

# 5a. General Surgery Curriculum

## GENERAL SURGERY

<b>Course title</b>	General surgery
<b>Course type</b>	Core rotation
<b>Duration</b>	12 weeks
<b>Major hospital sites</b>	Northwest Hospital, Randallstown, MD St. Agnes Hospital, Baltimore, MD Sinai Hospital, Baltimore, MD Montefiore, New Rochelle New Rochelle, NY
<b>Clinical chair</b>	Wyckoff Heights Medical Center, Brooklyn, NY <b>Dr. Leonard Maffucci</b>

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### CLINICAL CHAIR: DR. MADHU S RANGRAJ

#### 1. COURSE OVERVIEW:

<b>COURSE</b>	<b>General Surgery Core Rotation</b>
<b>LENGTH</b>	12 weeks
<b>SUPERVISING FACULTY</b>	Dr. Leonard Maffucci, Chair of Surgery Dr. Richard Pestell, Dean of Clinical Sciences
<b>MAJOR HOSPITAL SITES</b>	Northwest Hospital, Randallstown, MD St. Agnes Hospital, Baltimore, MD Sinai Hospital, Baltimore, MD Montefiore New Rochelle, New Rochelle, NY
<b>METHODS OF EVALUATION</b>	Attendance  Attitude, professional behavior,  Patient evaluation, case presentation and summaries [written and oral]  Knowledge of differential diagnosis, initial and ongoing therapies  Technical skills, where required  Oral and written quizzes

NBME Clinical clerkship examination

**GRADING**

Mid-course [6-week] formal feedback session [not part of final grade]

75% - Preceptor Evaluation

10% - Clinical Logs

10% - Final Examination [NBME]

5% - Attendance

Notes: A minimum passing grade on each area listed above is required to receive a final grade.

**On-call**

No grade will be given until complete clinical logs and multimedia assignments have been completed and submitted

No more than two times per week

**Note:** See the XUSOM Academic Policies and Procedures Manual for students for information on overall academic and financial policies governing all rotations.

## **2. COURSE DESCRIPTION:**

The surgical clerkship is an integrated, clinical experience designed to introduce the student to the basic concepts of surgical practice. This clerkship encompasses both in- patient and outpatient clinic experience based on a student-resident-attending physician teaching team. The goal of the rotation in surgery is to understand its role in the treatment of a patient. The emphasis during the rotation is NOT on surgical technique but on the understanding of the pathophysiology of disease, the use of surgical intervention, and the management of pre- and post-operative problems.

The overall goal of the surgical clerkship is to introduce the student to the broad aspects of the field of surgery, including the major surgical subspecialties. Through work in this clerkship, the student becomes familiar with proper consultative practices and understands the basic routines and sub-routines of surgical management. Finally the surgical clerkship serves to introduce the student to the fundamental aspects of surgical practice as a profession.

Instructional methods include series of lectures, group discussions, observation, Grand Rounds, clinical/hospital interaction, assignments, and case studies under the direction of the doctors and/or senior residents at the hospital, clinic, or private office. Students will further demonstrate knowledge of the core through completion of case studies and assignments as determined by the doctors and/or senior residents.

## **3. OBJECTIVES OF CLINICAL SKILLS TRAINING (MODIFIED AND ADOPTED FROM ASSOCIATION OF AMERICAN MEDICAL COLLEGE (AAMC) GUIDELINES FOR UNDERGRADUATE MEDICAL EDUCATION (UME):**

The American College of Surgeons (ACS) Division of Education and the Association for Surgical Education (ASE) have collaborated to develop resources for medical students. The ACS/ASE Medical Student Core Curriculum addresses the competency-based surgical cognitive skills needed by all medical students, not just those pursuing surgery, prior to graduation.

**Patient Care:**

- Perform and interpret a relevant, problem-focused history and physical examination in a surgical patient.
- Formulate and justify a prioritized problem list and differential diagnosis in a surgical patient.

- Formulate and justify a plausible plan of care for a surgical patient in the peri-operative time.
- Describe effective methods for providing patient education for disease process, surgical procedure or peri-operative plans.
- Demonstrate surgical skills through faculty or resident verification, including an understanding of the indications, performance steps and potential complications of the skills listed on CANVAS.
- Identify and demonstrate aspects of maximal barrier precautions and sterile preparation/technique in the performance of common procedural and operative skills, including Hand Washing, Gloving and Gowning, and Aseptic Technique (Orientation).

**Medical Knowledge:**

- Differentiate normal and abnormal structure, function, growth and/or development in a surgical patient.
- Explain the etiology, progression and/or prognosis of diseases, injuries and functional deficits commonly seen in surgical patients.
- Perform and interpret a relevant, problem-focused history and physical examination in a surgical patient.
- Describe the diagnosis, prevention, treatment or management of common of diseases, injuries and functional deficits commonly seen in surgical patients.
- Analyze and evaluate diagnostic and therapeutic options using principles of evidence-based medicine.

**Practice-Based Learning and Improvement:**

- Respond to clinical questions by independently seeking, analyzing and synthesizing evidence based answers to advance clinical decision-making.
- Seek, accept and apply feedback to clinical practice.

**System-Based Practice:**

- Identify the role and contributions of and establish respectful, effective relationships with the various members of the multi-professional health care team.
- Recognize the potential impact of a patient’s social context and analyze how it relates to their current state of health.
- Recognize the necessity to comply with national standards to inform patients regarding procedural intervention, specifically the risks and potential complications.

**Professionalism:**

- Demonstrate responsiveness to the whole patient by advocating for the patients’ and teams’ needs over their own and treating patients in a fair, unbiased, nonjudgmental manner.
- Demonstrate responsibility for one’s own learning through daily preparation, full participation in learning activities, initiative in patient care, and timely completion of clerkship requirements.
- Act in a professional manner by demonstrating compassion, respect, honesty, integrity and punctuality
- Adhere to ethical and legal principles in all interactions.

**Interpersonal and Communication Skills:**

- Communicate effectively with members of the health care team by clearly presenting clinical questions and data from the patient encounter.
- Communicate effectively with patients and their families by listening attentively, allowing opportunities for questions, and maintaining appropriate eye contact.
- Modify communication style based upon patients’ reactions and ability to understand.
- Identify the critical components of informed consent that allow a patient and physician to decide together the best course of action for disease, problem and patient management.

- Construct oral presentations or written documents representing an organized, focused, account of the student-patient interaction.

#### 4. LINKAGE WITH THE EDUCATIONAL OBJECTIVES OF XUSOM:

XUSOM Educational objective	Course objectives	Learning methods	Assessment methods
<p><b>The Science and Practice Of Medicine</b></p> <ul style="list-style-type: none"> <li>• Apply scientific principles and a multidisciplinary body of scientific knowledge to the diagnosis, management, and prevention of clinical, epidemiologic, social and behavioral problems in patient care and related disciplines.</li> <li>• Understand the variation in the expression of health and disease through critical evaluation of both patients and the scientific literature.</li> <li>• Apply knowledge of study design and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate knowledge of scrubbing and sterile technique, proper conduct and attire in the operating room</li> <li>• Demonstrate proficiency in the principles of tissue response to injury, handling of the tissues, wound healing, location of incisions, wound closures, suture material and basic technique of surgical management</li> <li>• Demonstrate knowledge of fluid management in the patient with burns or traumatic shock</li> <li>• Demonstrate proficiency in knowledge of basic surgery as outlined in the objectives of the learning modules which follow.</li> </ul>	Lectures Group discussions Observation Grand rounds Clinical/hospital interaction, Assignments Case studies	Preceptor Evaluation Log books Multimedia assignments On-call evaluation
<p><b>Clinical Competence</b></p> <ul style="list-style-type: none"> <li>• Obtain a sufficient level of medical knowledge to understand the basic facts, concepts, and principles essential to competent medical practice.</li> <li>• Exhibit the highest level of effective and efficient performance in data gathering, organization, interpretation and clinical decision making in the prevention, diagnosis, and management of disease.</li> <li>• Communicate effectively using caring and respectful behaviors when interacting with patients, families and members of the health care team.</li> <li>• Perform all technical procedures accurately and completely, to the extent considered essential for the area of practice and level of education</li> <li>• Understand and appropriately use medically related information technology</li> <li>• Effectively use the resources of the entire health care team in treating disease, preventing future health problems and maintaining the health of individuals</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a problem list, differential diagnosis, and plan of investigation</li> <li>• Actively participate in diagnostic maneuvers, pre-operative preparation, and postoperative management</li> <li>• Formulate appropriate management orders and record daily progress of the patient in the problem-oriented medical record (POMR) format</li> </ul>	Lectures Group discussions Observation Grand rounds Clinical/hospital interaction, Assignments Case studies	Preceptor Evaluation Log books Multimedia assignments On-call evaluation
<p><b>The Social Context Of Medicine</b></p> <ul style="list-style-type: none"> <li>• Understand and respond to factors that influence the social, behavioral, and economical factors in health, disease and medical care working to be able to provide care that is of optimal value.</li> <li>• Advocate for quality patient care and assist patients in dealing with system complexities</li> <li>• Begin to understand the complexities of the entire health care practice and delivery system, managers, payers, providers, organizations and bureaucracy in defining access, cost, value and outcomes</li> </ul>	<ul style="list-style-type: none"> <li>• Perform a basic evaluation of a traumatized patient and outline the priorities of management</li> <li>• Observe and/or perform with supervision, emergency department procedures, such as laceration closure, abscess drainage, insertion of chest tubes, management of simple fractures, and other similar procedures</li> <li>• Perform initial and followup outpatient evaluations and record them in a format unique to the setting</li> </ul>	Lectures Group discussions Observation Grand rounds Clinical/hospital interaction, Assignments Case studies	Preceptor Evaluation Log books Multimedia assignments On-call evaluation

## Communication

- Demonstrate effective and compassionate interpersonal communication skills toward patients and families necessary to form and sustain effective medical care.
- Present information and ideas in an organized and clear manner to educate or inform patients, families, colleagues and community.
- Understand the complexity of communication including non-verbal, explanatory, questioning and writing in a culturally appropriate context

- Consistently obtain a reliable and organized patient history and physical examination, recorded in a problem oriented format  
Lectures Preceptor Evaluation  
Group discussions Log books
- Present pertinent findings and therapeutic alternatives, and the rationale for each, to the attending faculty and colleagues  
Observation Multimedia assignments  
Grand rounds On-call evaluation  
Clinical/hospital interaction,  
Assignments

## Professionalism

- Display the personal attributes of compassion, honesty and integrity in relationship with patients, families, and the medical community.
- Adhere to the highest ethical standards of judgment, conduct and accountability as each applies to the health care milieu.
- Demonstrate a critical self-appraisal in his/her knowledge and practice of medicine, as well as received and give constructive appraisal to/from patients, families, colleagues and other healthcare professionals.
- Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices
- Demonstrate sensitivity and responsiveness to patients' culture, age, gender and disabilities

- Observe the important aspects of the operative procedure on all patients personally evaluated  
Lectures Preceptor Evaluation  
Group discussions Log books  
Observation Multimedia assignments  
Grand rounds On-call evaluation  
Clinical/hospital interaction,  
Assignments  
Case studies

## Lifelong Learning

- Understand the limits of personal knowledge and experience and demonstrate the intellectual curiosity to actively pursue the acquisition of new scientific and clinical knowledge and skills necessary to refine and improve his/her medical practice, assure excellent care of patients, or to contribute to the scientific body of medical knowledge throughout a career.
- Understand the concepts of analyzing practice experience and perform practice-based improvement activities using a systematic methodology
- Understand methods to obtain and use information about their own population of patients and the larger population from which their patients are drawn

- Become familiar with and demonstrate, where appropriate, the various outpatient procedures and practices unique to a given surgical specialty  
Lectures Preceptor Evaluation  
Group discussions Log books  
Observation Multimedia assignments  
Grand rounds On-call evaluation  
Clinical/hospital interaction,  
Assignments  
Case studies

## 5. OVERALL CURRICULUM:

### Note to the student:

- This is a suggested weekly curriculum undertaking a **minimum of 2-3 modules or topics per week.**
- By the end of the rotation, the student should have covered all topics listed.
- The individual preceptor, based on scheduling, patient population and other factors may alter the order of the topics or assignments.
- In addition, the student should complete all Skills Modules

- At the end of week 6 the student should request a **Formative Mid-rotation Evaluation** from the preceptor on their progress.
- At the end of week 10 or beginning of week 11, the student should **ensure that Final Summative Examination has been scheduled prior to the written shelf exam.**

### **Module 1: Shock**

- Recognize the clinical signs of hypovolemic shock and relate them to the underlying physiologic changes.
- Devise an initial plan for the patient in hypovolemic shock due to bilateral femoral fractures and suspected abdominal visceral injury.
- Describe the critical objective measurements that may be monitored in the shock patient.
- Outline the cardiovascular response to acute hypovolemia.
- Detail factors which aid the physician in deciding whether to use blood or crystalloid solution for fluid replacement.
- Differentiate other types of shock: septic, cardiogenic, anaphylactic, and neurogenic.
- Describe the complications of prolonged shock.

### **Assignments**

Lawrence, Chapters 1, 3, 4, 5

### **Module 2: Abdominal Trauma**

- Write initial plans for a patient with suspected blunt abdominal trauma and penetrating trauma.
- Work up of patients with abdominal trauma – which may include plain x-rays, sonogram, CT scan.

### **Assignments**

Lawrence, Chapters 2, 9

### **Module 3: Pediatric Surgery and Trauma**

- Describe and recognize the main differences between the adult and pediatric trauma patient.
- Describe the basic problems encountered with burns in pediatric patients.

### **Assignments**

Lawrence, Chapters 3, 5, 9, 10

### **Module 4: Head Injuries**

- Become acquainted with the Glasgow Coma Scale.
- Know the principles and early management of head injuries.
- Understand mechanisms of injury and associated injuries e.g. cervical spine.

### **Assignments**

Lawrence, Chapters 6, 9

### **Module 5: Intestinal Obstruction**

- Define obstruction and paralytic ileus.
- Characterize the main categories of mechanical obstruction and list examples of each.

- Describe the pathophysiology of fluid and electrolyte disturbances resulting from bowel obstruction.
- Describe the laboratory and radiographic studies that are of greater value in diagnosis of intestinal obstruction.
- Present the indications for urgent or deliberate surgical management.
- Outline the essentials of pre-operative management.

### **Assignments**

Lawrence, Chapters 4, 13, 14, 15

### **Module 6: Arterial Vascular Disease**

- Describe signs and symptoms of abdominal aortic aneurysm. Describe the tests necessary to reach that diagnosis. Outline the management of abdominal aortic aneurysm.
- Describe the pathophysiology of peripheral arterial occlusive disease.
- Become competent in detailed examination of the vascular system.
- Understand the principals involved in peripheral vascular procedures (including endovascular).
- Describe the signs and symptoms of cerebral transient ischemia attacks and outline the tests used for diagnosis, principles of carotid artery disease.
- Describe the clinical course of thromboembolic disease, and discuss the methods of management.

### **Assignments**

Lawrence, Chapters 22

### **Module 7: Venous Disease**

- Review the venous systems of the lower extremity, the significance of the muscle pump and valvular incompetence.
- Understand the principles of management of varicose veins.
- Understand the pathophysiology of venous ulcer. See patients with venous ulcers, and understand the principles of treatment.
- Know the diagnosis and treatment of superficial venous thrombosis, deep venous thrombosis (DVT), phlebotic syndrome, and PE.

### **Assignments**

Lawrence, Chapter 22

### **Module 8: Appendicitis**

- Given a list of age brackets, identify the age group in which the incidence of appendicitis is highest, and be aware of the major differential diagnoses in each age group and gender. Know the management of acute appendicitis and its complications.

### **Assignments**

Lawrence, Chapter 14

### **Module 9: The Acute Burn**

- Classify burns, etiology and staging.
- Estimate the area of burn using tables and the rule of nines in adults versus infants.
- Discuss the principles of initial burn management.

- Discuss the basics of fluid replacement in the burn patient. Use the Parkland Formula to calculate fluid requirements for resuscitation.
- Discuss the basics of burn wound care methods and various antibiotics topical preparations.
- Discuss major complications and causes of mortality in burn patients.
- Describe and recognize late problems after healing has occurred.

### **Assignments**

Lawrence, Chapter 10

### **Module 10: Abdominal Wall hernia**

- Define hernia and describe the different types of abdominal wall hernias.
- Demonstrate understanding of incidence, etiology, complications, operative risks, and potential consequences of failing to give proper advice to patients concerning care of abdominal wall hernias.
- Outline the fundamentals of surgical hernia repair of various groin, umbilical, and ventral hernias.
- Define specified terms related to abdominal wall hernias - reducible, incarcerated and strangulated.
- Physical examination of hernias and genitalia.

### **Assignments**

Lawrence, Chapter 11

### **Module 11: Surgery of the Breast**

- Discuss the frequency of the various masses of the breast and their appropriate treatment.
- Breast examination - be competent at assessing breast masses.
- Describe the specific signs associated with cancer of the breast.
- Outline the management of benign and malignant diseases of the breast.

### **Assignments**

Lawrence, Chapter 19

WISE-MD Case Module: Breast Cancer Surgery

### **Module 12: Biliary Surgery**

- Describe the usual gross anatomy of the Biliary System and give the physiologic function of each of its parts.
- Outline the signs and symptoms of acute and chronic gallbladder disease and the diagnostic tests used in detection.
- Describe the rationale for treatment of biliary colic; prolonged acute obstructive cholecystitis in young and healthy vs. old and feeble patients.
- Outline the diagnostic procedures necessary to differentiate obstructive from non- obstructive jaundice.
- Describe the proper treatment of common duct obstruction.

### **Assignments**

Lawrence, Chapter 16

### **Module 13: Surgical Disease of the Liver, Spleen, and Pancreas**

- Discuss the significance, signs, symptoms and complications of traumatic injury to the liver.

- Discuss the management of portal hypertension.
- Recognize a traumatic rupture of the spleen and describe those diagnostic tests necessary to determine rupture.
- Identify those disorders where splenectomy is indicated.
- Describe those conditions associated with acute pancreatitis.
- Discuss the basic management of acute pancreatitis.
- Describe and recognize the signs and symptoms of cancer of the pancreas and outline the tests used to make such a diagnosis. Describe the surgical options for periampullary and pancreatic tumors.

### **Assignments**

Lawrence, Chapters 17, 18, 21

### **Module 14: Colon and Rectal Surgery**

- Describe common ano-rectal conditions - hemorrhoids, Fissure-in-ano, fistula-in-ano, perianal abscess, ischio-rectal abscess.
- Describe management of patients with large bowel disease diverticulosis, diverticulitis, inflammatory bowel disease (ulcerative colitis, Crohn's ischemic colitis) and colonic polyps.
- Observe endoscopy of the colon and rectum and barium enema.
- Perform a digital rectal examination.
- Describe the adenoma-carcinoma sequence and treatment of colorectal cancer.

### **Assignments**

Lawrence, Chapter 15

### **Module 15: Endocrine Surgery**

- Describe the common types of thyroid nodule, the pathophysiology of their diseases, tests for diagnosis and therapy;
- Describe the common types of parathyroid nodule, the pathophysiology of their diseases, tests for diagnosis and therapy;
- Describe the common types of adrenal gland adenoma, the pathophysiology of their diseases, tests for diagnosis and therapy
- MEN Syndromes, Pheochromocytoma, Management of Adrenal Incidentaloma

### **Assignments**

Lawrence, Chapter 20

### **Module 16: Peptic Ulcer Disease, the Stomach**

- Clarify the important differences between gastric and duodenal ulceration.
- Prepare an initial plan for the management of the patient with surgical complications of peptic ulceration of the stomach or duodenum, describe indications for surgery, and know the sequelae of peptic ulcers.
- Discuss stress ulcer symptomatology and describe its management.
- Name and describe briefly the currently acceptable surgical procedures for peptic ulcer disease and understand the underlying physiological principles.
- Describe the effects of gastrin-producing tumors and the role of H pylori in peptic ulcer Disease
- Demonstrate awareness and understanding of the three primary sequelae of surgical management of peptic ulcer disease.

## **Assignments**

Lawrence, Chapter 13

### **Module 17: Thoracic Surgery**

- Know the work-up of a solitary lung mass.
- Get an overview of tumors in the chest by location.
- Understand the principles of surgical management of lung cancer.
- Get an overview of benign and malignant esophageal conditions.

## **Assignments**

Lawrence, Chapter 12

### **Module 18: Transplant surgery**

- Get an overview of the status of transplant surgery in the USA and worldwide.
- Understand the immunological aspects of transplant surgery.
- Know the drugs commonly used in transplant surgery.
- Appreciate the complications associated with transplanted organs

## **Assignments**

Lawrence, Chapter 23

## **6. LEARNING RESOURCES:**

### REQUIRED READING

1. Essentials of General and Surgery Specialties – 6th edition Wolters Kluwer Health, Philadelphia, 2019

### SUPPLEMENTAL OR ALTERNATIVE READING

1. Surgery: A Case Based Clinical Review (De Virgilio)--Great to skim relevant chapters regarding perioperative care of relevant topics
2. Dr Pestana's Surgery Notes (6th Edition)--Excellent quick read for broad overview of surgical topics. High yield review for shelf and USMLE Step 2 CK
3. Case Files Surgery (6th Edition), Lange---Same as above, high yield review

QUESTION BANKS(1) U World--Step 2 CK and Shelf Exam Q Bank: ? "Gold Standard"  
(2) Amboss--Step 2 CK supplement

PRACTICE EXAMS-- [www.nbme.org/assessment-products/assess-learn/subject-exams](http://www.nbme.org/assessment-products/assess-learn/subject-exams)

VIDEOS-- Online MedEd [onlinemeded.org/spa/surgery-general](http://onlinemeded.org/spa/surgery-general)