

**Anaesthesiology**

Code: 103598  
ECTS Credits: 3

Degree	Type	Year	Semester
2502442 Medicine	OT	4	0
2502442 Medicine	OT	5	0
2502442 Medicine	OT	6	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

**Other comments on languages**

Segons Unitat Docent i professorat, puntualment poden haver-hi classes teòriques en anglès.

**Teachers**

Salvador Navarro Soto  
Elena Català Puigbó  
Myriam Nadal Clanchet  
Jenaro Mañero Rey  
Maria Pilar Paniagua Iglesias  
Maria Teresa Sariñena Fernández  
Miren Elixabete Revuelta Rizo  
Alicia Melero Mascaray  
Susana Gonzalez Suarez

**Prerequisites**

Students should have passed all subjects of the first cycle previously. Students are request to preserve confidentiality and professional secret about clinical data related to patients or to learning purposes. A correct attitude in terms of professional ethics in all students' actions is mandatory.

**Objectives and Contextualisation**

1. To recognise risks and problems of anaesthesia as a medical doctor, to be able to advice surgical patients how to prepare physically and psychologically before surgery and anaesthesia.

2. To know special problems of anaesthesia for different surgical procedures and different kind of patients so that in the future the student, no matter the chosen specialty, will be able to help and advise other medical doctors on medical problems related to anaesthesia and surgery.
3. To apply basic principles of physiopathology and pharmacology to diagnose and treat critical ill patients: different coma states, cardiovascular and respiratory insufficiency, cardio-respiratory arrest, traumatism, shock status, etc.
4. To familiarise with acute pain evaluation using analgesic drugs through different administration routes and to perform some techniques to be able to relieve pain in situations of chronic pain.
5. To know and recognise general principles of Postoperative Resuscitation, most frequent complications and their treatment

#### Specific objectives

1. To know general surgical indications, perioperative risks and postoperative complications

#### Knowledge

- Risk factors of anaesthetic and surgical procedures
- General and specific postoperative complications in different surgical specialties
- Postoperative pain
- Thrombotic risk associated to anaesthesia, prophylaxis in different surgical procedures

#### Clinical abilities (to do)

- To detect the most important anaesthetic-surgical risk factors affecting: anatomic abnormalities, cardiovascular diseases, respiratory diseases, hepatic and renal diseases, metabolic diseases and nutritional alterations, extreme ages, coagulation disorders, nervous system diseases, allergies, pregnancy.
- To detect relationship between chronic treatments and anaesthetic-surgical procedures
- To detect early postoperative complications depending on surgical risk factors and patient's comorbidities.

#### Clinical abilities (to know how to do)

- Full preanaesthetic evaluation and decision making about anaesthetic-surgical procedures

2. To know general principles of anaesthesia and resuscitation

#### Knowledge

- Clinical guides (phases) of the surgical patient
- Preoperative evaluation
- Preoperative preparation of the patient
- IV and inhalatory general anaesthesia
- Sedation and analgesia
- Differences between general anaesthesia, sedation, regional and local anaesthesia
- OR and Day-Hospital organisation
- Ethics and laws of the clinical practice of anaesthesia and resuscitation

#### Clinical abilities (to know to do)

- To give general information about anaesthesia to the patient: safety, risks, sensations and side effects
- To perform correctly local topic and infiltration anaesthesia
- Safety administration of mild sedation

#### Clinical abilities (to know how to do)

- Neuroaxial and regional blocks

3. To know principles of different drug groups, dosages, administration routes, and pharmacokinetics. Analgesic drugs.

#### Knowledge

- Clinical pharmacology of general anaesthetics, benzodiazepines, muscle relaxants and local anaesthetics
- Perioperative use of opioids
- Non-opioid analgesic drugs

#### Clinical abilities (to know to do)

- To administer sedative drugs, neuroleptics, antiepileptic drugs, antibiotics, etc. safely

#### Clinical abilities (to know how to do)

- Lumbar puncture

To indicate adequate treatments in most frequent acute and chronic processes and in terminal ill patients.

4. To know epidemiology, social-economic consequences and physiopathologic basis of acute and chronic pain and its treatment.

#### Knowledge

Pain and its treatment. Definition and types of pain. Pain treatment as a fundamental human right.

##### a) Pain as a Public Health Problem

- Epidemiology. Individual and socioeconomic repercussions
- Ethics aspects
- Human and animal research

b) To know implicated mechanisms of transmission and modulation of pain and its evolution from acute to chronic pain.

- Neuroanatomy, physiology and biochemistry: Transmission and modulation routes of pain. Transmitters implicated. Psychology of pain.

c) To know how to evaluate pain, suffering and disability and the efficacy of treatments. Scales and questionnaires

d) To know standard treatments used in acute and chronic pain

- Pharmacologic treatment: opioid and non-opioid analgesics and adjuvants. Administration routes and forms
- Invasive treatments: blocks, radiofrequency, neurostimulation
- Psychologic techniques and physiotherapy

e) To know clinical characteristics and treatment in most frequent clinical scenarios affected by pain:

Acute postoperative pain and pain treatment in emergency room

Muscle-skeletal pain

Neuropathic pain

Oncologic pain

Pain in children and elderly patients

Pain and pregnancy

Pain in drug dependent patients

Pain in palliative care

f) Derivation criteria and patient visits in Pain Unit

g) Principles of analgesia and palliative sedations

Clinical abilities (to do)

To perform anamnesis, clinical exploration, y solicitar pruebas complementarias de enfermos con dolor agudo y crónico

- To evaluate acute and chronic pain intensity using visual and oral analogic scales
- To prescribe combined analgesic treatments. To prevent and treat side effects.
- To treat pain correctly in special situations: pregnancy, breast feeding, pediatrics, geriatrics, drug dependent patients.
- To prescribe opioids and combined opioid drugs through different administration routes (oral, transdermal, etc.) at home. To prevent and treat side effects. To recognise opioid addiction signs in patients with chronic pain.
- Follow-up of oncologic patients under high dosages of opioids through different administration routes
- Peripheral infiltrations with local anaesthetics with analgesic purposes
- Follow-up ("pain diary") of chronic pain and treatment efficacy

Clinical abilities (to know how to do)

- To evaluate clinical trial protocols on pain issues
- To know the correct use of questionnaires in chronic pain management
- To know the correct safe IV administration of opioids in acute pain treatment
- To know the correct administration of analgesic drugs with "patient controlled analgesia" (PCA)
- To know the indications of central and peripheral nerve blocks in pain treatment
- To know pain treatment in labour with epidural analgesia
- To know the use of opioids in terminal ill patients
- To know opioids rotation and/or administration routes

## Competences

Medicine

- Demonstrate understanding of the causal agents and the risk factors that determine states of health and the progression of illnesses.
- Demonstrate understanding of the manifestations of the illness in the structure and function of the human body.
- 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.
- Formulate hypotheses and compile and critically assess information for problem-solving, using the scientific method.
- Listen carefully, obtain and synthesise relevant information on patients' problems, and understand this information.
- 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.

- Recognize one's role in multi-professional teams, assuming leadership where appropriate, both for healthcare provision and for promoting health.
- Use information and communication technologies in professional practice.

## Learning Outcomes

1. Anticipate and compare information for good decision-making.
2. Back decision-making with the best scientific evidence.
3. Calculate the surgical risk indices, both general and by apparatus, and adjust the indications accordingly.
4. Distinguish the bases of the different surgical specialisations to integrate and lead the treatment in acute and chronic patients with multiple conditions.
5. Distinguish the implications of different interventions regarding functional and morphological changes.
6. Enumerate the alarm signs that require urgent attention to the patient.
7. Formulate hypotheses and compile and critically assess information for problem-solving, using the scientific method.
8. Further investigate the risk factors of morbidity and mortality in operations.
9. Gather information and select the most important facts about the patient, both in normal visits and emergencies.
10. Identify emergency situations and establish an order of priorities.
11. Integrate all pre-operative information for decision-making.
12. Manage the information available and set levels of discussion in multidisciplinary groups.
13. Participate in the whole process of patient-care, from diagnosis to aftercare.
14. Use information and communication technologies in professional practice.
15. Use the scales that assess the general (physical and mental) state of the patient.

## Content

### CONTENTS

Theoretical classes (11 hours): in case of virtual classes, video records of the corresponding classes will be available in Moodle Virtual Campus

Preoperative risk assessment (1 hour)

General principles of anaesthesia and resuscitation (2 hours)

General anaesthetics (1 hour)

Regional Anaesthesia and local anaesthetics (1 hours)

Obstetric anaesthesia (1 hour)

Acute and chronic pain (2 hours)

Reanimation surgical table (3 hours)

Lab practicum (4 hours): small student groups will be organised in order to respect enough social distance

Clinical cases in anaesthesia (1 hour)

Contextual competences (1 hour)

Basic monitoring (1 hour)

Basic airway (1 hour)

Practicum (15 hours): also possible during the weekend with the anaesthesiology team on duty

OR (5 hours)

Postoperative ICU (5 hours)

Pain (5 hours)

## Methodology

This Guide describes the framework, contents, methodology and general rules of the subject, in accordance with

The final organization of the subject with respect to the number and size of groups, distribution in the calendar and

specific evaluation criteria and review of exams, will be specified in each of the hospital teaching units (UDH), with

through its web pages and the first day of class of each subject, through the professors responsible for the subject

Teaching methodology and evaluation proposed in this guide may be modified according to current pandemic res  
For the present course, the professors appointed by the departments as

UDHSP	UDHVVH	UDGTiP	UDPT
Elena Català ecatala@santpau.cat	Miriam de Nadal minadal@vhebron.net	Enrique Moret Ruiz <a href="mailto:emoret.germanstrias@gencat.cat">emoret.germanstrias@gencat.cat</a>	Dr. Jenaro manero jenaromanero@gmail.co
Miren Revuelta mrevuelta@santpau.cat	Susana González susagonzalez@vhebron.net (30 students)	Alicia Melero amelero.germanstrias@gencat.cat	(15-20 students)
Pilar Paniagua ppaniagua@santpau.cat (25 students)		Maite Sariñena mtsarinena.germanstrias@gencat.cat (25 students)	

The subject can be taught if you meet a minimum of 10 students enrolled.

The orientation schedule of the subject can be consulted on the corresponding UDD website.

In the current exceptional circumstances, at the discretion of the teachers and also depending on the resources available and the public health situation, some of the theoretical classes, practicals and seminars organized by the Teaching Units may be taught either in person or virtually.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Directed	4	0.16	
THEORY (TE)	11	0.44	1, 8, 2, 5, 6, 12, 10, 13
Type: Supervised			
Supervised	15	0.6	11
Type: Autonomous			
Autonomous	42	1.68	8, 5, 6, 7, 10, 14

## Assessment

This subject includes a recovery system for students who have not passed the content of the same, with a format to be determined. The evaluation system is based on:

Objective exam with MCQ and short answers: 50%

Attendance and active participation in class: 40% (also in case of virtual classes)

Evaluation of practical cases and problem based learning: 10%

Problem solving, class attendance, active participation, demonstration of skills, student behavior during practices (punctuality, compliance with the schedule, treatment with the patient, treatment with the medical / nursing staff, interest shown, involvement / collaboration). Students who do not take the theoretical and practical assessment tests will be considered as NOT evaluated, exhausting the rights to the enrollment of the subject.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Attendance and active participation in class and seminars (also in virtual form)	40%	1	0.04	1, 2, 3, 4, 15, 7, 12, 11, 13, 9, 14
Evaluation through case studies and problem solving	10%	1	0.04	13

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Written evaluation through objective test: Multiple response items / restricted questions essay tests	50%	1	0.04	1, 8, 2, 5, 6, 12, 10, 13, 14
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## Bibliography

Specific bibliography

[Anesthesia Student Survival Guide: A Case-Based Approach](#) by Jesse M. Ehrenfeld, [Richard D Urman](#), and Scott Segal (Paperback - Mar 19, 2010)

[Pocket Anesthesia \(Pocket Notebook Series\)](#) by [Richard D Urman](#) and Jesse M Ehrenfeld (Loose Leaf - Jun 1, 2009)

[NMS Clinical Manual of Anesthesia](#) by Randall S. Glidden (Paperback - Oct 15, 2002)

[Atlas de poche d'anesthésie](#) de Norbert Roewer, Holger Thiel, Jürgen Wirth, et Guy Freys (Broché - 8 septembre 2009)- original in German.

[Core Clinical Competencies in Anesthesiology: A Case-based Approach \(Cambridge Medicine\)](#) by Christopher J. Gallagher, Michael C. Lewis, and Deborah A. Schwengel (Paperback - 12Apr 2010)

[How to Survive in Anaesthesia: A Guide for Trainees, Third Edition](#) by Neville Robinson and George M. Hall (Paperback - 10 Oct 2006)

Recursos WEB:

Anesthesia virtual

<http://www.anestesiavirtual.com/>

Regional anesthesia:

<http://www.raeducation.com>

## Software

No specific programm is needed.