

**Surgery and Anaesthetics**

Code: 102675  
ECTS Credits: 8

Degree	Type	Year	Semester
2502445 Veterinary Medicine	OB	3	A

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

**Contact**

Name: Anna Maria Andaluz Martinez  
Email: Anna.Andaluz@uab.cat

**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**

Félix Angel García Arnás  
Maria Teresa Peña Giménez  
David Prandi Chevalier  
Jaume Martorell Monserrat  
Cristina Costa Farré  
Adria Aguilar Catalan  
Anna Maria Andaluz Martinez  
Xavier Moll Sánchez

**Prerequisites**

There are no official prerequisites to take the course, although it is advisable that the student has taken and pass

**Objectives and Contextualisation**

The subject of General Surgery and Anesthesia is a compulsory third year subject that introduces the student for the first time in the study of surgical treatment diseases and in anesthesiology. It is essential and basic for subsequent clinical studies. He teaches the basics of asepsis, wound treatment, skin reconstruction and the handling of surgical equipment as well as different suturing techniques. In addition, it lays the foundations for clinical anesthesia and analgesia in different animal species and the fluid therapy techniques common in the surgical patient. The training objectives of the subject are: Have knowledge of pathophysiology applied to surgical diseases Know and be able to respect the concept of asepsis and sterile area in the operating room. To know in a theoretical and practical way the most commonly used suturing techniques and materials. Recognize and know how to use basic surgical instruments appropriately. Be able to use the usual anesthetics

and anesthesia machine. Be able to monitor an anesthetized animal. Be able to use the most common skin reconstructive surgery techniques. Know the basics of fluid therapy and be able to apply it to the clinical situations explained.

## Competences

- Apply scientific method to professional practice, including medicine
- Attend to emergencies and perform first aid in veterinary science.
- Collect, preserve and issue all types of samples with the corresponding report.
- Comunicar la informació obtinguda durant l'exercici professional de manera fluïda, oralment i per escrit, amb altres col·legues, autoritats i la societat en general.
- Demonstrate knowledge and understanding of structural and functional disorders of the animal organism.
- Demonstrate knowledge and understanding of the general bases of medical and surgical treatments.
- Make clinical records and accurate and complete clinical exploration of animals.
- Perform the most common medical and surgical treatments of animals.
- Prescribe and dispense medicines correctly and responsibly in accordance with legislation, and ensure that the medicines and waste are stored and eliminated properly.
- Properly apply the principles of sterilisation of surgical equipment and the principles of surgical asepsis.
- Safely perform sedations and regional and general anaesthesia, and evaluate and control the pain.
- Treat and handle animals in a safe and humanitarian manner, and instruct other people to properly employ these techniques.
- Work effectively in single or multidisciplinary teams and show respect, appreciation and sensitivity for the work of others.

## Learning Outcomes

1. "Choose the most suitable suture materials for each intervention; type of material and thickness and type of needle."
2. Apply any measures needed to restrain animals: protecting the veterinarian without causing them injury or stress, and be aware of the risks involved in handling animals.
3. Apply haemostasis and drainage techniques.
4. Apply scientific method to professional practice, including medicine
5. Communicate information obtained during professional exercise in a fluid manner, orally and in writing, with other colleagues, authorities and society in general.
6. Define the bases for the treatment of wounds and their complications.
7. Describe the methods for administering hospital nutrition.
8. Distinguish the bases of fluidotherapy and apply them to the explained clinical situations.
9. Employ the most common reconstructive surgery techniques.
10. Explain the cardiopulmonary resuscitation techniques to be applied to anaesthetic complications.
11. Explain the methods of disinfection and sterilisation and their limitations.
12. Explain the surgical pathology of different systems of the organism.
13. Identify biopsy techniques applicable for obtaining samples from different organs and tissues, as well as knowing their limitations, complications and methods to preserve samples and enable later analysis.
14. Identify the anaesthetic particularities of different animal species.
15. Identify the limitations on the use and prescription of some anaesthetic and/or analgesic agents.
16. Interpret the principles for the manipulation of tissue and surgical dissection, as well as the concept of atraumatic surgery.
17. Monitor animals during anaesthesia.
18. Perform pre-anaesthesia estimations of surgical patients.
19. Perform the most frequent suture techniques, as well as knotting techniques with suture materials.
20. Properly recognise, order, pass, take and use general surgical instruments.
21. Properly use and wear a cap, mask and gaiters without losing the sterility of the surgical gown and gloves (open and closed techniques).
22. Recognise the generalities of post-operation cures applicable to any type of surgery.
23. Respect the concept of asepsis and sterile area in the operating theatre.
24. Secure animals before examinations, treatment or sample taking, causing the minimum possible stress.

25. Show knowledge of pathophysiology applied to surgical diseases.
26. Use anaesthesia apparatus.
27. Use anaesthetics and analgesics.
28. Work effectively in single or multidisciplinary teams and show respect, appreciation and sensitivity for the work of others.

## **Content**

The learning process of the contents of the subject takes place in an integrated way by attending the theoretical or master classes and the practical sessions, as well as by the development of self-learning activities.

The theoretical-practical contents are specified below. (\*)

### **Theoretical contents:**

#### **BLOCK 1: GENERAL SURGERY (15 hours)**

Topic 1: Introduction. Principles of surgical asepsis. Sterilization and disinfection. Asepsis in the operating room, equipment and staff. Preparation of the surgical patient. Topic 2: Surgical material. Type and use. Tissue manipulation. Surgical dissection. Classification of surgical interventions. Topic 3: Hemostasis. Drains. Item 4: Sutures I: Generalities and indications. Instrumental. Suture materials. Techniques, indications .. Item 5: Sutures II: Types of sutures. Practical applications. Complications of sutures. Topic 6: Trauma: stages of healing. Types of wounds. Thermal and electrical burns. Bite wounds. Treatment protocols. Topic 7: Bandages Item 8: Taking biopsies. Oncological surgery (resection of tumors, margins, ..). Cryosurgery and laser techniques. Principles and indications Topic 9: Postoperative management of the surgical patient: generalities, complications and their treatment. Surgical infections. Choice of antibiotic Item 10: Food (enteral-parenteral nutrition). Item 11: Reconstructive skin surgery I (tension lines, pendants) Topic 12: Reconstructive skin surgery II (pendants, grafts) Topic 13: Fluid therapy I Topic 14: Fluid therapy II Item 15: Fluid therapy III

**BLOCK 2: ANESTHESIA (15 hours)** The theoretical contents of this block will be taught during the first semester. Item 16: Pre-anesthetic assessment. Patient preparation. Item 17: Anesthetic premedication Item 18: Pain I: Pathways of pain. Opiate analgesics Topic 19. Pain II: NSAIDs. Postoperative analgesia. Neuroleptoanalgesia Topic 20: Concept of general anesthesia. Injectable anesthetic agents Item 21: Maintenance of general anesthesia. Inhalation anesthesia. Item 22: Ventilation I. General concepts. Spontaneous ventilation, physiology. Mechanical ventilation Complications mechanical ventilation. Neuromuscular relaxants Item 23: Monitoring I (respiratory) Item 24: Monitoring II (cardiovascular) Item 25: Anesthetic complications. Cardiopulmonary resuscitation Topic 26: Loco-regional anesthesia. Item 27: Anesthetic considerations in dogs and cats Item 28: Anesthetic considerations in small mammals Item 29: Anesthetic considerations in ruminants and pigs Item 30: Anesthetic considerations in horses

### **Practical contents:**

-GENERAL SURGERY PRACTICES (LABORATORY): practices lasting 2 hours each.  
**PRACTICE 1:** Surgical block. Asepsis. Behavior in the operating room. Instrumental **PRACTICE 2:** Sutures I. Approach and eversion **PRACTICE 3:** Sutures II. Investment sutures. Empty viscera **PRACTICE 4:** Skin reconstruction **PRACTICE 5:** Biopsies. Placement of drains. Feeding tubes. Catheters **PRACTICE 6:** Wound care. Bandages

- ANESTHESIA PRACTICES: 4 hours face-to-face workshops + OHE anesthesia (4 hours) + Module (20 hours \*) (\* can be modified for health reasons)
- ANESTHESIA WORKSHOPS (LABORATORY): Workshop lasting two hours each. These workshops will be given in person. - WORKSHOP 1: Routes of administration, placement of IV route, infusion pump operation, blood draw, continuous infusions - WORKSHOP 2: Operation of anesthesia machine and systems, endotracheal intubation, oxygen administration with probe or mask.
- ANESTHESIA PRACTICES 1-WEEK ANESTHESIA MODULE AT FHCV (20 HOURS) in small groups.
- OHE ANESTHESIA PRACTICE (4H) IN SMALL GROUPS

**Self-learning:** Material posted on the virtual campus before the internship (It is mandatory to consult it before coming to the internship) + activities related to the theoretical classes

\* Depending on the restrictions that may be imposed by the health authorities depending on the evolution of the pandemic, it will be possible to carry out reductions or prioritization of the contents of the subject.

## Methodology

Learning will be taught in a combined way, with theoretical teaching given in the form of classes master classes and with practical teaching (\*). In this way the bases will be covered. The teaching material used in the subject will be available on the Virtual Campus. Theoretical teaching. Master classes. The master classes will be given with the help of power point schemes and practical cases. The necessary and basic information will be given so that, later, the knowledge can be applied.

Practical teaching. The practical sessions serve to apply and fix the knowledge that the students have acquired in the theoretical classes.

\*\*\* Depending on the restrictions that may be imposed by the health authorities depending on the evolution of the pandemic, it will be possible to carry out reductions or prioritization of the contents of the subject.

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			
Autoaprendizaje	24	0.96	4, 5, 10, 15, 14, 17, 23, 24, 28, 21, 27, 26
Practical teaching	12	0.48	1, 3, 6, 9, 11, 13, 16, 19, 22, 20, 23, 21

Practical teaching. Anesthesia practices (practice laboratory)	4	0.16	10, 17, 28, 26
Theoretical teaching.	30	1.2	1, 3, 6, 25, 7, 8, 9, 11, 12, 10, 15, 14, 13, 16, 17, 19, 22, 20, 23, 24, 21, 27, 26
Type: Autonomous			
Practical teaching	40	1.6	8, 15, 14, 17, 27, 26
Theoretical teaching	86	3.44	1, 3, 6, 25, 7, 8, 9, 11, 12, 10, 15, 14, 13, 16, 17, 19, 22, 20, 23, 21, 27, 26

## Assessment

The assessment will be developed throughout the course, which will monitor the teaching and learning process, encourage continued effort throughout the semester and verify whether the competencies assigned to the subject in the curriculum.

In order to be able to sum or obtain the final mark, it is necessary to have passed both the practical exam and the two theoretical ones independently. Attendance at internships and self-study are also compulsory. Internships and self-learning are also mandatory for repeaters without exception. As indicated below, the unjustified absence from the internship or the non-completion of the self-learning implies the suspension of the subject.

**Written exams.** There will be two partial written exams (one for block 1 and one for block 2). Written exams will account for 60% of the final grade of the subject (both exams have the same weight, ie each exam will represent 30% of the final grade). A minimum grade of 5 points out of 10 will be required in each of these exams to be able to average with the other grades and pass the subject. The written exams will allow to evaluate the integration of the theoretical knowledge with the acquired in the practical sessions of the subject, the capacity to relate concepts and of analysis and, in definite, show the final maturity of the student.

Students who have not completed any of the practices of the subject or self-learning activities will not be able to take the theoretical exams.

**Practical exam:** there will be a practical exam. This exam will account for 20% of the final grade of the subject. The exam assesses the acquisition of knowledge and skills. The following grades can be obtained in the exam:

. Suspended = failed minimum skills. The subject will be suspended.

.0.1- 2 points on the final grade: depending on the skills you have acquired.

Students with unexcused absences from the general surgery block practices will not be able to take the practical exam and will have the subject suspended.

**Anesthesia practices:**attendance at all practices is mandatory to pass the subject (also for repeaters without exception). Anesthesia practices account for 10% of the final grade. During the OHE and module practices, the student will have to know and know how to do all the points explained during workshops 1 and 2 as well as the theory. Lack of knowledge of these points will result in a score of 0 in this part of the note.

**Self-learning work:**represents 10% of the final grade. Self-learning work is compulsory and includes:

- Preparation of laboratory practices independently with the material deposited by teachers before attending the practice. During the practice, it will be valued that the student has completed the self-learning. Students who do not complete the indicated self-learning will not be able to attend the practice and this will be recorded as not completed.
- The topics in block 2 (general surgery) taught by David Prandi will include **MANDATORY** self-learning activities. Failure to perform these activities means that you will not be able to take the theoretical exam for the general surgery block.

Students who do not pass the practical exam or one of the two partial written exams will have the opportunity to retake them during the end-of-semester exam period.

Practice controls and self-learning work are not recoverable and failure to complete these parts involves failing the subject.

A student who has taken a midterm exam and then fails any more exams will be considered suspended.

\* "The proposed assessment may be subject to change depending on the attendance restrictions imposed by the health authorities

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Evaluation of anesthesia practices (10%) and continuous evaluation of master classes (10%)	20%	1	0.04	4, 5, 7, 15, 14, 13, 17, 28, 27, 26
Partial written test - Block 1 (the note will include the continuous assessment of the topics taught by David Prandi).	30%	1	0.04	10, 15, 14, 17, 24, 27, 26
Partial written test - Block 2	30%	1	0.04	1, 3, 2, 6, 9, 11, 13, 16, 19, 18, 22, 20, 23, 28, 21
Practical test	30% of the final grade	1	0.04	1, 3, 6, 25, 7, 8, 9, 11, 12, 13, 16, 19, 22, 20, 23, 21

## Bibliography

### SURGERY

#### [BSAVA Manual of Canine and Feline Abdominal Surgery](#)

Editors: John M. Williams and Jacqui D. Niles

Publication Date: November 2015

#### [BSAVA Manual of Canine and Feline Oncology](#)

Editors: Jane M. Dobson and B. Duncan X. Lascelles

Publication Date: January 2011

### **BSAVA Manual of Canine and Feline Surgical Principles**

Editors: Stephen J. Baines, Vicky Lipscomb and Tim Hutchinson

Publication Date: January 2012

### **BSAVA Manual of Canine and Feline Wound Management and Reconstruction**

Editors: John Williams and Alison Moores

Publication Date: March 2009

### **Atlas of Small Animal Wound Management and Reconstructive Surgery, Fourth Edition**

Author(s): [Michael M. Pavletic DVM,](#)

First published:16 February 2018

### **Atlas of Surgical Approaches to Soft Tissue and Oncologic Diseases in the Dog and Cat**

Author(s): [Marije Risselada DVM, PhD, DECVS, DACVS-SA,,](#) [Alice MacGregor Harvey](#)

First published:22 June 2020

### **Small Animal Soft Tissue Surgery**

Editor(s): Professor, Small Animal Surgery Eric Monnet DVM, PhD, FAHA, Diplomate ACVS, ECVS,

First published:21 December 2012

## **ANESTHESIA**

### **BSAVA Manual of Canine and Feline Anaesthesia and Analgesia**

Editors: Tanya Duke-Novakovski, Marieke de Vries and Chris Seymour

Publication Date: April 2016

### **Analgesia and Anesthesia for the Ill or Injured Dog and Cat**

Author(s): [Karol A. Mathews,](#) [Melissa Sinclair,](#) [Andrea M. Steele,](#) [Tamara Grubb](#)

First published:19 April 2018

### **Canine and Feline Anesthesia and CoExisting Disease**

Editor(s): Lindsey B. C. Snyder, Rebecca A. Johnson

First published:24 October 2014

### **Farm Animal Anesthesia: Cattle, Small Ruminants, Camelids, and Pigs**

Editor(s): HuiChu Lin DVM, MS., Paul Walz DVM, MS, PhD,

First published:7 April 2014

### **Feline Anesthesia and Pain Management**

Author(s): [Paulo Steagall](#), [Sheilah Robertson](#), [Polly Taylor](#)

First published:20 October 2017

### **Handbook of Small Animal Regional Anesthesia and Analgesia Techniques**

Editor(s): Phillip Lerche BVSc PhD DipACVAA,, Turi K. Aarnes DVM MS DipACVAA,, Gwen Covey-Crump BVetMed CertVA DipECVAA MRCVS,, Fernando Martinez Taboada LV CertVA DipECVAA MRCVS,

First published:1 January 2016

Veterinary anaesthesia (11 edition)

Clake and Trim. Elsevier

### **Veterinary Anesthesia and Analgesia: The Fifth Edition of Lumb and Jones**

Editor(s): Kurt A. Grimm, Leigh A. Lamont, William J. Tranquilli, Stephen A. Greene, Sheilah A. Robertson

First published:29 April 2015

### **Veterinary Anesthetic and Monitoring Equipment**

Author(s): [Kristen G. Cooley](#), [Rebecca A. Johnson](#)

First published:13 August 2018

### **Zoo Animal and Wildlife Immobilization and Anesthesia, Second Edition**

Editor(s): Gary West DVM, Dipl ACZM,, Darryl Heard BSc, BVMS, PhD, Dipl ACZM,, Nigel Caulkett DVM, MVetSc, Dipl ACVA,

First published:25 July 2014

### **Software**

Not necessary