Note: At MSUCOM, we are constantly working to improve our curriculum and to meet new AOA accreditation guidelines. While major changes will generally be instituted at the beginning of the school year, most minor changes may be implemented semester to semester.

Please be mindful of the need to read your syllabi before beginning your core rotations.
The surgery clerkship consists of four weeks on general surgery. General surgery should include exposure to a variety of surgical topics and experiences. Exposure to the topics will be through reading, lectures, seminars and hands-on experiences.

The service should be organized to provide the maximum degree of practical clinical exposure and learning in the areas of diagnosis, management and therapy in surgery, which is consistent with a third-year osteopathic medical student's level of knowledge. Opportunities for learning such as lectures, reading, consults and history and physical examination (H&P) review will be available.

THE GOALS OF THE SURGERY CLERKSHIP ARE TO:
1. Promote the student's attainment of a fundamental surgical knowledge base.
2. Introduce the student to basic surgical procedures.
3. Facilitate understanding of a surgical approach to clinical problem solving.
4. Promote acquisition of basic surgical diagnosis and management capabilities.
5. Promote the continued development of the student's professional attitudes and behavior.

OBJECTIVES

THE GENERAL SURGERY CLERKSHIP LEARNING OBJECTIVES ENCOMPASS THREE MAIN AREAS.
- Knowledge (cognitive)
- Skills (psychomotor)
- Problem Solving & Professional Development
KNOWLEDGE

The operating room focuses on establishing and maintaining a sterile environment that most students have not previously encountered. To support your performance in the operating room you are expected to review “General Operating Room Conduct and Skills” prepared by the Surgery Department at Oakwood Southshore Hospital as a prerequisite to beginning your General Surgery rotation.

By the end of the surgery clerkship, the student is expected to have achieved an understanding of the following objectives through reading, discussion and hands-on experience. Chapter references are from Essentials of General Surgery by Peter F. Lawrence (L) and Sabiston Textbook of Surgery (S). Completion of these readings is essential for a successful COMAT Exam.

By the end of the clerkship, given a patient scenario in a hospital/clinical setting, students should be able to do the following with accuracy:

- **Acute Abdomen**
  - pp: 1219-1225 (S)
  - Discuss the history and physical exam of the abdomen.
  - Analyze the more common causes of an acute abdomen.
  - Compare and contrast the relationship of location and etiology of abdominal pain.

- **Postoperative Complications**
  - Ch. 2 (L)
  - Discuss common postoperative complications:
    - Fever
    - Atelectasis
    - Wound Failure
    - Site Infection
  - Analyze the various etiology, presentation, evaluation and treatment of malignant hyperthermia.

- **Fluids and Electrolytes**
  - Ch. 3 (L)
  - Identify normal electrolyte and pH values.
  - Discuss sources of operative and postoperative fluid losses and replacement.
  - Analyze the presentation and evaluation of Syndrome of Inappropriate Secretion of ADH and electrolyte imbalance and discuss treatment.
  - Compare presentation, diagnosis and treatment of Acid-Base Imbalance.

- **Nutritional Support**
  - Ch. 4 (L)
  - Discuss the assessment of nutritional status and basic nutritional needs.
  - Discuss indications and techniques of nutritional support.

- **Coagulation & Transfusion**
  - Ch. 5 (L)
  - Be able to diagram and explain the coagulation pathways.
  - Discuss the evaluation of bleeding and clotting disorders.
  - Discuss the evaluation and treatment of a bleeding patient.
  - Analyze component blood therapy and its complications.

- **Shock**
  - Ch. 6 (L)
  - Describe the primary mechanisms of shock and their etiology.
  - Discuss the evaluation and treatment of the primary mechanisms of shock.
Wounds and Wound Healing  
- Distinguish between the types and treatments of skin ulcers.
- Compare and contrast the various types of suture material and their advantages and disadvantages.
- Compare and contrast the various types of local anesthetics and their dosages.
- Discuss the process of wound healing.

Antibiotic Therapy  
- Analyze the difference between prophylactic use and the treatment of infection.
- Discuss the bacteriology of common surgical infections.

Trauma  
- Rank the steps and priorities of evaluating a patient with multiple injuries.
- Discuss the Glasgow Coma Scale.

Burns  
- Classify the various depths of burn injuries.
- Discuss the principles of burn care including fluid replacement.
- Be able to calculate Body Surface Area.
- Discuss the types and treatment of inhalation injury.

Hernia  
- Discuss the layers of the abdominal wall and assess how they pertain to abdominal wall hernias.
- Distinguish between the various types of abdominal wall hernias and their repairs.

Esophagus  
- Differentiate the anatomy and physiology of the esophagus relative to its functional disorders.
- Compare and contrast between the different types and treatments of benign and malignant esophageal neoplasms.

Peptic Ulcer Ds  
- Discuss the physiology of gastric acid production.
- Explain the various complications of peptic ulcer disease.

Small Bowel & Appendix  
- Discuss Meckel’s diverticulum and its indications for resection.
- Discuss the presentation and evaluation of appendicitis.
- Compare and contrast the benign and malignant lesions of the small bowel and appendix.
- Discuss the presentation, evaluation and etiology of small bowel obstruction.

Colon & Rectum  
- Discuss the anatomy of the colon to include its divisions, arterial and lymphatic supply.
- Compare inflammatory bowel disease and its complications.
- Analyze possible complications and treatment of diverticular disease.
- Discuss the etiology and evaluation of transrectal bleeding.
- Analyze the various premalignant conditions of the colon.
• Discuss the staging and metastatic pattern of colon cancer.
• Discuss the evaluation and treatment of hemorrhoids and perirectal abscesses.
• Discuss the staging and treatment of rectal cancer.

Gall Bladder Ch. 17 (L)
• Analyze the anatomic structures associated with the gall bladder.
• Assess the presentation and evaluation of cholecystitis.
• Discuss the bacteriology of acute cholecystitis.
• Discuss cholelithiasis and its many possible layers of complications

Pancreas Ch. 18 (L)
• Discuss the presentation, etiology and evaluation of pancreatitis.
• Discuss the difference between acute and chronic pancreatitis.
• Discuss the complications of pancreatitis.
• Discuss the presentation, evaluation and treatment of pancreatic cancer.

Liver Ch. 19 (L)
• Distinguish between and describe the three common benign tumors of the liver and their treatments.
• Describe the various acute and chronic forms of hepatitis.
• Explain the testing guidelines for the various types of hepatitis.
• Discuss the difference in presentation of primary and metastatic liver cancer.

Breast Tumors Ch. 20 (L)
• Categorize the more common forms of benign and malignant breast disease.
• Demonstrate the evaluation of a breast mass.
• Discuss the staging of breast cancer and the signs of advanced disease.

Surgical Endocrinology Ch. 21 (L)
• Analyze the relationship anatomy of the thyroid gland.
• Discuss the physiology of the thyroid and its functional abnormalities.
• Categorize the benign and malignant forms of thyroid nodules.
• Discuss the evaluation of a thyroid nodule.
• Discuss the function of the adrenal glands.
• Discuss the presentation of benign and malignant adrenal tumors.

Spleen Ch. 22 (L)
• Discuss the examination of the spleen.
• Discuss etiology and treatment of splenomegaly.
• Discuss the effect of splenectomy on the immune status of children and adults.

Skin Cancer Ch. 25 (L)
• Discuss the presentation and treatment of the three most common skin cancers.
• Discuss the staging of malignant melanoma.
SKILLS

By the end of the clerkship, the student is expected to have satisfactorily performed, at least once, those skills and procedures listed on the Skills Checklist attached to this syllabus. The student is expected to understand the indications and contraindications, as well as the technique.

Students will record their procedures in ENCORE.

Skills listed on the checklist include:

- Perform physical examination of acute abdomen
- Perform a surgical hand scrub
- Gown and glove
- Prep and drape a surgical field
- Administer local anesthetic
- Tie surgical knots wearing surgical gloves
- Perform one-handed surgical ties
- Perform instrument ties
- Suture/staple skin incision
- Peripheral IV insertion
- Nasogastric tube insertion
- Foley catheter insertion
- Patient teaching, incentive spirometry, drain care, etc.
PROBLEM SOLVING AND PROFESSIONAL DEVELOPMENT

By the end of the clerkship, the student is expected to have achieved a satisfactory level of performance and development in the areas listed on the Surgical Clinical Evaluation. Specifically, the student should demonstrate acceptable levels of achievement in his/her ability to:

1. Take a history from a surgical patient.
2. Conduct a physical examination on a surgical patient.
3. Interpret clinical findings logically and concisely, to arrive at a surgical diagnosis and management plan.
4. Develop and maintain complete and concise record of patient problems, including history and physical examination reports, preoperative and postoperative orders, and progress notes.
5. Develop and give accurate and concise case presentations.
6. Follow operating room protocol.
7. Develop rapport with patients by taking in a calm, confident approach, using appropriate language, listening and showing courtesy and concern for the patient's well being.
8. Show evidence of continued professional development by interacting effectively with peers and other health care personnel, taking responsibility for patient care, and showing a degree of self-confidence appropriate to his/her level of knowledge.
9. Show motivation for learning and achievement by taking responsibility for his/her own learning (reading and other responsibilities), being available and prepared, and showing a consistent warm and caring attitude toward patients and health care personnel.
COURSE/ROTATION REQUIREMENTS

Achievement of clerkship objectives will be assessed as follows:

1. CLINICAL EVALUATION (Rating form): The Clinical Evaluation form will be used to assess your proficiency at surgical problem solving and professional development. The Student is encouraged to review the Clinical Evaluation with the Clinical Instructor during the first week of the clerkship to help plan the rest of the rotation. At the end of the clerkship, you must be sure to work out a time for the supervising resident or the Clinical Instructor to complete a Clinical Evaluation for you. You should review the evaluation with your instructor before you leave the service.

2. SKILLS CHECKLIST: All items on the Skills Checklist are expected to be completed while on rotation. It is up to you to find opportunities to practice the skills and get someone to observe you. Students will record procedures in ENCORE.

3. REQUIRED ROTATION LOGS: When working in the hospital, keep a log of all your daily patient encounters. You must record these encounters in the online ENCORE logging system. You must record all patients you observe and attend to each day. Please refer to the ENCORE logging system protocol for details.

4. SURGERY NBOME COMAT EXAM: All students are required to take the NBOME subject shelf examination in General Surgery in order to receive a “Pass” grade for this rotation. Students must take the Surgery exam on the last Friday of the core Surgery rotation. Please contact Ms. Evita Gilbert (517-432-5423 / gilber10@msu.edu) for exam dates/times. The exam is offered on the Michigan State University campus, the DMC, and Macomb University Center. Western Michigan University School of Medicine, Mercy General, Munson Medical Center, McLaren Bay Regional Medical Center, and Lakeland Healthcare will administer exams only for students based at their hospital. The exams are 2½ hours in length and contain 125 questions.

   **Exam Attendance**

   Recognizing that the college’s current resources for the administration of online exams are limited, students will be asked to commit to a specific exam location and scheduled exam time substantially before the scheduled exam date. Due to the substantial teamwork that is needed to scheduling COMAT exams among college and NBOME staff, students cannot make late, last minute changes in these schedules.

   **Exam Score Reporting**

   The departmental chair and course faculty will evaluate individual student performance on the online COMAT examination relative to overall performance of the national cohort. Students identified as scoring below the 20th percentile on a COMAT exam will be notified by the respective department.

   The exams are offered as an opportunity to prepare for the NBOME licensure exam. Students performing poorly may anticipate similar results and possible failure of their licensure exam. Further study and review is encouraged.
5. To support your performance in the operating room you are expected to review “General Operating Room Conduct and Skills” prepared by the Surgery Department at Oakwood Southshore as a prerequisite to beginning your surgery rotation.

6. At the completion of the rotation, please fill out the end-of-rotation student evaluation that is online: [http://kobiljak.msu.edu/Evaluation/UnitIII.html](http://kobiljak.msu.edu/Evaluation/UnitIII.html)

A "P" grade in surgery will be based on satisfactory performance on the Clinical Evaluation form, the COMAT exam, and completion of the checklist and rotation logs in the ENCORE logging system. **Requirements are due by the indicated due date.**

**REMEDIATION:** If two or more ratings of "unsatisfactory" are received on the Clinical Evaluation form, the Evaluation form will be reviewed by the Department Chairperson, the DME at your base hospital and with you. Based on a complete review of your overall performance, a final grade will be recommended.
LEARNING ACTIVITIES

Available learning activities will differ from hospital to hospital, both in kind and amount. The following are examples of learning activities you as a student should participate in when they are available at the hospital where you are doing your surgery rotation.

1. READING: Read about the diseases and procedures you see each day. Discuss your reading with the intern, resident and attending for their suggestions and experiences. Read surgical textbooks. Essentials of GENERAL SURGERY, by Peter F. Lawrence is suggested, but many excellent texts are available. Review books are meant for review. They do not provide the scope of basic information you need to acquire at this level of your training.

2. H&P REVIEW: A major portion of your time will be devoted to conducting patient history and physical examinations. These, in themselves, are excellent learning opportunities. This is your opportunity to actually study the patient and the disease process. They are truly a living textbook. Learning to perform a meaningful H&P is a tremendous step toward becoming an outstanding diagnostician. After completing an H&P, read about the patient’s primary disease process. Learn what questions you may have not asked that would have provided more information. You should make every effort to have your H&Ps reviewed by your supervisor or by an Intern or Resident to insure its accuracy and to improve your recording skills.

3. SCRUBBING ON SURGERIES: Depending on the hospital, you will be a member of the surgical team. This is usually based on how many Interns and Residents there are on the surgery service and their policy regarding students scrubbing on cases. If you are aware you will be scrubbing on a surgery, prepare for it by reading and/or discussing it with your supervisor or an Intern or Resident. Read about the disease process involved as well as the anatomy relative to the procedure. Review the basic steps involved with the procedure. Know the more common potential complications, how they present and how they are treated.

4. MORNING REPORT: Morning report programs are directed at providing up-to-date information on topics in various medical and surgical disciplines, as well as updating house staff and attendings on recently admitted patients. If your hospital has a morning report program, you are expected to attend. Include a list of your attendance to include the speaker and topic with your surgery daily log.

5. LECTURES: Lectures on various topics are usually given at noon at least once a week. They are intended to provide up-to-date information on clinical and research findings and techniques in various fields. They may be given by a guest speaker who is an expert on the topic. If your hospital has a mid-day or other regular lecture program, you are expected to attend. Include a list of your attendance to include the speaker and topic with your surgery daily log.

6. SEMINARS: Some hospitals offer several-day seminars once or twice a month as a continuing education service to their community. The seminars usually focus on specific diagnostic and management problems or techniques. Include a list of your attendance to include the speaker and topic with your surgery daily log.

7. CONSULTATION: Depending on the hospital, you will be expected to participate in surgical consults. The specific procedure for students doing and presenting consults differs from hospital to hospital. Be aware of the procedure for doing and presenting consults at your hospital. Be available to participate in consults. If you know you are going to be doing a consult, prepare for it by reading and/or discussing it with your supervisor or an Intern or Resident on your service.