

SURGICAL AND INTERVENTIONAL SCIENCES (NON-THESIS) (M.SC.) (45 CREDITS)

Offered by: Surgery (Faculty of Medicine and Health Sciences)
Degree: Master of Science
Program credit weight: 45

Program Description

This M.Sc. in Surgical and Interventional Sciences; Non#Thesis offers training in core fundamentals of modern surgical research. The program is flexible and provides the core disciplines in more specific areas such as global surgery, innovation, education, or other disciplines. The individual research interests of the faculty cover a wide spectrum, from injury, repair, recovery, tissue engineering, transplantation, fibrosis, cancer and stem cell biology, biomechanics, and organ failure, to surgical simulation, surgical innovation, education, and evaluative/outcomes research. Importantly, the project(s) is performed in a collaborative spirit with basic and clinician scientists working together using interdisciplinary approaches to solve the most challenging problems in the field of surgery.

Note: For information about Fall 2025 and Winter 2026 course offerings, please check back on May 8, 2025. Until then, the "Terms offered" field will appear blank for most courses while the class schedule is being finalized.

Required Courses (12 credits)

Expand allContract all

Course	Title	Credits
EXSU 500	Artificial Intelligence in Medicine .	3
EXSU 602	Knowledge Management 2.	3
EXSU 623	Surgery Research Project 2.	6

Complementary Courses (24 credits)

3 credits selected from:

Expand allContract all

Course	Title	Credits
EDPE 575	Statistics for Practitioners.	3
EPIB 507	Biostats for Health Sciences.	3
EXSU 606	Statistics for Surgical Research.	3

Or 3 credits of a research design or statistics course at the 500 level or higher.

3 credits selected from:

Expand allContract all

Course	Title	Credits
EXSU 603	Surgical Education Foundations.	3
FMED 525	Foundations of Translational Science.	3

6 credits selected from the following :¹

Expand allContract all

Course	Title	Credits
EDPE 637	Issues in Health Professions Education.	3
EDPH 689	Teaching and Learning in Higher Education.	3
EPIB 521	Regression Analysis for Health Sciences.	3
EXSU 505	Trends in Precision Oncology.	3
EXSU 620	Surgical Innovation 1.	3
EXSU 621	Surgical Innovation 2.	3
PPHS 528	Economic Evaluation of Health Programs.	3

¹ Note: Students either take EDPE 637 Issues in Health Professions Education. and EDPH 689 Teaching and Learning in Higher Education.; or EPIB 521 Regression Analysis for Health Sciences. and PPHS 528 Economic Evaluation of Health Programs.; or EXSU 620 Surgical Innovation 1. and EXSU 621 Surgical Innovation 2.; or EXSU 505 Trends in Precision Oncology. and any course in the course grouping available in a given year if the number of registered students has not exceeded the projected enrolment.

12 credits selected from:

Expand allContract all

Course	Title	Credits
BMDE 653	Patents in Biomedical Engineering.	3
BMDE 654	Biomedical Regulatory Affairs - Medical Devices.	3
BMDE 655	Biomedical Clinical Trials - Medical Devices.	3
DENT 669	Extracellular Matrix Biology.	3
EDPE 637	Issues in Health Professions Education.	3
EDPE 687	Qualitative Methods in Educational Psychology.	3
EDPH 689	Teaching and Learning in Higher Education.	3
EPIB 681	Global Health: Epidemiological Research.	3
EXMD 609	Cellular Methods in Medical Research.	3
EXMD 610	Molecular Methods in Medical Research.	3
EXSU 501	Medical Technology Internship 1.	6
EXSU 601	Knowledge Management 1.	3
EXSU 605	Biomedical Research Innovation.	3
EXSU 620	Surgical Innovation 1.	3
EXSU 621	Surgical Innovation 2.	3
EXSU 622D1	Surgery Research Project 1.	6
EXSU 622D2	Surgery Research Project 1.	6
EXSU 684	Signal Transduction.	3
FMED 619	Program Management in Global Health and Primary Health Care.	3
PHGY 518	Artificial Cells.	3
PHGY 550	Molecular Physiology of Bone.	3

PPHS 511	Fundamentals of Global Health.	3
PPHS 529	Global Environmental Health and Burden of Disease.	3

Elective Courses (9 credits)

9 credits taken from 500-, 600-, or 700-level courses at the University, which may include courses from the list above, will be taken with the approval of the director of the program/adviser.