

**Foundations of Clinical Surgery**

Code: 103630  
ECTS Credits: 5

Degree	Type	Year	Semester
2502442 Medicine	OB	3	0

**Contact**

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**Use of Languages**

Principal working language: catalan (cat)  
Some groups entirely in English: No  
Some groups entirely in Catalan: Yes  
Some groups entirely in Spanish: No

**Teachers**

Manuel Armengol Carrasco  
Antonio Moral Duarte  
Nivardo Rodriguez Conde  
José Troya Díaz

**Prerequisites**

Students should have successfully attained the basic skills taught in the first and second year subjects, especially those related to Anatomy and Physiology.

As they enter the health care and clinical setting and come into contact with patients, students enrolled in this course undertake the following: to observe the rules of conduct set out on the website of the Faculty of Medicine at UAB; to be familiar with the recommendations document regarding medical students's conduct during the clinical training cycle; and to abide by the following legislation:

- The Spanish Data Protection Act (15/1999)
- The Spanish law regulating the patient's autonomy, rights and obligations regarding information and clinical documentation (41/2002)

Students must also accept the risks inherent in the field of clinical activity, and must be familiar with the vaccination document recommended for students of the Faculty of Medicine at the UAB.

**Objectives and Contextualisation**

General objectives:

- Students should understand the foundations (the biological bases) of surgery and major surgery syndromes
- Students should understand and be able to perform basic surgical techniques

The objectives of this course are complemented by those of the courses in Physiopathology and Clinical Semiology.

## Competences

- Accept one's role in actions to prevent or protect against diseases, injuries or accidents and to maintain and promote health, on both personal and community-wide levels.
- Communicate clearly, orally and in writing, with other professionals and the media.
- Demonstrate an understanding of the fundamentals of action, indications, efficacy and benefit-risk ratio of therapeutic interventions based on the available scientific evidence.
- Demonstrate understanding of the causal agents and the risk factors that determine states of health and the progression of illnesses.
- Demonstrate understanding of the functions and interrelationships of body systems at different levels of organisation, homeostatic and regulatory mechanisms, and how these can vary through interaction with the environment.
- Demonstrate understanding of the importance and the limitations of scientific thought to the study, prevention and management of diseases.
- Demonstrate understanding of the manifestations of the illness in the structure and function of the human body.
- Demonstrate, in professional activity, a perspective that is critical, creative and research-oriented.
- Empathise and establish efficient interpersonal communication with patients, family-members, accompanying persons, doctors and other healthcare professionals.
- Engage in professional practice with respect for patients' autonomy, beliefs and culture, and for other healthcare professionals, showing an aptitude for teamwork.
- Establish a diagnostic approach and a well thought-out strategy for action, taking account of the results of the anamnesis and the physical examination, and the results of the appropriate complementary tests carried out subsequently.
- Establish the diagnosis, prognosis and treatment, basing decisions on the best possible evidence and a multidisciplinary approach focusing on the patient's needs and involving all members of the healthcare team, as well as the family and social environment.
- Indicate the most suitable treatment for the most prevalent acute and chronic processes, and for the terminally ill.
- Maintain and sharpen one's professional competence, in particular by independently learning new material and techniques and by focusing on quality.
- Maintain and use patient records for further study, ensuring the confidentiality of the data.
- Obtain and prepare a patient record that contains all important information and is structured and patient-centred, taking into account all age and gender groups and cultural, social and ethnic factors.
- Organise and plan time and workload in professional activity.
- Perform a general and a system-by-system physical examination appropriate to the patient's age and sex, in complete and systematic way, and a mental evaluation.
- Perform the basic practical procedures of examination and treatment.
- Put forward suitable preventive measures for each clinical situation.
- Recognise and take action in life-threatening situations and others that require an immediate response.
- Write patient records and other medical documents that can be understood by third parties.

## Learning Outcomes

1. Analyse life-threatening situations.
2. Apply prophylactic measures for post-operative complications, focusing on those that can be applied by general practitioners to out-patients.
3. Apply thromboembolic prophylactic measures.
4. Ask the right questions during anamnesis previous to a possible intervention for patients with a surgical process.
5. Assess the biomechanics of accidents in the care strategy for a traumatism.
6. Assess the indications and contraindications of transfusions and transplants.

7. Assess the risk-benefit ratio of surgical procedures on the basis of a medical record.
8. Communicate clearly, orally and in writing, with other professionals and the media.
9. Convey the relevant information on the lesion, its evolution and treatment possibilities.
10. Correctly fill in an informed consent form.
11. Define prophylactic measures for post-operative complications, focusing on those that can be applied by general practitioners to out-patients.
12. Define the bases, indications, tolerance and procedures in transplant donors and recipients.
13. Define the interactions of biomaterials.
14. Define the reasons for complications in surgery procedures.
15. Demonstrate, in professional activity, a perspective that is critical, creative and research-oriented.
16. Describe the fundamentals of rehabilitation, promotion of personal autonomy, of the functional adaptation of / to the environment, and other physical procedures in morbidity, to improve the quality of life.
17. Formulate a critical analysis of the objectives of surgical interventions, in the face of the adverse effects that they could have.
18. Give correct information on general surgical indications and pre-operative risk.
19. Give correct information on protective measures to avoid harmful energy transmission in traumatism.
20. Identify how the current state of the different surgical diagnosis and therapy procedures has been reached, the many questions still to be answered, and potential future advances.
21. Identify the first preventive measures (protection and warning) after accidents outside hospitals.
22. Identify the fundamental principles of surgical approaches in conventional and endoscopic surgery.
23. Identify the fundamental principles of surgical interventions in palliative care.
24. Identify the general principles of anaesthesia and resuscitation.
25. Identify the main data on a surgery report and on the documentation of a surgical patient.
26. Identify the organism's response to surgery and the contributions of minimally invasive surgery.
27. Identify the principal indications of electrophysiological techniques (ECG, EEG, EMG, etc.).
28. Identify the reasons for manifestations that help to diagnose the major surgical syndromes.
29. Inform on surgical alternatives.
30. Inform patients about all stages of their healthcare: preoperative, intraoperative, immediate postoperative (critical care unit), ward and monitoring after discharge.
31. Know the physiopathology of the different types of surgical wounds, scars, and haemorrhages.
32. Maintain and sharpen one's professional competence, in particular by independently learning new material and techniques and by focusing on quality.
33. Make correct use of the international surgical nomenclature.
34. Manage disinfection and sterilisation techniques.
35. Order and write a medical record in a way that allows the other documents needed by a surgical patient to be written, including those that use non-technical terminology.
36. Organise and plan time and workload in professional activity.
37. Perform basic surgical procedures: cleaning, haemostasis and suturing of wounds.
38. Perform simulated procedures for obtaining biological samples for minor surgery.
39. Perform simulated therapeutic procedures for minor surgery.
40. Recognise and identify life-threatening situations by manual means and instrumental monitoring procedures.
41. Recognise the characteristics of tissues in different injury situations.
42. Recognise the factors that increase the risk of post-operative complications in order to apply the corresponding prophylactic measures.
43. Recognise the organic material that is useful as a biological sample and the method for obtaining it by surgical procedures for further processing.
44. Request any additional tests that may be useful, depending on the anamnesis and physical examination, to complete the study of the major surgical syndromes in preparation for a surgical intervention.
45. Respond in life-threatening situations, acting and correcting in simulations, using manual means and instrumental procedures.
46. Seek out the significant elements of the examination of a surgical patient.
47. Select and use the necessary instruments and material to perform the typical procedures of minor surgery.
48. Set up a database to monitor patients who have undergone surgery.

## Content

The history of diagnostic and therapeutic surgical procedures; possible future developments currently in the research phase; and general and specific areas of surgery. Preoperative evaluation, informed consent (generic and adapted to each intervention), surgery report form and other legal medical records referring to the surgical patient.

The operating theatre: structure, layout and functioning of the theatre. Classification and management of instrumental and surgical material. Basic surgical manoeuvres and their application in elementary surgical procedures. Applications of surgical anatomy to approaches to the main surgical areas, Instrumental procedures useful in the care, evaluation and monitoring of surgical patients. Pathophysiology of wounds (including burns, freezing and other special types of wounds).

Haemorrhage and haemostasis in surgery, transfusions. Scarring. Artificial materials in surgery. Systemic response to surgery. Characteristics of the tissues in different situations of surgical injury: congenital and acquired alterations in cell growth, inflammation and traumatism. Concepts and classification of cancer surgery. Concepts, and types of transplant surgery and its organization. Surgical infections in the community: local and systemic pathophysiology. Injuries due to physical agents: concept, frequency, and classification. Care of elementary traumatic injuries: wounds and others. Polytraumatism: pathophysiology and initial care: scenarios, support units, primary and secondary recognition.

Diagnostic and therapeutic study of the main surgical syndromes of the various compartments of the human body. General principles of anaesthesia and resuscitation. Monitoring of surgical patients in critical care units. Fluid and electrolyte balance, Nutrition and diet therapy in the surgical patient. Routes of access to the venous system. Drains and ostomies. Postoperative care. Complications of surgery and prophylaxis. Nosocomial infections in surgical patients: thromboemboli and others.

Theory classes (25h):

- 1 History of surgery
- 2 The operating theatre
- 3 Surgery of traumatism
- 4 Community surgical infections
- 5 Principles of benign and oncological tumor surgery
- 6 Transplantation of organs
- 7 Principles of preoperative surgery
- 8 Systemic response to surgery
- 9 Anaesthesia and pain control
- 10 Alterations of hydroelectrolytic balance and acid base
- 11 Nutritional support in the surgical patient
- 12 Wound healing
- 13 Haemorrhage and haemostasis in surgery
- 14 Surgical site infections
- 15 Postoperative nosocomial infections away from the surgical site
- 16 Main surgical syndromes. Compartmental syndromes

17 Shock

18 Acute abdomen 1

19 Acute abdomen 2. Intestinal obstruction

20 Acute abdomen 3. Peritonitis

21 Extrahepatic obstructive jaundice

22 Digestive haemorrhages

23 Politraumatism 1. Concept, pathophysiology and initial care scenarios

24 Politraumatism 2. Primary and secondary recognitions

25 Postoperative complications

Laboratory practicals: skills development and simulation (15h):

A Access to the superficial venous system

B Drains and catheters

C Basic life support

D Principles of suturing and treatment of minor injuries

E Clinical history of surgical patients

Hospital practices (15h). General Surgery Service.

## **Methodology**

This Guide describes the framework, contents, methodology and general norms of the course, in accordance with the current curriculum. The final organization of the course at each Hospital Teaching Unit (i.e., with regard to the number and size of groups, the course dates and dates of examinations, assessment criteria and exam review procedures) will be explained on each Teaching Unit's web page and also on the first day of class of each course by the tutors responsible for the course at the Unit. If the tutors consider appropriate, and depending on the resources available at each Teaching Unit, some of the contents of the theory classes may be taught and evaluated in the simulation classes using the corresponding methodology.

For the present academic year, the following teachers have been appointed by the departments to take charge of the course (at the Faculty and at the Unit):

Department(s) responsible: Surgery

Head of Faculty: Salvador Navarro

Person in charge at the Units:

Sant Pau: Antonio Moral

Vall d'Hebron: Nivardo Rodriguez, Manel Armengol

Germans Trias i Pujol: José Troya Diaz

Parc Taulí: Salvador Navarro

Methodology

The 25 theory classes will be prepared by the teachers responsible, depending on the resources available at each Teaching Unit. Some of the contents of the theory classes and seminars may be taught and evaluated in the simulation classrooms, using the corresponding methodology.

There will be five laboratory practicals for the development of clinical skills and simulation, each one lasting three hours, with groups of five students. These practicals can be done during the first and second semester.

There will also be 15 hours of clinical care practicals at the General Surgery Service.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
LABORATORY PRACTICALS (PLAB)	15	0.6	
THEORY (TE)	25	1	
CLINICAL CARE PRACTICALS (PCAh)	15	0.6	
Type: Autonomous			
PREPARATION OF WRITTEN STUDIES / PERSONAL STUDY / READING ARTICLES / REPORTS OF INTEREST	65	2.6	

## Assessment

The competences acquired by students in this subject will be evaluated by means of:

Oral assessments: Unstructured tests (0-10%).

Practical assessments: Objective and structured clinical evaluation (0-30%).

Written assessments using objective tests: multiple choice tests and restricted tests (60-80%).

Students who do not perform the theoretical and practical assessment tests will not be considered for the examination and will lose their course registration fee.

Students who fail the course may sit a reassessment test scheduled according to the calendar.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Practical assessments: Objective and structured clinical evaluation	0%-30%	1	0.04	1, 2, 3, 45, 46, 9, 8, 31, 14, 12, 13, 11, 15, 16, 48, 17, 10, 47, 20, 28, 23, 22, 24, 26, 27, 21, 25, 18, 19, 30, 29, 34, 32, 35, 36, 37, 38, 39, 43, 42, 40, 41, 4, 44, 33, 5, 7, 6
Written assessments using objective tests: multiple choice and restricted choice tests	60%-80%	2	0.08	1, 31, 14, 13, 16, 48, 23, 24, 26, 27, 25, 42, 41, 5, 7, 6
Oral assessments: Unstructured tests	10%	2	0.08	46, 8, 31, 14, 12, 13, 11, 17, 47, 20, 28, 23, 22, 24, 26, 27, 21, 25, 18, 36, 37, 38, 40, 4, 44, 5, 7, 6

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## **Bibliography**

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  - Mandell, G., R. Dolin & John Bennett. Enfermedades Infecciosas. Principios y Práctica, 3 vols. (e-dition + CD-ROM), Elsevier, 2008.
  - Townsend Jr., C. M., R.D. Beauchamp, B.M. Evers & K.L. Mattox. SABISTON. Tratado de Cirugía. Fundamentos biológicos de la práctica quirúrgica moderna + Expert Consult + Premium Edition, Elsevier, 18ª ed, 2010.
  - Schwartz. Principios de Cirugía. 8ª Edición. 2009. McGraw Hill. Recursos de Internet
- Guías clínicas de la Asociación Española de Cirujanos