

Academic Year/course: 2022/23

28421 - General Surgical Pathology: Surgery and Anaesthesiology

Syllabus Information

Academic Year: 2022/23

Subject: 28421 - General Surgical Pathology: Surgery and Anaesthesiology

Faculty / School: 105 - Facultad de Veterinaria

Degree: 451 - Degree in Veterinary Science

ECTS: 7.0

Year: 3

Semester: Annual

Subject Type: Compulsory

Module:

1. General information

1.1. Aims of the course

This subject and its expected answer to the following propositions and aims:

Objectives of this subject are:

- The knowledge of the diseases and injuries in which surgery may be indicated as a therapy, including emergencies and the impact of the surgical procedure on the patient's body (Surgical Pathology).
- The knowledge of surgical therapy with its protocols and techniques, as well as the acquisition of basic manual skills that are used in any surgical act (Surgery).
- The mastery of clinical anaesthesiology, from pre-anesthetic evaluation to post-anesthetic care, including general and loco-regional anesthesia guidelines and patient monitoring in order to prevent, detect and treat complications that may arise during anesthesia.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDG) of the Agenda 2030 of the United Nations (<https://www.un.org/sustainabledevelopment/es/>), in such a way that the acquisition of learning outcomes of the subject provides training and competence to contribute to their achievement.

Goal 3:	Good health and well-being.
Goal 4:	Quality education.
Goal 5:	Gender equality.
Goal 8:	Decent work and economic growth.
Goal 9:	Industry, innovation and infrastructure.
Goal 10:	Reduced inequalities.
Goal 12:	Responsible consumption and production.
Goal 13:	Climate action.

1.2. Context and importance of this course in the degree

A part of the diseases and injuries that afflict our patients have surgical treatment. It is necessary to know them and also to learn everything related to surgical therapy, both conceptually and practically, which means knowing the patient's response to the surgical act as a way to guide our actions in the peri-operative period and reduce complications.

Basic manual skills must also be acquired to carry out these treatments with minimal injury and sequelae for the patient. Finally, our course teaches how to anesthetize and use analgesics in patients who will undergo surgery or who suffer pain from other origins.

All these knowledge and skills, together with those acquired and completed in the rest of the third year clinical subjects in the different species, along with the fourth year integration subjects and with the fifth year Clinical Practicum, will establish the foundations for the exercise of clinical veterinary medicine.

1.3. Recommendations to take this course

In order to take this course it is recommended to have passed all the basic training subjects of the first two courses, especially Embryology and Anatomy, Cytology and Histology and Physiology.

It is also recommended to review, before beginning the study of anaesthesiology, the knowledge of pharmacology related to anesthesia and analgesia, which will be taught in advance in the subject of Pharmacology and Pharmacotherapy, also in the third year.

It is also of great importance to complete the knowledge of this subject with those acquired in the subjects of General Pathology, General Pathology and Propedeutics, and Diagnostic imaging.

2. Learning goals

2.1. Competences

On successful completion of this course, students will be able to:

1. Carry out a complete preoperative clinical evaluation of the individual to be operated on.
2. Indicate, perform and interpret methods and procedures of clinical examination and complementary diagnostic techniques.
3. Indicate and carry out basic surgical techniques used in veterinary medicine.
4. To anesthetize the animals attending them adequately during the whole recovery period, with special attention to pain.

2.2. Learning goals

If students complete the course successfully, they should be able to:

1. Understand the patient's body's response to trauma, especially surgical trauma, both locally and systemically.
2. Explain the main complications derived from surgical treatment, how to recognize them, prevent them and treat them by means of adequate peri-operative care.
3. Recognize and handle basic surgical instruments and materials.
4. Know and apply the protocols for preparing a surgical intervention (surgical field, preparation of the operating room, instruments and material and preparation of surgical personnel).
5. Perform basic surgical techniques correctly (incision, dissection, suture, hemostasis).
6. Know the basic surgical techniques for the resolution of diseases or injuries of domestic animals, both those involving soft tissues and those of traumatology and orthopedics.
7. Assess the anesthetic risk presented by a given patient.
8. Understand the theoretical and practical bases of clinical anesthesia, both general and local-regional.
9. Monitor the anesthetized patient correctly and interpret the results in order to detect and treat the most common anesthetic complications.
10. Design anesthesia guidelines suitable for the different species and clinical situations.
11. Recognize pain in the anesthetized patient and in the postoperative period, designing analgesia guidelines adapted to each case.

2.3. Importance of learning goals

These learning results allow the student, together with the rest of the skills acquired in other clinical subjects, to lay the foundations for the practice of clinical veterinary medicine in general and especially in the field of companion animals, equines and exotic animals, in which a large part of the daily clinical work of the veterinarian is carried out within the field of surgical pathology, surgery and anesthesiology.

3. Assessment (1st and 2nd call)

3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

Evaluation activities

The student must demonstrate that has achieved the intended learning outcomes through the following assessment activities:

3.1. Evaluation of the theoretical content: 70 points out of 100

By means of two written tests, at the end of each four-month period, each consisting of a maximum of 60 questions, along with the conventional June and September calls. It assesses learning outcomes 1, 2, and 6 to 11. They can be:

1. Short or longer answer questions (no penalty for the wrong answer and 60% to pass).
2. Multiple choice questions, either of the True or False type (4 answers), or of the classic type of 4 answers with only 1 right (it is necessary to obtain 7.5 out of 10 in order to pass). Same with 5 answers with 1 right (needing to get 6.5 out of 10 to pass).
3. The evaluation may be oral if the student and teacher agree.

3.2. Evaluation of the practical content: 30 points out of 100

3.2.1. Surgery Practices. 15 points out of 100

Evaluates learning outcomes 3, 4 and 5.

- Examination during the practical lessons. 2 points out of 100

CIR 1, CIR 3 and CIR 4:

The theory of Surgery and its practices are taught in the first 9 theoretical sessions. Afterwards, the Surgery practices will be started. In Moodle, students will have some Surgical Practice Objectives in the form of questions (about 150). Students must prepare these questions, based on the theoretical content taught in class. In CIR1, and before starting the practice, an examination of these contents will be carried out, in the form of a question to be developed. Likewise, at the beginning of CIR3 and CIR4.

In the practices, the handling of the instruments is taught, the position of hands, placement of gloves, etc. Internship time is not always enough to acquire the necessary skills. Individualized non-attendance tasks will be proposed in the practice, which the student will have to prepare at home for the next practice. The student's interest and progression in these subjects will be valued.

CIR 2 and CIR 5:

Students will be evaluated during the CIR 2 practice based on their achievements.

The students will be evaluated at the beginning of the CIR 5 practice in order to check whether they have prepared the practice with the documentation available in Moodle for this purpose.

- Practical examination: surgery "stands". 13 points out of 100

In the June and September calls, there will be an evaluation of the skills acquired in the practical sessions of surgery, by means of a test that will consist of several "stands" in which the student will have to carry out some of the protocols or techniques corresponding to the different practical sessions.

3.2.2. Anesthesia practices. 15 points out of 100

Evaluate learning outcomes 7 to 11.

- Self-evaluation in Moodle on anesthesia "seminars". 2 points out of 100

Students must prepare the content of the anesthesiology practices to attend them having reviewed the previous theoretical knowledge. For this purpose, the objectives of the internships, as well as additional material and sample questions, will be available in Moodle and will be evaluated together after the seminars and practical workshops, before the clinical session, through self-evaluation in Moodle.

- Practical examination anesthesia "stands". 13 points out of 100

In the June and September sessions, there will be an evaluation of the skills acquired in the practical sessions of anesthesia by means of a test that will consist of several "stands" in which the student will have to carry out one of the protocols or techniques corresponding to each session.

Valuation criteria and requirement levels

The grade for each of the evaluation activities will be valid only for the current academic year.

In order to pass this subject it is necessary to obtain half of the points, once added the points obtained in each one of these activities.

Out of 100 points:

Theoretical test: 70 points. (50 - 75% depending on the type of question).

Practical test: 30 points. In order to pass, at least 20 points are required.

15 points assigned to surgery (2+13)

15 points assigned to anesthesia (2+13)

Practical tests of surgery and anesthesia stands must be approved separately in order to be averaged.

Marking system:

According to the national regulation Law 1025/2003, 5th of September, which lays down the European system of credits and marking system for the university degree.

0-4,9: FAIL.

5,0-6,9: PASS

7,0-8,9: GOOD (NT).

9,0-10: EXCELLENT (SB).

As article 158 of the Statutes of the University of Zaragoza lays down, provisional grades will be displayed at least for 7 days and students will be able to review them on the date, time and place provided for that purpose

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The learning process that has been designed for this subject is based on...

- 40 theoretical sessions
- Five practical sessions of surgery (17 hours)
 - 1 practical session on Introduction to the surgical environment (2 hours)
 - 1 practice session on Basic suture practices in biomodels (4 hours)
 - 1 practice session on Basic surgical techniques I (4 hours)
 - 1 practice session on Basic surgical techniques II (4 hours)
 - 1 practice session on Basic osteosynthesis practices in biomodels (3 hours)
- Five practical anesthesia and resuscitation sessions (13 hours)
 - 1 practical session on VPO and pre-anesthesia (2.5 hours)
 - 1 practical session on Induction, intubation and anesthetic machine. (2 hours)
 - 1 practical session on Anesthetic maintenance. Monitoring and complications (2.5 hours).
 - 1 practical session on loco-regional anesthesia (3 hours).
 - 1 practical session on clinical anesthesia (3 hours).

The theoretical sessions will last 50 minutes and will be given in the classroom with the students in the groups organized by the Centre.

The practical surgery sessions will take place in the surgery teaching laboratory and in the teaching operating room located in the hospital (Large Animal area, Operating Room 5). There will be 5 sessions dedicated to the knowledge and handling of surgical instruments and material, to the protocols for preparing a surgical intervention and to learning basic surgical techniques (incision, dissection, suture, hemostasis), as well as the main surgical approaches.

In order to complete the learning of surgical techniques, the student will be guided in an individualized way about non-presential activities and exercises to be carried out for this purpose.

Anesthesia and resuscitation practices will take place in the hospital's operating rooms and hospitalization rooms. The clinical session will take place in the hospital operating theatres, with real patients under anesthesia.

4.2. Learning tasks

The program offered to the student to help him/her achieve the expected results includes the following activities:

Summary table of teaching-learning activities

PLANNED ACTIVITIES	Presential	Table of Contents	Non-presential*	Total
Theoretical classes	40	1,5	60	100
Anesthesia practices	13			
		1,28	18	31
Practical preparation. Post-operative control and clinical case work anesthesia				
Practical surgical techniques	17			
Non-presential surgical training		1	16	33
Tutorials			3	3
Evaluation	0	--	8	8
Total	70	--	105	175

*According to University regulations

4.3. Syllabus

THEORETICAL PROGRAMME 40 sessions in which the following agenda will be addressed:

- Unit 1. Subject presentation
- Unit 2. Preoperative evaluation of the patient. Anesthetic risk
- Unit 3. Premedication. Induction. Anesthetic maintenance
- Unit 4. Intraoperative monitoring
- Unit 5. Complications of the anesthetic act
- Unit 6. Analgesia
- Unit 7. Surgical instruments, suture materials, electrosurgery.
- Unit 8. Surgical asepsis, sterilization and disinfection, maintenance of the surgical environment.
- Unit 9. Basic surgical techniques, handling of instruments, incision, dissection, hemostasis, suture.
- Unit 10. External trauma.
- Unit 11. Patient response to trauma. Tissue repair.
- Unit 12. Patient response to trauma. Minimization of surgical stress.
- Unit 13. Basic principles of skin surgery
- Unit 14. Reconstructive surgery.
- Unit 15. Cures and drains.
- Unit 16. Indications and access to the abdominal cavity.
- Unit 17. Surgical techniques in abdominal organs: hollow and solid organs. Indications.
- Unit 18. Surgical sterilization in the male
- Unit 19. Surgical sterilization in the female
- Unit 20. Abdominal hernias
- Unit 21: Access to the thoracic cavity.
- Unit 22. Oncological Surgery.
- Unit 23. Minimally invasive surgery.
- Unit 24. Pathology of osteoarticular diseases. Fundamentals of orthopedic surgery and fracture management.
- Unit 25. Odontostomatology

PRACTICAL PROGRAMME

Practical surgical sessions (5 sessions)

1. Introduction to the surgical environment (2 h) -CIR1

- Preparation of surgical personnel (cap, mask, gown, gloves...). Preparation of the patient and the operating field
- Recognition and handling of basic surgical instruments. How to assemble the instrument table. *Everything ordered and everything by its name.*
- How to instrument. *Each hand with its hand.*
- Handling and maintenance of the instruments in the hands. *First I learn to catch it, then I'll prevent it from falling to the ground.*

2. Basic suture practices in biomodels (4 h) CIR2

- Recognition of very basic surgical material and suture threads
- Handling of basic surgical instruments
- Performing surgical knots (with the hand and with instruments)
- Performing different types of sutures in biomodels.

3. Basic surgical techniques I (4 h) CIR3 performed on corpses or abattoir pieces (according to disposition)

- Previous to intervention. *What should I have done before start?*
- Preparation of the operating room, staff, patient, etc. *Don't let me forget anything. A protocol is a list of things to do.*
- Elementary surgical techniques, incision, dissection, excision and suture. *Good healing begins at the incision.*
- It's not just stitching. *Save money by learning to make the most of the thread. Don't save by using unsuitable materials, save with good technique...*
- How the helper should help in the suturing process. *Up and down and without invading our terrain*
- Most important skin plastias. *Let's avoid the folds.*

4. Basic surgical techniques II (4 h) CIR4 performed on corpses.

- Hemostasis techniques. Peritoneal management.
- Colors and textures of dead tissue vs. living.

- Opening of a hollow viscera. Closure of a hollow viscera.
- Continuous pattern in the closure of hollow viscera.
- Continuous pattern to close the muscles.
- Continuous pattern at the subcutaneous closure.
- Skin suture review. How tight the knot has to be.

5. Basic osteosynthesis practices in biomodels (3 h) -CIR5

- Recognition of the basic osteosynthesis material
- Placement of an intramedullary pin
- Placement of cerclage wires
- Handling a bilateral external fixator in one plane
- Placement of an osteosynthesis plate with neutralizing effect

Practical anesthesia sessions (5 sessions)

1. Preanesthetic evaluation. Pre-anesthesia. (2,5 h) ANES1

Preanesthetic evaluation. How to make a good PAE. Performance of 1 or 2 real clinical evaluations in the hospital practice. Pre-anesthesia objectives. Guidelines. Dose calculation.

2. Induction and intubation and gas maintenance - Anesthetic machine. (2 h) ANES2

Inductive drugs. Anaesthetic plans. Intubation: material, technique, complications. Preparation of the anesthetic machine. Circuits. Flow calculation. Inhalation Maintenance

3. Monitoring and complications. (2.5 h) ANES3

Other maintenance. Analgesia plan. Basic and advanced monitoring. Main anesthetic complications. CPR

4. Loco-regional anesthesia. (3 h) ANES4

General principles of loco-regional anesthesia. Main nerve blocks based on anatomical references.

5. Clinical anesthesia. (3 h) ANES5

After passing the self-evaluation of the previous practices, the acquired knowledge will be applied in real clinical cases of the Veterinary Hospital.

4.4. Course planning and calendar

Calendar of face-to-face sessions and presentation of papers

The key dates and milestones of the course are described in detail, along with those of the rest of the subjects of the third year in the Veterinary Degree, on the website of the Faculty of Veterinary Medicine (link: <http://veterinaria.unizar.es/gradoveterinaria/>). This link will be updated at the beginning of each academic year.

Teachers are assigned their tutorials according to their teaching schedule. However, for greater effectiveness, it is recommended to get a tutorial appointment by emailing the teacher you wish to contact, briefly stating the reason.

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=28421>