

580.740 - Surgery for Engineers

3 credits; 3 hrs/ week (T, Th -- 8:00 - 9:30 am)

Priority enrollment to Master's students. (Current enrollment cap = 20 students.) PhD students may enroll pending availability and permission from course director. No audits.

Course Information	
Introduction	This course provides engineering students with an introductory understanding of the principles and practice of interventional medicine – including a spectrum of open and minimally invasive surgical approaches as well as procedures in interventional radiology and radiation therapy. The course includes lectures, hands-on demonstrations, laboratory exercises, and visits to clinical areas at Johns Hopkins Hospital. Each segment of the course addresses concepts of anatomy, surgical instrumentation, and interventional approach. Each segment is led by an expert in a particular discipline in collaboration with the course director.
Enrollment	The course is intended for graduate-level (MSE or PhD) engineering students. Enrollment is limited due to space and resources in hands-on / lab activities. Audits are not allowed.
Prerequisites and Certificates	There are no prerequisite courses. Within the first week of class, students must provide a copy of the following certifications, each available as Hopkins myLearning modules at myJHU: (Email certificate PDFs to the class TA.)
	Σ Bloodborne Pathogens;
	Σ Fluoroscopy Refresher;
	Σ Patient Privacy for Workforce Members.
Objectives	Upon completion of this course, students will have gained introductory-level knowledge of the principles and practice of medical interventional procedures (including surgery, interventional radiology, and radiation oncology) as well as exposure to essential technologies and surgical approaches. Students will demonstrate their synthesis of concepts conveyed in lectures and reading materials via hands-on laboratory exercises and class projects.
Materials	Background reading is assigned each week. There is no required textbook for the course.
Class Format	The class meets twice per week (Tues and Thurs) with the one or more of the following components:
	Σ Quiz on assigned reading (usually at the start of class).
	Σ Lecture and discussion in classroom.
	Σ Hands-on demonstration and/or laboratory exercises.
	Σ Tours, demos, and field trips in clinical areas at Johns Hopkins Hospital.