

# SURGERY - MD (SURG)

## SURG 700: Surgery Clerkship

12 Credits/Maximum of 12

The surgery clerkship introduces students to the basic principles of surgery and the basic principles of caring for the surgical patient. It is NOT the purpose of the surgical clerkship to train medical students in the technical practice of surgery or to interest only those students who intend to pursue a career in surgery. Rather, the clerkship is designed to equip all students with the knowledge, skills, and attitudes relevant to surgical patient management that ALL physicians should possess. Through this exposure, the student will begin to understand the general process of the application of surgical therapy to patients across the age spectrum and in different stages of disease. Furthermore, by participating as a member of the surgical team, the student will experience the professional role of the surgeon as a member of a multidisciplinary team that provides care for and communication about a patient within a complex healthcare system. At all points during the rotation, discussion and attention should be paid toward the quality, safety, and value of the care being rendered. It is the responsibility of all team members (staff, students, residents, fellows and faculty) to continually ensure a respectful learning environment that is welcoming to the diversity of individuals that make up and strengthen our academic health system. The clerkship is structured upon the principle that learning is an active process which can be accomplished only by the engaged student. This is facilitated by the identification of learning goals and prospective planning. The role of the faculty and house staff (where applicable) is to provide collaboration, guidance, stimulation, and role modelling. All of this is intended to make the student a partner in the community of learners that is academic surgery. During this core clerkship experience, students will learn pre- and post-operative management, participate in surgical procedures, and gain exposure to the initial management of traumatically injured patients. Great emphasis will be placed upon the skill of critical thinking and reasoning to arrive at an optimal, evidence-based therapy for the patient.

**Prerequisite:** Successful completion of Phase I coursework & pass Step 1

## SURG 710: General Surgery Acting Internship

6 Credits/Maximum of 6

The overarching goal is to have you function as an intern on a busy surgery service. Core Acting Internship rotations at Penn State emphasize students' active role on the team to ensure readiness for residency. In their role as acting interns, students on Core AI rotations will develop increasing proficiency and independence in developing plans of care, entering orders, preparing and performing patient handoffs, appropriately evaluating and responding to changes in patients' clinical conditions, and applying evidence-based care to patient management. This should include developing time management skills, triaging of patients and tasks, situational awareness and professionalism—even in the face of adversity. You should exemplify professional behavior, communication, and teamwork with patients and families, interprofessional care team members, and interdisciplinary consultants. You should use critical thinking and your medical knowledge, as well as the resources available to you, to guide judgement and medical decision making in a semi-autonomous fashion. This will be shown by appropriate order entry and documentation within the medical record. You should take part in all patient care activities and ensure effective

transfers of care, discharge planning, and necessary follow ups along with appropriate documentation. Your care should span from clinic to home and ER to discharge, encompassing all aspects of patient care.

**Prerequisite:** successful completion of all third year clerkships and pre-conference with course director

## SURG 711: Cardiothoracic Surgery Acting Internship

5 Credits

Acting Internship in Adult Cardiothoracic Surgery.

**Prerequisite:** completion of all third-year core clerkships; pre-conference with course director

## SURG 712: Surgical Endocrinology Elective

5 Credits/Maximum of 5

An in-depth experience involving the medical and surgical management of endocrinological disorders.

**Prerequisite:** completion of all third-year core clerkships

## SURG 713: Vascular Surgery Acting Internship

5 Credits/Maximum of 5

An opportunity for in-depth experience in vascular surgery.

**Prerequisite:** completion of all third-year core clerkships

## SURG 714: Transplant Surgery Acting Internship

5 Credits/Maximum of 5

An in-depth experience in the preoperative evaluation, intra-operative procedures, and postoperative management of kidney, liver, and pancreas transplant patients.

**Prerequisite:** third year core clerkships

## SURG 720: Plastic Surgery Acting Internship

5 Credits/Maximum of 5

Preceptorship with an active plastic surgical service at The Milton S. Hershey Medical Center or an affiliated hospital.

**Prerequisite:** completion of the third-year core clerkships

## SURG 722: Advanced Hand Surgery

4 Credits/Maximum of 4

The Advanced Hand Surgery elective is designed to give 4th year students a focused experience in the evaluation and treatment of upper extremity patient complaints. It is primarily an outpatient clinical practice where students can concentrate on the problems seen by clinicians that provide comprehensive hand care.

**Prerequisite:** completion of all third-year core clerkships

## SURG 733: Plastic Surgery Elective for 3rd Year Students

5 Credits

Plastic Surgery is a broad surgical specialty in which cosmetic surgery has a relatively small part. This independent one-month rotation has been designed to allow interested 3rd-year medical students at Penn State an in depth exposure to the unique elements of academic plastic surgery. In addition to mastering specialized surgical techniques and applications, plastic surgeons also frequently collaborate with many other types of surgical specialists for specific problems. The duration of this rotation will improve the frequency of such interactions in addition to strengthening the students' overall experience. During their rotation, students will be expected to pre-round on patients whom they have been following, write notes, round with the Plastic Surgery team every morning, and present and help manage their patients. They will then report to the assigned clinic or OR. They will attend the division didactic sessions. Students will typically be expected to participate in weekend duties on two separate weekends including pre-rounding, rounding with the team, and presenting assigned patients to the on-call attending. Students may elect to participate in any emergencies that present over the weekends, as well. Students should expect to gain exposure in many if not all of the major areas of Plastic Surgery including, but not limited to, oncologic breast reconstruction, general reconstructive surgery (e.g., traumatic and/or oncologic wound coverage, Mohs closures), pediatric craniofacial surgery (e.g., cleft lips and cranial vault remodeling), skin oncology (e.g., cancer resection and reconstruction), hand/wrist surgery (e.g., peripheral nerve decompression and fracture fixation), microsurgery, burn care, cosmetic surgery, treatment of facial fractures, and pressure sore care. To facilitate this experience, students will generally be assigned to 1-week sub-rotations in the following categories: Pediatric Craniofacial Surgery, Hand/Upper Extremity Surgery, Reconstructive (General, Breast, and Trauma) Surgery, and Skin Oncology/Mohs reconstruction. Students can gain additional responsibilities as determined by their level of comprehension and should anticipate assisting in operations, as is feasible and appropriate.

**Prerequisite:** Successful completion of the first two years of medical school. Students will not be permitted to participate in both a 2-week Plastic Surgery rotation during their Surgery Clerkship and a 1-month third-year elective in Plas

## SURG 740: Urology Acting Internship

5 Credits/Maximum of 5

In-depth experience in evaluation and management of urologic problems.

**Prerequisite:** completion of all third-year core clerkships

## SURG 741: Surgical Anesthesia Intensive Care Acting Internship

6 Credits/Maximum of 6

The Surgical Anesthesia Intensive Care Unit Acting Internship focuses on the unique surgical and critical care needs of the surgical patients. The acting intern will be exposed to all of the facets of critical care surgery including bedside procedures, resuscitation, organ support and physiologic concepts involving the management of critically ill patients. The acting intern will work with all of the members of the Surgical Anesthesia Critical Care team during the rotation. The acting intern will be introduced to the members of the team during the first day of the rotation. The AI student should function with direct and indirect supervision to gather focused patient information during the history and

physical exam in a time effective manner and use critical thinking and advanced knowledge to guide judgement and medical decision making in a semi-autonomous fashion. Students will take primary responsibility and be accountable for patient care, management, follow up, and reassessment throughout all phases of clinical care from admission to discharge. The AI student will be expected to exemplify professional behavior, communication, and teamwork with patients and families, inter-professional care team members and interdisciplinary consultants at the level of a resident intern. Prioritization and timely coordination of patient care activities will be the responsibility of the AI student, including smooth and effective transfers of care, discharge planning, and necessary follow up. During this specific AI Course, students will be immersed within the specialty of surgical critical care and will use advanced medical knowledge and practice during direct patient care in a collaborative and inter-professional manner. Core Acting Internship rotations at Penn State emphasize students' active role on the team to ensure readiness for residency. In their role as acting interns, students on Core AI rotations will develop increasing proficiency and independence in developing plans of care, entering orders, preparing, and performing patient handoffs, appropriately evaluating and responding to changes in patients' clinical conditions, and applying evidence-based care to patient management.

**Prerequisite:** Successful completion of Phase II requirements.

## SURG 745: Pediatric Cardiothoracic Surgery Elective

5 Credits/Maximum of 5

This fourth-year elective provides an introduction to the operative repair and peri-operative management of simple and complex congenital heart disease. PED (SURG) 745 Pediatric Cardiothoracic Surgery Elective (5) This elective in pediatric cardiothoracic surgery is offered to fourth-year medical students with an interest in congenital heart disease. It is principally targeted at students who plan a career in pediatrics, surgery, or pediatric or adult cardiology. The course is offered year-round on a monthly basis, with enrollment limited to 1-2 students per rotation. Students will work exclusively with attending surgeons in the clinical environment, and will participate in the comprehensive surgical management of infants, children, and adults with congenital heart disease. Clinical exposure will be provided to the initial surgical consultation, the judgment and rationale for operative versus non-operative management, the preoperative family counseling meeting and informed consent process, and the formulation of the operative plan. In the operating room, students will second-assist with pediatric heart surgery and will gain first-hand appreciation of the anatomic defects and their surgical repair. Postoperatively, students will participate in clinical rounds on pediatric heart surgery patients, and will follow the patients to discharge. The elective will emphasize the multi-disciplinary approach to the management of congenital heart disease, with collaborative exposure to pediatric cardiology, pediatric critical care, cardiac anesthesia, and cardiology for adults with congenital heart disease. Didactic lectures, case presentations, and reviews will be provided to students as an introduction to the major heart defects. Students will gain skill in the interpretation of echocardiograms, and will have the opportunity to view, in real-time, intraoperative transesophageal echo images, and correlate those images to the live, beating heart. Students will also gain skill in interpretation of cardiac MRI and CT angiography. The course is offered as an elective for students seeking an advanced introduction to surgery for congenital heart defects. The course is not intended as an acting-internship; thus, there is no in-house call, and limited night or weekend clinical requirements. A pre-test and a post-test will be administered.

**Prerequisite:** third-year core clerkships

SURG 780: Pediatric Surgery Acting Internship

5 Credits/Maximum of 5

Exposure to the surgical crises of the pediatric patient and their treatment.

**Prerequisite:** completion of all third-year requirements

SURG 790: Senior Medical Student Surgery Capstone Course

2.5 Credits

This course is designed for graduating medical students that have applied to or matched a surgical residency (general surgery, orthopedics, neurosurgery, urology, plastic surgery, and ENT) to provide them with an advanced cognitive knowledge base and experience with procedural skills frequently required of surgical interns. Additionally, this course will allow students to gain invaluable experience with interdisciplinary professionalism and case-based problem solving. Curriculum includes didactic lectures, case-based and small group learning sessions, simulation based procedural instruction and practice, as well as standardized patient encounters. Upon completion of the course students will have better knowledge of surgical patient care, be able to proficiently perform surgical skills frequently required of surgical residents, and have improved confidence in their preparation for surgical residency. A pre- and post-survey will focus on participants' confidence in specific procedural skills and common on-call surgical problems. Pre- and post-exams will also be given to measure student's knowledge on peri-operative patient care and complications. Grading will be Pass-Fail. Additionally, students that complete the skills sessions and pass skill proficiency exams may receive a letter addressed to their residency program director from the course directors to attest to their proficiency of the skills taught in this course.

**Prerequisite:** Open to students in Phase III/IV; successful completion of all phase I, II and III coursework. Students should have applied to/ matched into a surgical internship.

SURG 796: Surgery Individual Studies

5 Credits/Maximum of 5

Creative projects including nonthesis research, supervised on an individual basis and which fall outside the scope of formal courses.

**Prerequisite:** successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for course.

SURG 796A: Surgery Individual Studies for 3rd Year Medical Students

2.5 Credits

Surgery Individual Studies for 3rd Year Medical Students.

**Prerequisite:** successful completion of one 3rd year core clerkship

SURG 797: Surgery Special Topics

5 Credits/Maximum of 5

Formal courses given on a topical or special interest subject which may be offered infrequently.

**Prerequisite:** successful completion of 3rd year core clerkships. Student must contact course director for approval prior to registering for this course.