Surgery

Chair
• Ronald Weigel

Interim Director, Perfusion Technology
• Shahna L. Helmick

Undergraduate certificate: perfusion technology
Faculty: https://medicine.uiowa.edu/surgery/people/primary-appointments
Website: https://medicine.uiowa.edu/surgery/

The Department of Surgery offers didactic instruction as well as clinical and other practical experiences for medical students. It also hosts a wide spectrum of clinical and scientific research. In addition, it offers the undergraduate Certificate in Perfusion Technology.

Cardiothoracic Surgery

The University of Iowa cardiothoracic surgery program is the third oldest program of its kind in the United States. Since its establishment in 1948 as a division within the Department of Surgery, the program has advanced from providing operative interventions for patients with diseases of the chest to performing a broad range of the most current and innovative surgical procedures.

Cardiothoracic surgery’s facilities are located at University of Iowa Hospitals & Clinics. Each year cardiothoracic surgeons at the hospitals perform more than 500 adult and pediatric heart surgeries, including coronary bypasses, transplants, and placement of mechanical cardiac assist devices; minimally invasive procedures such as mitral valve replacement and epicardial lead placement; and more than 600 general thoracic surgeries with emphasis on esophageal and lung diseases. Preparations are under way for providing coronary artery bypass grafting using robotics.

Postbaccalaureate Training

The Department of Surgery plays a primary instructional role in University of Iowa Hospitals & Clinics’ 20-month postbaccalaureate Perfusion Technology Program; see the perfusion courses listed under Courses [p. 2] in this section of the Catalog. For more information about the Perfusion Technology Program, contact the Department of Surgery or visit the Perfusion Technology Program website.

Faculty

The faculty’s strengths center in pathophysiology and problems of severe burns, trauma, organ transplantation, surgical control of morbid obesity, surgical oncology, bowel disease, biliary tract disease, pediatric surgery, endocrine disease, plastic surgery, diseases of the esophagus, artificial organs, pediatric cardiac surgery, transplantation, and vascular surgery. Research also is under way in the sequence of mutations and in localization of genes predisposed to cancer.

Programs

Undergraduate Program of Study
Certificate
• Certificate in Perfusion Technology

M.D. Training

Department of Surgery courses provide a unique combination of experience oriented toward patient care and understanding of surgery’s place among a physician’s skills. Surgery courses are open only to M.D. students and qualified students in associated health sciences.

Students develop an awareness of surgery’s role in the treatment of disease. Emphasis is placed on general surgery, basic emergency surgery, trauma, oncology, burns, gastrointestinal and biliary tract disease, endocrine disease, pediatric surgery, transplantation, plastic and reconstructive surgery, and peripheral vascular surgery.

The majority of surgery courses involve patient-centered discussions and practical exercises interwoven with operating room experience. Lectures and conferences are scheduled regularly on specific topics.

The department offers independent study courses in selected surgery topics and clinical experiences; some are available to fourth-year M.D. students by arrangement with the faculty.

Residency

Iowa’s cardiothoracic surgery residency program was established in 1948 and is fully accredited by the Accreditation Council for Graduate Medical Education (ACGME). It is the only cardiothoracic surgery training program in Iowa. One resident is accepted into the two-year program each year. Cardiothoracic surgery was approved by the ACGME to start a six-year integrated thoracic residency. Medical students begin the program after they graduate from medical school. A new resident enters the program each year.

Facilities

Abundant patient contact provides education in a wide variety of surgical diseases. The Department of Surgery provides training in the only burn unit in Iowa approved by the American College of Surgeons and in the Level I Trauma Center at University of Iowa Hospitals & Clinics.

Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. Projects are available in gastrointestinal surgery, surgical microbiology, peripheral vascular surgery, transplantation, wound healing, organ preservation, vascular surgery, pediatric surgery, and surgical oncology.

Cardiothoracic surgery has specialty laboratories in gastric motility, analytical chemistry, transplantation, tissue culture, surgical bacteriology, shock, and cardiac bypass. These facilities permit study of experimental procedures such as heart valve replacement in large animals and heterotopic heart transplantation in mice and rats.

The laboratories also are used for supervised teaching exercises in surgical technique for medical students and junior
residents, and for refinement of technique for senior residents and faculty members.

### Surgery Courses

**SURG:8301 Clinical Surgery**  
Experience as active member of surgical team; work on inpatient units, in clinics and operating room; assist in elective and emergency patient care.  
4 s.h.

**SURG:8401 Advanced General Surgery**  
Opportunity to strengthen clinical skills through experiences in the operating rooms, clinics, wards, and intensive care units of University of Iowa Hospitals & Clinics.  
4 s.h.

**SURG:8402 Advanced Inpatient Subinternship in General Surgery**  
Responsibility for management of selected surgical inpatients, on a surgical service. Prerequisites: SURG:8301.  
4 s.h.

**SURG:8406 General Surgery, Des Moines, IA**  
Care of general surgery patients in private hospital setting. Prerequisites: SURG:8301.  
4 s.h.

**SURG:8407 Intensive Care Unit - Trauma, Iowa Methodist**  
Subinternship on trauma service team; evaluation and management of critically ill patients in the emergency room, operating room, intensive care unit. Prerequisites: SURG:8301.  
Requirements: fourth-year M.D. enrollment.  
4 s.h.

**SURG:8409 General Surgery, Davenport, IA**  
Participation in diagnosis and management of general surgical patients under supervision of attending surgeons from Davenport Surgical Group, Genesis Medical Center. Prerequisites: SURG:8301. Requirements: fourth-year M.D. enrollment.  
4 s.h.

**SURG:8411 Multidisciplinary Breast Elective**  
Evaluation and management of benign and malignant breast diseases; focus on multidisciplinary nature of treatment of breast disease; for students who plan to pursue residency in general surgery, obstetrics and gynecology, family practice, or other field with focus on women’s health. Requirements: M.D. enrollment.  
2,4 s.h.

**SURG:8497 Research in Surgery**  
Medical research, clinical or laboratory projects; individual study.  
arr.

**SURG:8498 Surgery On Campus**  
Surgery on campus; individually arranged. Prerequisites: SURG:8301.  
arr.

**SURG:8499 Surgery Off Campus**  
Prerequisites: SURG:8301.  
arr.

### Cardiothoracic Surgery Courses

**CTS:8401 Advanced Inpatient Subinternship in Cardiothoracic Surgery**  
Participation in diagnosis, preoperative, operative, and postoperative care of thoracic and cardiac patients; attendance at division conferences; students assume responsibility and act as an intern; may concentrate interest in cardiac surgery or thoracic surgery; diagnosis and management of patients on an inpatient service under close supervision by an upper-level resident/fellow and faculty member.  
arr.

**CTS:8497 Research in Cardiothoracic Surgery**  
Work on a short- or long-term research project arranged with instructor; may involve clinical material or laboratory; students organize and complete a project, finishing with a publishable manuscript.  
arr.

**CTS:8498 Cardiothoracic Surgery On Campus**  
Clinical clerkship individually arranged by student with department approval.  
arr.

**CTS:8499 Cardiothoracic Surgery Off Campus**  
Individually arranged by student with approval of department to rotate outside of University of Iowa Hospitals & Clinics. Requirements: M.D. enrollment.  
4 s.h.

### Perfusion Technology Courses

**PERF:4161 Instrumentation in Perfusion Technology**  
Electrical circuitry, filters, pressure transducers, thermistors, cardiac output computers, fluid dynamics, intra-aortic balloon pumps, blood gas analyzers. Requirements: Perfusion Technology Program enrollment.  
3 s.h.

**PERF:4162 Pathophysiology of Perfusion Technology**  
Hemostasis, acid base physiology, gas transfer, heart anatomy, heart embryology, congenital cardiac defects. Requirements: Perfusion Technology Program enrollment.  
5 s.h.

**PERF:4163 Clinical Experience I**  
Perfusion in operating room: patient workup, observation, and reporting on extracorporeal setup, surgical procedure. Requirements: Perfusion Technology Program enrollment.  
2 s.h.

**PERF:4164 Clinical Experience II**  
Continuation of PERF:4163; setup of extracorporeal circuit; ancillary duties of perfusionist. Requirements: Perfusion Technology Program enrollment.  
3 s.h.

**PERF:4165 Clinical Experience III**  
Continuation of PERF:4164; management of cardiopulmonary bypass system. Requirements: Perfusion Technology Program enrollment.  
12 s.h.

**PERF:4166 Clinical Experience IV**  
Continuation of PERF:4165; emphasis on supply maintenance, perfusion department management. Requirements: Perfusion Technology Program enrollment.  
12 s.h.

**PERF:4167 Perfusion Seminar**  
Ethics in perfusion. Requirements: Perfusion Technology Program enrollment.  
1 s.h.

**PERF:4168 Research in Perfusion**  
From topic selection to manuscript. Requirements: Perfusion Technology Program enrollment.  
1 s.h.

**PERF:4169 Clinical Experience V**  
Continuation of PERF:4166. Requirements: Perfusion Technology Program enrollment.  
12 s.h.
PERF:4170 Principle and Practice of Perfusion Technology 6 s.h.
Hypothermia, hemodilution, left heart bypass, dialysis, ultrafiltration, membrane and bubbler oxygenation. Requirements: Perfusion Technology Program enrollment.

PERF:4171 Devices in Perfusion Technology 3 s.h.