient settings and is made an integral part of the clinical team, working closely with the attending surgeons and residents.

Goals:
Advanced exposure to and knowledge of principles of plastic surgery and wound healing.

Objectives:
To be better able to:

- Treat chronic wounds, ulcers and pressure sores
- Understand principles and concepts of flaps and grafts, microvascular surgery, and surgical anatomy of the head, neck, and trunk
- Understand principles of breast reconstruction and surgical management of skin cancer
- Understand psychological and treatment concepts of cosmetic surgery
- Understand and use suturing techniques
- Understand issues unique to pediatric plastic surgery

Course Format and Proposed Schedule:
Students will make morning and evening rounds with the service. Most days the students will be in the OR as assigned by the chief resident. There is also an opportunity to attend clinic and participate in office hours including the multidisciplinary craniofacial clinic at Lurie’s. The clerkship begins at 8:00 a.m. on a Monday and ends at 5:00 p.m. on the final Friday. Required conferences include grand rounds, journal club, and resident teaching conferences. Students also participate in teaching rounds with one of the attending surgeons where they present and discuss clinical cases. There is no formal call schedule. Students make rounds on assigned Saturdays and Sundays.
Evaluation and persons performing the evaluation
Evaluation is performed by the attending surgeons and residents at the end of the rotation and is based on the ACGME core competencies. Each student is required to prepare a 7-minute power point presentation at the end of the clerkship on a plastic surgery topic chosen in consultation with the residents and staff members. Evaluations can be personally discussed with the clerkship director at the end of the clerkship upon the student’s request.

Number of M4 students per rotation (FSM and Visiting): Four
Number of weeks: Four

Sites: NMH/LCH/Prentice Women’s Hospital

First day report to: Students will report to the office of Dr. Mohammed Alghoul, 675 N. St. Clair St., 19-250, at 8:00 a.m. on the first day of the rotation.

Basic Science of Vascular Surgery
SUR.4848.04.NMH

Clerkship Director:
Andrew Hoel, MD

Clerkship Coordinator:
Jessica Mason, 676 N. St. Clair St, Ste. 650, jmason@nmh.org, 312/695-2716

Background and Justification:
The student will participate directly in the care of our surgical patients, while working with residents, fellows and attending surgeons in the outpatient and inpatient setting. This will include exposure to the full spectrum of vascular disease including arterial occlusive disease, aneurysmal disease and venous disease. The student will be encouraged to follow the longitudinal care of patients and develop an in-depth understanding of their work-up and management.

Goals:
- To better understand the pathophysiology of vascular disease and how that pathophysiology relates to the clinical presentation and treatment of vascular patients
- To develop familiarity with the clinical evaluation of patients with vascular disease including understanding the pertinent elements of the patient history and physical examination
- To understand the utility and interpretation of common studies used in the evaluation of vascular patients including laboratory testing, non-invasive physiologic testing and imaging studies
- To be able to formulate and differential diagnosis and treatment plan for patients with common vascular disorders
- To gain experience with the spectrum of treatment options for patients with vascular disease including medical optimization, open surgical interventions and endovascular interventions

Course Format and Proposed Schedule:
During the clerkship, the student will be asked to function at the level of a PGY-1 resident. This will include participating in all activities of the clinical team including:
- making morning and evening rounds with the service
- participating in cases as assigned by the vascular surgery fellows
- participating in one full day of vascular surgery clinic per week
- attending all conferences include grand rounds, journal club and residency teaching conferences
- making rounds on assigned Saturdays and Sundays

There will be no required overnight call. The clinic and case schedules will be determined in advance, providing the student opportunity to read about patients and their illness prior to being involved in their care. Students will be expected to follow to progress of specific patients from their initial evaluation through their intervention and recovery.

Evaluation and persons performing the evaluation:
The student will be assessed by residents, fellows and faculty members with a focus on clinical evaluation of vascular patients. Preparation prior to presenting patients and prior to participating in procedures will be closely evaluated. Each student is required to prepare a ten-minute talk at the end of the clerkship on a subject in vascular surgery chosen in consultation with the residents and staff members.
The letter of recommendation must be from a surgeon with whom the applicant has worked with clinically.

Number of M4 students per rotation (FSM and Visiting): Two
Number of weeks: Four

First day report to: Please page the NMH Vascular Surgery fellow rotating at 6:15 a.m. on the first day of the rotation.

**Surgical Oncology**
SUR.4850.04.NMH

**Clerkship Director:**
Jeffrey D. Wayne, MD

**Clerkship Coordinator:**
Anna Reczynski, Galter 3-150, areczyns@nm.org, 312/926-9411

**Background and Justification:**
The four weeks of this clerkship will include exposure to general surgical oncology and hepatobiliary surgery. The student will be assigned a preceptor for the four weeks, but will spend significant time with various faculty members. The student attends each surgeon’s clinic where he or she will be involved in the evaluation, workup, and staging of the patients. The student participates in the surgical treatment of patients and functions as a member of the housestaff/medical student team in caring for the patients postoperatively. The student is required to attend the multidisciplinary melanoma and sarcoma conference monthly and gastrointestinal oncology conference weekly. The student, if he or she wishes, may attend medical oncology and/or radiation oncology clinics.

**Goals:**
- Understand the evaluation, workup, and staging of solid tumors with an emphasis on gastrointestinal tumors, melanoma, and sarcoma
- Understand the role of each treatment modality of cancer: surgery, chemotherapy/endocrine therapy/immunotherapy and radiation therapy; understand the rationale for their use and sequencing
- Extend and build upon basic surgical principles learned during the junior year clerkship

**Evaluation and persons performing the evaluation:** To be determined.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four
Ambulatory time: 25-33 percent

Site: NMH Chicago Campus

First day report to: Student will report to Chief Resident at 8:00 a.m. Please contact Anna Reczynski for Chief Resident contact information prior to rotation start date.

**Transplantation Surgery**
SUR.4853.04.NMH

**Clerkship Director:**
Jonathan P. Fryer, MD

**Clerkship Coordinator:**
Katie Crylen, Galter 17-200, KCRYLEN@nm.org, 312/695-1892

**Background and Justification:**
Students will receive instruction in clinical transplantation and transplantation immunology through observations on the multi-organ transplant service and in the histocompatibility laboratory. Students will participate in all aspects of clinical care of liver, kidney, pancreas, islet, and intestine transplant patients. Patients will be observed during the pre-transplant evaluation period, the transplant procedure, the immediate post-transplant period, and during their long-term follow-up. Opportunities will be available to participate in live donor and deceased multiorgan donor
procurements and in non-transplant procedures in transplant patients. Numerous clinical conferences, symposia, and didactic sessions are available to complement the clinical experience. A four-week clerkship will achieve these objectives.

Goals:
- To obtain general understanding of the comprehensive medical and surgical management of patients that are: being assessed as transplant candidates, waiting for transplants, or are recipients of transplants
- To obtain a general understanding of the impact of life-long immunosuppression on overall care of transplant patients

Objectives:
- To learn the indications for transplantation of the liver, kidney, pancreas and intestine
- To learn the principles for managing patients with end-stage organ failure of the liver, kidney, pancreas and intestine
- To understand the basic principles of organ allocation and procurement
- To learn the mechanisms and potential adverse effects of all immunosuppressive drugs being used for transplantation
- To understand the basic surgical principles of organ transplantation, vascular access, and hepatobiliary surgery

Course Format and Proposed Schedule:
- Students will join the transplant team and participate in the ongoing care of transplant patients in the hospital, the operating room, and the outpatient clinic
- Students will be given the opportunity to participate in living and deceased donor organ procurement procedures
- Students will participate in all seminars, symposia, lecture, and other didactic sessions relevant to transplantation

Evaluation and persons performing the evaluation:
Students will be evaluated on the basis of their attendance, punctuality, reliability, knowledge base, clinical acumen, interactions with patients and other health care professional, and their overall effort during their time on the transplant service.

Number of M4 students per rotation (FSM and Visiting): Two
Number of weeks: Four

Site: NMH

First day report to: After visiting student registration, please report to Katie Crylen, 676 N. St. Clair, Ste. 1900, Office 091, at 9:00 am Monday-Friday.

Pediatric Cardiothoracic Surgery
SUR.4855.04.LCH

Clerkship Director:
Carl L. Backer, MD

Clerkship Coordinator:
Silvana Illescas, 225 E. Chicago Ave. Box 22, sillescas@luriechildrens.org, 312/227-4240

Course Format and Proposed Schedule:
During a four week clerkship in pediatric cardiothoracic surgery, the student will assume duties similar to those performed by a first-year resident with close faculty and resident supervision. A syllabus on surgery for congenital heart disease will be provided and the student will observe a wide variety of congenital open heart procedures. In addition, teaching conferences with the pediatric cardiology division will be held once a week at which time the student will learn the interpretation of pediatric echocardiograms and cardiac catheterizations.
Evaluation and persons performing the evaluation: To be announced at the start of the elective.

Number of M4 students per rotation: One
Number of weeks: Four

Site: LCH

First day report to: Students will be emailed instructions.

Cardiac Surgery
SUR.4856.04.NMH

Clerkship Director:
S. Chris Malaisrie, MD
Clerkship Coordinator:
Jennifer Lynn Feld, 201 E. Huron St., Galter 11-140, jfeld@nmh.org, 312/695-3662

Goals:
Familiarize the student with general aspects of diseases of the heart including coronary artery disease, cardiac valvular disease including options for repair vs. replacement, atrial fibrillation, diseases of the Great Vessels including differentiation between dissection and aneurysm, surgical options in heart failure including transplantation, mechanical assistance, valvular competence restoration and ventricular reconstruction, electrical reconstruction.

Objectives (refers to tactics, a more specific sense):
1. Patient Care
   a. Demonstrate an ability to conduct a cardiac-focused history and physical
   b. Obtain disease-relevant information from patients specific to vascular disease (including but not exclusive to: smoking history, family history of vascular disease, hyperlipidemia, diabetes, history of irregular heartbeat, history of stroke/TIA, dyspnea on exertion, etc.)
   c. Interpret laboratory values and diagnostic study results to diagnose a clinical problem and implement effective treatment plans for the clinical scenarios identified above (1-5)
2. Medical Knowledge
   a. Describe the epidemiology, presenting symptoms, work up, diagnosis and treatment options for patients with coronary artery disease
   b. Describe the epidemiology, presenting symptoms, work up, diagnosis and treatment options for patients with valvular heart disease
   c. Describe the epidemiology, presenting symptoms, work up, diagnosis and treatment options for patients with atrial fibrillation
   d. Describe the epidemiology, presenting symptoms, work up, diagnosis and treatment options for patients with diseases of the Great Vessels
   e. Describe the epidemiology, presenting symptoms, work up, diagnosis and treatment options for patients with chronic congestive heart failure
   f. Describe the basic mechanism of the cardiopulmonary bypass machine
   g. Describe methods for identifying and treating acute cardiac failure
3. Practice-Based Learning and Improvement
   a. Meet with attending physician and supervising resident at the beginning of the rotation to review goals and expectations
   b. Meet with attending physician and supervising resident after two weeks to review performance and identify strengths and areas for improvement
   c. Meet with attending physician and supervising resident at the end of the rotation to assess overall performance and identify specific strengths and areas of improvement
   d. Review history and physical with supervising resident and attending physician
   e. Review one current article on the treatment of coronary artery diseases and review one article on cardiac valvular disease
   f. Consider writing a case report on an interesting patient encountered while on service
4. Interpersonal and Communication Skills
   a. Directly participate in obtaining information from patients in clinic and in-house consultation
b. Directly participate in the informed consent process

c. Directly participate in the patient care process with all the other members of the team

d. Observe the interactions of the other team members with patients and each other

e. Request feedback during the 2 and 4 week evaluations regarding performance in interpersonal relations and communication

5. **Professionalism**

   a. Wear attire appropriate for that of a physician in practice

   b. Conduct all interactions with patients and staff according to the “golden rule”

   c. Be sensitive to patients with diverse ethnic backgrounds and cultures

   d. See feedback during the 2 and 4 week review regarding performance in this competency

6. **Systems-Based Practice**

   a. Participate in the multidisciplinary conferences listed below in the proposed schedule

   b. Participate in at least one team conference including nursing staff (i.e., a.m. sign out during shift change)

   c. Consider an area that might be improved in the patient care process and relate to attending physician supervisor during final evaluation meeting

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**Course Format and Proposed Schedule:**  
The student will be responsible to: participate in the cardiac surgery clinic and interview/examine patients under the supervision of the attending physician; participate in work rounds every morning under the supervision of the resident in charge of the service, including organizing the patient information in a cohesive fashion and presenting it to the members of the team; present cases within the 5 core cardiac clinical scenarios to the attending physicians for discussion of the management. In the operating room, the student will scrub on all major cases; they will assist the resident or fellow in opening and preparing conduit and aortic cannulation. They will assist during the case and will be expected to describe the operative approach to the attending surgeon. Their expected knowledge of all areas will be limited but appropriate for their level.

**Evaluation and persons performing the evaluation:**

The student will be evaluated at 2 and 4 week intervals by the supervising attending physician in each of the 6 ACGME core competencies. Each competency will be reviewed by the attending physician in a 360 degree fashion with verbal feedback obtained from the residents, nursing staff, clinic staff, operating room staff and the student him/herself. This will contribute to 50% of the student’s evaluation. There will be a short pass/fail internally developed written exam comprised of 10 basic questions. Passing will be 70%. Students will be given the opportunity to repeat in the event of initial failure. Extra consideration will be given to students who achieve a 100% score on the first attempt. In addition, 25% of the evaluation will be based on the student’s presentation of the 5 core cardiac clinical scenarios to the attending physician during the rotation.

**Number of M4 students per rotation (FSM and Visiting):** Two

**Number of weeks:** Four

**Site:** NMH

**First day report to:** CT-ICU (7 Feinberg) at 6:00 a.m.

**Thoracic Surgery**  
**SUR.4857.04.NMH**

**Clerkship Director:**
Shari Myerson, MD

**Clerkship Coordinator:**
Susan Lasater, 676 N. St. Clair, Ste. 650, slasater@nm.org, 312/695-4630

**Background and Justification:**

Lung cancer is the most frequent malignancy in men, and is the leading cause of cancer related death in men and women. Lung cancer causes more deaths than breast, colon and prostate cancer combined. The treatment and survival rate of lung cancer are clearly related to accurate preoperative staging. The overall 5-year survival rate for patients with non-small cell cancer is approximately 15% and 35% for patients who undergo resection. The incidence of esophageal cancer is increasing at an alarming rate and it surpassed only be melanoma. The
epidemiology of esophageal cancer is also changing and adenocarcinoma of the distal esophagus and gastroesophageal junction is now the most common histologic subtype. It has been clearly demonstrated that adenocarcinoma of the distal esophagus is linked to gastroesophageal reflux disease and intestinal metaplasia (Barrett’s mucosa). These two thoracic malignancies will continue to be common problems in medicine and form the core of thoracic oncology. Other problems encountered in general thoracic surgical practice include spontaneous pneumothorax, benign and malignant pleural effusions, and mediastinal pathology. As in other surgical specialties, the initial assessment and preoperative workup of patients with chest diseases is paramount. Great strides have been made in several areas of thoracic surgery including new surgical techniques and improved imaging modalities (CT scan and PET scan). There is no other rotation that offers exposure to patients with a variety of chest diseases.

**Goals:**
Familiarize the student with general aspects of diseases of the chest including lung cancer, esophageal cancer, pneumothorax, pleural effusions and mediastinal pathology.

**Objectives:**
- Describe the presenting symptoms of patients with lung cancer
- Describe the presenting symptoms of esophageal cancer
- Describe the clinical manifestations of pneumothorax
- Describe the clinical manifestations of patients with pleural effusion
- Discuss the management of patients with hemoptysis
- Discuss the types of pneumothorax
- Discuss the etiology and management of pleural effusion
- Discuss the evaluation of patients with lung and esophageal cancer
- Discuss the staging of lung cancer and esophageal cancer (T,N,M)
- Discuss the indications for chest tube thoracostomy
- Discuss the proper technique for insertion of chest tubes
- Discuss the indications for tracheostomy
- Describe the interpretation of normal chest x-rays
- Describe the interpretation of chest x-ray in lung cancer
- Describe the interpretation of a chest x-ray in pneumothorax
- Describe the interpretation of a chest x-ray in pleural effusion
- Discuss the etiology, assessment and management of hemoptysis

**Course Format and Proposed Schedule:**
The student will attend the thoracic surgery clinic and interview/examine patients under the supervision of the attending physician. The student will do rounds every morning under the supervision of the resident in charge of the service; the student will present cases to the attending physicians for discussion during morning rounds. The student will learn to gather clinical findings, vital signs, I’s and O’s and present the information in an organized fashion to the attending physicians and residents. The student will be present and observe operative procedures. There will be no call or weekend requirements.

**Evaluation and persons performing the evaluation:**
The student will be evaluated by the attending physician and the residents rotating in the service. At the conclusion of the rotation the student will perform a power point presentation of a topic of his/her choice to the thoracic surgery team. The student will have 30 minutes for the presentation and 10-15 minutes for questions and answers.

"**A personal statement is required. The LOR must be from a professor in the field.**"

**Number of M4 students per rotation (FSM and Visiting):** One
**Number of weeks:** Four
**Site:** NMH

**First day report to:** Cardiothoracic Intensive Care Unit, Feinberg 7th fl., at 6:45 a.m.
Trauma/Acute Care Surgery
SUR.6104.04.NMH

Clerkship Director:
Nabil Issa, MD
Clerkship Coordinator:
Anna Reczynski, Galter 3-150, areczyns@nm.org, 312/926-9411

*** This elective is not offered during Block 15 or Block 16. ***

Background and Justification:
This rotation will offer an intensive exposure to Trauma and Acute Care Surgery. Basic principles of life support, injury pattern recognition, resuscitation, operative and non-operative care, critical care, and the coordination of resources are all central components. The student is expected to participate as an integral part of the surgical team, evaluating consultations, attending trauma resuscitations, helping in the OR and with all aspects of daily care for patients while working closely with attending surgeons and residents in the in-patient care setting.

Goals and Objectives:
- Provide hands-on experience and increase understanding of Trauma mechanisms (blunt and penetrating) and how to manage those injuries
- Provide exposure to acute surgical emergencies and provides the student with insights of how to assess and manage such emergencies based on the best available evidence-based strategies. Introduces the student to principles of professionalism, system-based practice in addition to communication skills and how to function as a dependable team member

Evaluation and persons performing the evaluation: To be determined.

Number of M4 students per rotation (FSM and Visiting): One
Number of weeks: Four

Site: NMH

First day report to: Student will be emailed specific instructions in the weeks prior to the start date.
**Pediatric Urology**  
**URO.4701.04.LCH**

**Clerkship Director:**  
Dennis Liu, MD

**Clerkship Coordinator:**  
Katherine Ewing, 225 E. Chicago Ave., Box 24, kmewing@luriechildrens.org, 312/227-6406

**Background and Justification:**  
This rotation will expose students to the uniquely appealing blend of pediatric medicine and pediatric surgery offered in the field of Pediatric Urology. Time in the operating room and exposure to the outpatient management of pediatric urologic issues will be a valuable experience for students considering a career in a surgical subspecialty or in general pediatrics/ family medicine.

**Goals**
- Understand the evaluation and management of common pediatric urologic issues: antenatal hydronephrosis, urinary tract infection, vesicoureteral reflux, enuresis, undescended testis, hydrocele, phimosis, and hypospadias
- Recognize the long-term medical and surgical needs of children with neuropathic bladder and bowel dysfunction
- Understand the spectrum of severe congenital anomalies of the genitourinary tract (applied embryology).
- Learn the principles of genitourinary reconstruction and understand the potential long-term implications of reconstructive procedures

**Objectives**
By the end of the rotation, students will learn to:
- Interpret common imaging studies: renal ultrasound, voiding cystourethrogram and nuclear scans
- Obtain a thorough urologic history, including discussion of sensitive genitourinary issues
- Interpret urodynamic studies and formulate a plan for management of neuropathic bladder

**Course Format and Proposed schedule:**
Students are expected to participate in all aspects of the Pediatric Urology service, including evaluation of patients in the outpatient clinic and inpatient rounds. Students will identify cases of interest during preoperative conference and participate in the operative management and perioperative care of those patients. Attendance is expected at weekly didactics and surgical or medical/surgical conferences at LCH. Students will also attend Urology Grand Rounds on Thursday evening at NMH. There is no formal call for this rotation. Weekend responsibilities are limited and are at the discretion of the Chief Resident.

**Evaluation and persons performing the evaluation:**
Students will give an end-of-rotation presentation to the residents/fellows/attendings on a pediatric urology topic of interest. Standard Northwestern student evaluations will be completed by attending physicians at the end of the month of the rotation following standards for feedback on performance during the rotation. Students will meet with Dr. Liu at the mid-point and end of the rotation to ensure that the objectives of the rotations are being met. Additionally, the attending physician will use standard clinical scenarios to address any deficits in the objectives as well as to assist in the evaluation of the students.

**Number of M4 students per rotation (FSM and Visiting):** Two  
**Number of weeks:** Four

**First day report to:** Please contact the resident on the pediatric urology service by pager at least 2 to 3 days prior to the rotation. The student will be told where and when to meet on the first day of the rotation. Resident contact information will be distributed upon acceptance.
**Background and Justification**

Students are an integral part of the adult urology service, including inpatient and outpatient activities under the direction of the above doctors. They are expected to take part regularly in diagnostic and therapeutic endeavors under staff member’s direction. Attendance at teaching rounds is mandatory. Students are given the opportunity to take advantage of various teaching exercises within the Department of Urology during the clerkship. Under select circumstances, the student is permitted to assume an intern role. Each student will be assigned a faculty contact for the rotation and each is expected to meet with the faculty advisor during the clerkship. Emphasis is placed on developing case presentation skills and organizing patient data in concise, presentable fashion in a weekly case presentation didactic session.

**Goals and Objectives:**

A. Patient care

1. Gather essential and accurate information about patients necessary for postoperative care of inpatient urology service
2. Gather essential and accurate information about patients necessary for outpatient evaluation of urology clinic patients
3. Demonstrate daily physical examination skills relevant to postoperative care following urological surgeries and procedures
4. Physical exam skills
   a. Perform male genitourinary exam and identify a normal prostate as well as prostate nodule on digital rectal exam
   b. Distinguish between hydrocele and hernia in adult patient
5. Perform microscopic urinalysis and utilize results in patient care
6. Evaluate and interpret patient radiological studies and utilize results in patient care
   a. Triphasic CT scan of kidneys
   b. Abdomen KUB and acute abdomen series
   c. Diuretic renal scan
   d. Intravenous pyelogram
   e. Scrotal ultrasound
   f. Renal ultrasound
7. Formulate patient management plans in both the inpatient and outpatient setting and participate in implementation of those plans under the direction of upper level and attending physicians
   a. Utilize and interact with consulting services and support staff such as home care, social work, etc.
   b. Communicate with patients and their families in caring and respectful manner

B. Medical knowledge

1. Attend grand rounds and pre-op/mortality and morbidity conferences weekly

C. Interpersonal and communication skills

1. Be able to utilize effective listening skills to elicit accurate patient history using verbal and nonverbal skills
2. Work as an active member of inpatient team, take instruction from resident and attending staff
3. Interact with consulting services and support staff in professional and respectful manner
4. Work effectively with urology inpatient nurse practitioner
5. Interact with consulting services in polite, appropriate, and respectful manner when necessary

D. Professionalism

1. Be appropriate in dress and appearance
2. Put patients at ease during genitourinary exam
3. Develop greater comfort level performing genitourinary exam
4. Demonstrate a commitment to ethical principles pertaining to patient confidentiality and informed consent

E. Systems based practice
   1. Utilize and interact with consult services and hospital support staff, social workers, etc. to facilitate overall needs of patients
   2. Utilize hospital services to appropriately facilitate discharge for indigent or debilitated patients requiring further care

Course Format and Proposed Schedule:
Diversifying your service rotations at Northwestern allows you to develop a better understanding of the different services at Northwestern and their functions. During the four-week Urology senior elective, each senior student will spend one week on each of the academic urology services (RED and GREEN), one week on the private practice service (BLUE) and one week at the Veterans Administration (VA). Students are also expected to participate in clinical rounds as assigned; participation in all assigned activities is mandatory for this clerkship.

Required conferences include:
   • Grand Rounds and Resident Teaching Conference (Thursdays, 4:30-6:30 p.m.)
   • Pre-Op and M&M Conference (every Friday 7:30 a.m.)
   • GU Oncology (every other Friday morning 8:00 – 9:00 a.m.)

Evaluation and persons performing the evaluation:
Your grade will be based on the weekly small group discussions (40%) and your clinical evaluation(s) (60%). All faculty and residents are asked to evaluate students; Dr. Meeks will compile these into a final grade report.

Number of M4 students per rotation (FSM and Visiting): Four to six
Number of weeks: Four

Sites: Northwestern Memorial Hospital, Lurie Children’s Hospital

First day report to: Please contact the resident on your service(s) by pager at least 2 to 3 days before your rotation begins to find out where and when to meet your first day on each service. Resident contact information will be distributed upon acceptance.