
**Program SPECIFICATION FOR MASTER Degree in
Experimental surgery**

Code: 1714700

University: Alexandria Faculty: Medical Research Institute

Program Specification

A. Basic information

1- Program title: Master in experimental surgery

2- Program type: Single **double** **multiple**

3- Department(s): Experimental and clinical surgery

4- Coordinator: Dr. Mohamed Sultan

5- External evaluator: Professor Dr. Tarek EL Fayoumy

**Professor of general surgery, Surgical Oncology Unit, Surgery Department, Faculty of
Medicine, Alexandria University**

6- Last date of program specification approval: 5/6/2014

B. Professional Information

1- Program aims:

1. To provide the student with the appropriate knowledge about laboratory animal as a model of human disease.
2. To provide the student with the appropriate knowledge about legal, ethical & educational aspects, the principles of surgical research laboratory.
3. To provide the student with the appropriate knowledge about experimental design, experimental tissue trauma & healing, the principles of experimental oncogenesis.
4. To provide the student with the appropriate knowledge about principles of sterilization & disinfections and antimicrobial therapy in surgery.
5. To provide the student with the appropriate knowledge about general surgical anatomy and general surgical pathology.
6. To provide the student with the appropriate knowledge surgery of portal hypertension, GERD, skin & soft tissue tumors, surgery of the breast.
7. To provide the student with the appropriate knowledge about surgery of stomach & duodenum and upper & lower GIT bleeding.
8. To provide the student with the appropriate knowledge about surgery of the liver and pancreas, the principles of biliary surgery.

9. To provide the student with the appropriate knowledge about grafts and flaps, stages of wound healing, face and hand injuries and burns.
10. To provide the student with the appropriate knowledge about microvascular anastomosis.
11. To provide the student with the appropriate knowledge about assessments for experimental transplantation and ethical & legal aspects of transplantation, organ donation.
12. To recall fundamentals of laparoscopic surgery and medical malpractice in laparoscopic surgery.
13. To use systematic approaches to design and conduct scientific research.

2- Intended learning outcomes (ILOS)

A- knowledge and understanding:

- A1. Recall laboratory animal facilities and husbandry of laboratory animal.
- A2. Recall legal, ethical & educational aspects of Experimental Surgery.
- A3. Recall principles of experimental oncogenesis, cancer genetics and gene therapy.
- A4. Define principles of asepsis, sterilization, disinfections, the needs of antibiotic therapy.
- A5. Outline the main topics of general surgical anatomy and general surgical pathology and pathophysiology.
- A6. Describe surgical anatomy of abdominal wall & groin and peritoneum, omentum & mesentery.
- A7. Recall etiology, clinical presentation, complications and management of peptic ulcer, intestinal obstruction and inflammatory bowel diseases and upper & lower GIT bleeding.
- A8. recall etiology, clinical presentation, complications and management of liver abscesses, hydatid cyst and liver tumors, clinical presentation, complications and management of pancreatitis.
- A9. list difference between grafts and flaps. Recall types & stages of wound healing and management of face and hand injuries.
- A10. List different types of equipment & laboratory facilities, complications of experimental design and micro vascular anastomosis.
- A11. Recall ethical & legal aspects and principles of transplantation and organ donation.
- A12. Recall fundamentals of laparoscopic surgery, methods of creating a pneumoperitoneum, laparoscopic suturing and knot tying, laparoscopic appendectomy, laparoscopic repair of inguinal and ventral hernias, laparoscopic cholecystectomy, cholangiography and CBD exploration.

B- Intellectual skills:

- B1. Analyze problems of laboratory animal facilities used as model for human diseases.
- B2. Analyze legal and ethical entities of Experimental Surgery.
- B3. Categorize oncogenetic pathways, gene therapy and cancer genetics.
- B4. Appraise problems of asepsis, sterilization, disinfections, antibiotic use, inflammatory response and ethical practice.
- B5. Appraise complications of surgery in immune-compromised patient and principles of ICU.
- B6. Categorize complications and plan treatment of portal hypertension and breast cancer.
- B7. Categorize complications of intestinal obstruction, fistulae and cancer stomach, colon and rectum.

B8. Categorize complications and management of obstructive jaundice, pancreatitis, lymphoma and splenic disorders.

B9. Appraise complications of soft tissue sarcoma, lower limb ischemia, diabetic foot, varicose veins and endovascular surgery.

B10. Differentiate types of equipment & laboratory facilities.

B11. Categorize complications of liver transplantation and immunosuppressive drugs.

B12. Analyze advantages of laparoscopic surgery in appendectomy, cholecystectomy, cholangiography, CBD exploration, examination of pelvis and abdomen, and abdominal exploration in malignancy.

B13. Write a thesis protocol using a scientific systematic approach to a research problem

C- Professional and practical skills:

C1. Apply main rules of ethics and legacy in Experimental Surgery in animals.

C2. Apply main strategies to optimize operative facilities, anesthesia facilities and post-operative intensive care facilities.

C3. Demonstrate the effectiveness of experimental models in management of portal hypertension.

C4. Apply main strategies to optimize pre- and post-operative management of immune-compromised patient ongoing surgery.

C5. Apply main strategies to optimize management and follow up of GERD patient.

C6. Illustrate the effectiveness of surgical management of breast cancer patient

C7. Demonstrate surgery for groin, femoral hernia, the abdominal wall and peritoneum, mesentery and omentum.

C8. Illustrate management of peptic ulcer disease, inflammatory bowel diseases, gall bladder and liver tumors, abscess and cysts.

C9. Apply main strategies to perform micro vascular anastomosis using specialized instruments and a high-quality microscope.

C10. Choose the immunosuppressive drug of choice to minimize the risk of allograft rejection.

C11. Apply main strategies to optimize laparoscopic biliary surgery: laparoscopic cholecystectomy, cholangiography and CBD exploration.

C12. Practice wide use of laparoscopy in managing inguinal, ventral and incisional hernia, appendicitis and intestinal disorders and in abdominal malignancies.

D- General and transferable skills:

D1. Communicate effectively using scientific language and reasoning.

D2. Work effectively and cooperatively in a team.

D3. Maintain an open and questioning mind toward ideas and alternative points of view.

D4. Understand the cumulative nature of scientific knowledge.

3- Academic standards

3a External references for standards (Benchmarks)

Generic Academic Reference Standards of the National Authority for Quality Assurance and Accreditation of Education (NAQAAE) adopted at MRI council 12/2/2014 and re-adopted at 15/1/2023

Last date of Academic Reference standards (ARS) approval by Institute Council: 15/1/2023

3b Comparison of provision to selected external references

NAQAAE	ARS for master in experimental surgery
A1-Basic facts, theories, of the specialty and related subjects/ fields	A1 Understand the fundamental elements of experimental surgery and familiarize yourself with prevalent and significant surgical diseases.
A2-Mutual relation between professional practice and effects on environment	A2 Explain the procedures for early cancer diagnosis and risk group identification.
A3-Recent advances in the field of practice	A3 Explain surgical procedures, various laparoscopic techniques, and experimental surgical approaches should be discussed.
A4-Details of ethical & legal practice	A4 Understand moral and legal ramifications of surgical practice are listed.
A5 -Quality standards of the practice	A5 Identify frequent and significant surgical conditions and describe their origin, pathophysiology, clinical characteristics, consequences, and therapy. The teaching team provides the students with several opportunity to explore significant and typical surgical issues.
A6- Design, conduction & publishing of scientific research	A6 Design, conduction & explore publishing of scientific research

A7- Ethical considerations in different types of scientific research	A7 Describe the moral and legal ramifications of surgical techniques.
B1- Analyze, deduce, extrapolate & evaluation of information	B1 Make the proper diagnosis by analyzing the outcomes of clinical and investigative data.
B2- Solve the majority of problems in the specialty according to the available data (complete or incomplete)	B2 To develop management plans for surgical disorders, track the efficacy of treatment, and adjust management plans as necessary
B3- Conduct research studies that add to the existing specialty knowledge	B3 Make the proper diagnosis by studying the outcomes of clinical and investigative data.
B4- Publish scientific articles/papers (in indexed journals)	B4 Determine the principles of international publishing and writing a paper.
B5- Plan and implement (or supervise implementation of) enhancement & Improvement approaches to practice	B5 Determine which tests are necessary for the surgical patient's diagnosis and care.
B6- Take decisions in various professional situations (including dilemmas & controversial issues)	B6 To develop management plans for surgical disorders, track the efficacy of treatment, and adjust management plans as necessary
B7- Add to the specialty field through creativity & innovation	B7 Gaining skills and knowledge in the treatment of various surgical problems and monitoring these patients to assess the outcome of the treatment.
B8- Manage discussions on basis of evidence and proofs	B8 Consider the anatomical, pathologic, and functional diagnostic relevance of the patient's symptoms and physical manifestations.
B9. Conduct scientific research &/Or write scientific systematic approach to a research problem (hypothesis)	B9. Write a thesis protocol using a scientific systematic approach to a research problem

C1- Competent in all basic and all required advanced professional skills (to be determined according to the specialty board/ department)	C1 Enhance clinical judgment and decision-making abilities that affect patient management.
C2- Write and appraise reports	C2 To increase surgical training abilities, distinguish between fundamental and sophisticated surgical methods.
C3-Evaluate and improve methods and tools used in specialty	C3 Learn how to evaluate radiographic results of various surgical disorders.
C4-Use technology to advance practice	C4 Through exploratory surgical research, acquire improved practical skills.
C5- Plan professional development courses to improve practice and enhance performance of juniors	C5 Learn how to evaluate radiographic results of different surgical disorders.
D1- Communicate effectively using all methods	D1 Build up a professional rapport with the patients, their families, and the neighborhood.
D2- Use information technology to improve his/her professional practice	D2 Engage in trustworthy and accountable behavior.
D3- Teach and evaluate others	D3 Work cooperatively as a team and successfully communicate with other healthcare professionals.
D4- Perform self-appraisal& seek continuous learning	D4 Honestly discuss professional blunders.
D5- Use different sources of information to obtain data	D5 Evaluate the value and relevance of other people's views.
D6- Work in teams as well as a member in larger teams	D6 Consider the relevance and usefulness of other people's perspectives.

5- Program Courses

Admission Requirement: Graduate Students with a M.B.Ch.B. of Medicine.

Core Courses (26 CH): 1709721, 1714701, 1714702, 1714703, 1714704, 1714705, 1714706, 1714707, 1714708.

Elective Courses (4CH): 1714709, 1714710, 1714711, 1710721

Core Courses (26 CH)

5.1- Compulsory Core Courses (26 credit hours)

Code	Name	Hours/Week		
		Theoretical	Clinical	Total Cr
1709740	Basics in Laboratory Animal Science	1	2	2
1714701	Basic Consideration in Experimental Surgery	1	2	2
1714702	Fundamentals in Experimental Surgery	1	2	2
1714703	Basic Applied Surgery	1	2	2
1714704	Fundamentals in Applied Surgery	1	2	2
1714705	Advanced Surgery I	2	4	4
1714706	Advanced Surgery II	2	4	4
1714707	Advanced Surgery III	2	4	4
1714708	Advanced Surgery IV	2	4	4
Total		13	13	26

5.2- Elective (4 credit hours)

Code	Name	Hours/Week		
		Theoretical	Clinical	Total Cr
Elective Courses (4 CH)				
1714709	Experimental Microvascular Surgery	1	2	2
1714710	Experimental Transplantation	1	2	2
1714711	Laparoscopic Surgery I	1	2	2
1710721	Pathology	1	2	2

5.4- Optional – (none)

6- Program admission requirements

Graduate students with an M.B.Ch.B. of Medicine.

7. Teaching Methods

1. Brainstorming
2. Discussion Groups
3. Problem Solving
4. Case Study
5. Role playing
6. Workshops
7. Self-Directed Learning

8- Regulations for progression and program completion

For the progression and completion of the program to obtain the degree of master of experimental surgery, the student must:

1. Complete 30 credit hours with CGPA of at least C+ through courses.
2. Complete 8 credit hours through thesis.
3. Submit a thesis validity report by an examination committee approved by the department council and their members include at least one external examiners.

8- Evaluation of Students enrolled in the program.

Tool evaluation	Intended learning outcomes being assessed
Written	ILOs a &b
Clinical	ILOs c
Oral	ILOs a ,b &d
Semester Work	ILOs b & d

Evaluation of the Program

Evaluator	Tool	Sample
1- Senior students	Questionnaire	At least 50 %
2- Alumni	Questionnaire	Representative sample
3- Stakeholders (Employers)	Meeting	Representative sample
4- External Evaluator(S) or External Examiner (s)	Report	Prof Tarek Abdel Halim El Fayoumy
5- Other		

Program coordinator:

Name: **Dr. Mohamed Sultan**

Signature:



Department Head:

Name: **Prof. Dr. Medhat Anwar**

Signature: .



Date of Department Council Approval: 2/8/2023

Program Aims vs Graduate Attribute matrix

Generic Graduate Attributes of NAQAAE	Graduate Attributes of Master degree in Experimental surgery	Program Aims
	By the end of this program, graduate should be able to	
Basic facts, theories, of the specialty and related subjects/ fields	To be able to conduct scientific research and access medical information.	To provide the student with the appropriate knowledge about laboratory animal as a model of human disease.
Mutual relation between professional practice and effects on environment	To be able to conduct research studies in a sound manner, taking into account the scientific and ethical foundations of scientific research	To provide the student with the appropriate knowledge about legal, ethical & educational aspects, the principles of surgical research laboratory.
Recent advances in the field of practice	To be able to draft papers and research studies	To provide the student with the appropriate knowledge about experimental design, experimental tissue trauma & healing, the principles of experimental oncogenesis.
Details of ethical & legal practice	To be able to communicate with scientific journals and know the rules and methods of scientific publishing.	To provide the student with the appropriate knowledge about principles of sterilization & disinfections and antimicrobial therapy in surgery.
Ethical considerations in different types of scientific research	To be able to conduct proper clinical examination of cases, take patient histories, and request the necessary tests	To provide the student with the appropriate knowledge about general surgical anatomy and general surgical pathology.
Solve the majority of problems in the specialty according to	To be able to conduct a sound and comprehensive evaluation of	To provide the student with the appropriate knowledge surgery of portal hypertension,

the available data (complete or incomplete)	cases and acquire the skills of presenting cases for scientific discussion.	GERD, skin & soft tissue tumors, surgery of the breast.
Conduct research studies that add to the existing specialty knowledge	To be able to perform basic surgical operations such as hernia repair, removal of benign breast tumors, simple anal operations, radical mastectomy, cholecystectomy, thyroidectomy, and other basic surgical operations.	To provide the student with the appropriate knowledge about surgery of stomach & duodenum and upper & lower GIT bleeding.
Manage discussions on basis of evidence and proofs	To be able to assist junior doctors in the operations he is good at	To provide the student with the appropriate knowledge about surgery of the liver and pancreas, the principles of biliary surgery.
Use technology to advance practice	To be familiar with the basics and able to assist senior doctors in large and complex cases.	To provide the student with the appropriate knowledge about grafts and flaps, stages of wound healing, face and hand injuries and burns.
Communicate effectively using all methods	Ensure confidentiality and privacy of patients' information	To provide the student with the appropriate knowledge about microvascular anastomosis.
Take decisions in various professional situations (including dilemmas & controversial issues)	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety.	To provide the student with the appropriate knowledge about assessments for experimental transplantation and ethical & legal aspects of transplantation, organ donation.

Program Aims vs ILOs matrix

program aims	1	2	3	4	5	6	7	8	9	10	11	12
ILOs												
a1	x											
a2		x										
a3			x									
a4				x								
a5					x							
a6						x						
a7							x					
a8								x				
a9									x			
a10										x		
a11											x	
a12												x
b1	x											
b2		x										
b3			x									
b4				x								
b5					x							
b6						x						
b7							x					
b8								x				
b9									x			
b10										x		
b11											x	
b12												x
C1		x										
C2			x									
C3				x								
C4					x							
C5						x						
C6							x					
C7								x				
C8									x			
C9										x		
C10											x	
C11												x
C12	x											
d1	x	x	x	x	x	x	x	x	x	x	x	x
d2	x	x	x	x	x	x	x	x	x	x	x	x

d3	x	x	x	x	x	x	x	x	x	x	x	
d4	x	x	x	x	x	x	x	x	x	x	x	X

Courses vs Program ILOs matrix

COU RSES	1709 721	1714 701	1714 702	1714 703	1714 704	1714 705	1714 706	1714 707	1714 708	1714 709	1714 710	1714 711	Thesis
ILOs													
a1	x												
a2		x											
a3			x										
a4				x									
a5					x								
a6						x							
a7							x						x
a8								x					
a9									x				
a10										x			
a11											x		
a12												x	
b1	x												
b2		x											
b3			x										
b4				x									
b5					x								
b6						x							
b7							x						
b8								x					
b9									x				
b10										x			
b11											x		
b12												x	
B13			x			x			x				x
C1		x											
C2			x										
C3				x									
C4					x								x
C5						x							
C6							x						
C7								x					
C8									x				
C9										x			

C10											X		
C11												X	
C12	x												
d1	x		x		x	x	x	x			x	x	
d2		x		x	x		x	x	x	x		x	
d3	x	x	x	x	x		x		x	x	x		
d4	x	x	x	x		x		x	x	x	x	x	
d2			x				x		x			x	
d3				x		x				x	x		

ARS vs ILOs matrix

ARS	A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	B8	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5	D6	D7
ILOs																												
a1	x		x		x		x	x		x		x	x			x	x		x		x	x	x		x			x
a2		x	x			x		x			x			x	x		x			x			x			x	x	
a3																												
a4		x		x	x		x		x	x		x		x		x		x	x		x	x		x		x		x
a5	x		x			x		x			x		x		x		x			x			x		x		x	
a6	x			x					x				x			x		x				x		x	x			x
a7	x			x		x	x		x		x	x	x			x		x		x	x	x		x	x			x
a8		x			x					x				x					x							x		
a9			x					x							x		x						x				x	
a10					x		x			x		x							x		x							
a11		x				x					x			x						x						x		
a12	x			x	x				x	x			x			x		x	x			x		x	x			x
b1			x				x	x				x			x		x				x		x				x	
b2				x		x			x		x					x		x		x		x		x				x
b3		x	x					x						x	x		x						x			x	x	
b4	x												x												x			
b5				x	x		x		x	x		x				x		x	x		x	x		x				x
b6		x				x					x			x						x						x		
b7	x		x					x					x		x		x						x		x		x	
b8					x					x									x									
b9		x		x			x		x			x		x		x		x			x	x		x		x		x
b10						x					x									x								

b11	x		x	x				x	x				x		x	x	x	x				x	x	x	x		x	x
b12							x						x								x							
B13		x			x			x					x															
C1		x		x	x				x	x				x		x		x	x							x		x
C2	x													x														
C3			x		x		x	x		x			x		x		x		x								x	
C4	x		x		x			x		x				x		x		x										x
C5			x		x		x	x		x				x		x		x										x
C6																												
C7		x		x	x	x			x	x	x			x		x		x	x	x						x		x
C8	x						x							x	x											x		
C9			x			x		x						x		x												x
C10				x	x					x	x																	x
C11		x				x								x														x
C12	x					x	x																					x
d1			x		x			x		x					x		x		x									x
d2			x		x		x	x		x					x		x		x									x
d3		x		x						x					x		x											x
d4	x				x		x			x																		x

Teaching methods vs Course matrix (Degree: Master) Code: 1714700

	1214701	1214702	1214703	1209721	1214704	1214705	1214706	1214707	1214708	1214711	1210720	1214709	1214710
Lecture	x	x	x	x	x	x	x	x	x	x	x	x	x
Clinical	x	x	x	x	x	x	x	x	x	x	x	x	x
Brainstorming	x			x				x			x		
Discussion Groups		x	x			x			x		x	x	
Problem Solving			x		x		x			x			x
Case Study						x	x	x	x			x	
							x						
Training Workshops										x			
Self-Directed Learning	x	x		x	x	x							
e-learning													
Project								x					