Information about the subject

Degree: Bachelor of Science Degree in Medicine

Faculty: Faculty of Medicine and Health Sciences

Code: 340501 **Name:** Anaesthesia and Resuscitation

Credits: 3,00 **ECTS Year:** 5 **Semester:** 1

Module: Diagnostic and therapeutical procedures.

Subject Matter: Therapeutic procedure **Type:** Compulsory

Field of knowledge: Health Science

Department: Surgical Specialities

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

Diagnostic and therapeutical procedures.

Subject Matter	ECTS	Subject	ECTS	Year/semester
Diagnostic procedures	39,00	Basic Immunology	3,00	1/2
		Functional Assessment	6,00	This elective is not offered in the academic year 24/25
		Genetics	3,00	1/1
		Introduction to Medicine	3,00	1/2
		Laboratory of Diagnostic Tests	3,00	5/1
		Medical Microbiology and Parasitology	6,00	3/1
		Pathological Anatomy	6,00	2/2
		Physiological Records and Functional Tests	3,00	2/2
		Radiodiagnostic and Imaging Techniques	6,00	3/1
Therapeutic procedure	27,00	Anaesthesia and Resuscitation	3,00	5/1
		Biotechnology	6,00	This elective is not offered in the academic year 24/25
		General and Special Pharmacology	9,00	3/2

Therapeutic procedure	General Procedures of Intervention	6,00	This elective is not offered in the academic year 24/25
	Rehabilitation and Physical Therapy	3,00	4/2

Recommended knowledge

At the end of the program, the student must possess a set of competencies in anesthesiology and in the management of the critical patient. We can classify these competences into concepts (know) and skills (know how).In the concepts section, the student will learn the basic types of anesthesia, the periods of the anesthetic stages, the most important drugs used in anesthesia and basic anesthetic techniques, the procedures and techniques that are performed under anesthesia and the areas where it exercises care work, the different anesthetic techniques and the most frequent and relevant intraoperative and postoperative complications, derived from both the anesthetic procedure and the procedures in which it is present.
Likewise, the student will know the most frequent intraoperative problems and the main postoperative complications, the usual management of the patient in the Postanesthesia Care Unit (PACU) or Surgical Intensive Care Unit.
Finally, the student will have the opportunity to learn about the techniques and drugs used in the treatment of acute postoperative pain , the pathophysiology and assessment of chronic pain and the pharmacological treatments and invasive techniques used for its treatment.
In the skills section, the student will become familiar with the basic techniques of Anesthesiology and Resuscitation: airway management, circuits, ventilators and vaporizers used in anesthesia, mechanical ventilation, basic and advanced cardiopulmonary resuscitation, peripheral and central venous approaches, hemodynamic monitoring , respiratory and neurological, locoregional anesthesia techniques (lumbar, epidural, paravertebral puncture, etc.) and ultrasound localization of vascular and nerve structures, analgesic infiltration techniques, implantation of spinal perfusion pumps and spinal cord neurostimulators).

Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

R1 Know general surgical indications, preoperative risk and postoperative complications.

R2 Transfusions and transplants. Know the principles and indications of radiation therapy.

R3 Know the basics of rehabilitation, the promotion of personal autonomy, the functional adaptation of the environment, and other physical procedures in morbidity, for the improvement of the quality of life.

R4 Correctly write medical prescriptions, adapted to the situation of each patient and legal requirements. Assess nutritional status and develop a diet appropriate to different circumstances. Practice elementary surgical procedures: cleaning, hemostatics and wound suture.

R5 Know how to recognize the complications arising from the application of the techniques used in anesthesiology, knowing how to prevent and solve them appropriately.

R6 Know the basic and advanced cardiopulmonary resuscitation techniques.

R7 Know the possibilities of pharmacological and non-pharmacological management of acute and chronic pain

Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	Students have demonstrated to possess and understand knowledge in a study area that starts from the base of the general secondary education, and is usually found at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study	x			
CB2	Students know how to apply their knowledge to their job or vocation in a professional way and possess the competences that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of ??study		x		
CB3	Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical topics		x		
CB4	Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience		x		
CB5	Students have developed the learning skills needed to undertake further studies with a high degree of autonomy		x		

GENERAL		Weighting			
		1	2	3	4
CG1	Recognizing the essential elements of the medical profession, including ethical principles, legal responsibilities, and patient-centered professional exercise		x		
CG2	Understanding the importance of such principles for the benefit of the patient, society and profession, with special attention to professional secrecy		x		
CG3	Knowing how to apply the principle of social justice to professional practice and understanding the ethical implications of health in a changing global context		x		

CG4	Developing professional practice with respect to patient autonomy, beliefs and culture	x			
CG5	Recognizing the limitations themselves and the need to maintain and update their professional competence, giving special importance to the autonomous learning of new knowledge and techniques and to the motivation for quality	x			
CG6	Developing professional practice with respect for other health professionals, acquiring teamwork skills	x			
CG12	Understanding the basis of action, indications and efficacy of therapeutic interventions, based on available scientific evidence		x		
CG18	Indicating the most appropriate therapeutics of the most prevalent and chronic acute processes, as well as terminally ill patients		x		
CG21	Listening to carefully, obtain and synthesize relevant information about the problems afflicting the patient and understand the content of this information	x			
CG22	Writing medical histories and other medical records in an understandable way to outsiders		x		
CG23	Communicating effectively and clearly, both orally and in writing, with patients, family members, media workers and other professionals	x			
CG30	Basic knowledge of the National Health System and health legislation	x			
CG31	Knowing, critically valuing and knowing how to use the sources of clinical and biomedical information to obtain, organize, interpret and communicate scientific and health information	x			
CG32	Knowing how to use information and communication technologies in clinical, therapeutic, preventive and research activities	x			
CG33	Maintaining and using records with patient information for further analysis, preserving data confidentiality	x			
CG35	Understanding the importance and limitations of scientific thinking in the study, prevention and management of diseases	x			

SPECIFIC		Weighting			
		1	2	3	4
CE71	Knowing the general principles of anesthesia and resuscitation. Nutrition and dietotherapy				x

CE72	Knowing the main indications of electrophysiological techniques (ECG, EEG, EMG, and others)			x	
CE74	Knowing general surgical indications, preoperative risk and postoperative complications. Transfusions and transplants				x
CE78	Knowing how to interpret the results of the laboratory's diagnostic tests			x	
CE79	Managing disinfection and sterilization techniques			x	
CE80	Knowing how to interpret a radiological image by systematic reading		x		
CE81	Knowing how to use different kind of drugs properly			x	
CE82	Knowing how to make and interpret an ECG and EEG			x	
CE83	Correctly writing prescriptions, adapted to each patient's situation and legal requirements		x		
CE84	Assessing nutritional status and develop a diet appropriate to different circumstances		x		
CE85	Practicing elementary surgical procedures: cleaning, hemostatics and wound suture		x		

TRANSVERSAL		Weighting			
		1	2	3	4
CT1	Analytical and synthesis capacity			x	
CT2	Planification and organization capacity			x	
CT6	Manage information capacity			x	
CT7	Solving problems		x		
CT8	Making decisions			x	
CT9	Team work		x		
CT10	Interdisciplinary team work			x	

CT12	Interpersonal relationship skills	x	
CT14	Critical reasoning	x	
CT16	Individual learning	x	
CT18	Creativity	x	
CT19	Leadership	x	
CT24	Ability to take responsibility		x
CT25	Autocriticism capacity	x	
CT26	Knowing how to value personal action and know your own skills and limitations	x	
CT27	Ability to express one's feelings	x	
CT28	Show sensitivity to humanity's problems	x	

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R5, R7	30,00%	Open questions
R1, R2, R3, R4, R5, R7	60,00%	Tests
R1, R2, R3, R4, R5, R6, R7	10,00%	Practice exam

Observations

MENTION OF DISTINCTION:
In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

M1	Masterclass
M2	Problems resolution and practical cases
M4	Content presentations by teacher
M5	Knowledges and skills explanation
M6	Laboratory practices
M7	Oral presentation by student
M8	Group activities supervised by professor
M9	Knowledge acquirance through student interaction and activity
M11	Personalised attention by professor
M12	Tests to understand the level of knowledge acquirance and skills

M13	Written work
M14	Online activity on e-learning
M15	Personal study
M16	Information research
M17	Discussion and solving issues in group
M21	Supervision of clinical histories

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theory class M1, M4, M12, M15, M16	R1, R2, R3, R4, R5, R7	28,00	1,12
Seminar and group practices M2, M5	R3, R6	4,00	0,16
Tutoring M2, M5, M16, M17	R5, R7	2,00	0,08
Evaluation		3,00	0,12
TOTAL		**37,00**	**1,48**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
No attendance M11, M14, M15, M17	R1, R2, R3, R4, R5, R7	38,00	1,52
TOTAL		**38,00**	**1,52**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
The specialty of "Anestesia y Reanimación".	History of Anesthesia.Definition and functions of the specialty of "Anestesia y Reanimación".Procedures that are performed under anesthesia.The periods of anesthetic procedure.
The preoperative period	The pre-anesthetic visitPreoperative assessment of the patient.Assessment of physical condition and anesthetic risk.Examination and assessment of the airway.Complementary preoperative examinationsInformation to the patient. Informed consent.Preoperative preparation and recommendations
The intraoperative period	Immediate preparation for anesthesia.Monitoring.Phases of anesthesia.The anesthetic registry.The position of the patient
General Anesthesia	Concept.Hypnotic drugs.Inhalation anesthetic drugsAnesthetic induction.Airway management techniques and devicesAnesthesia circuits, ventilators and vaporizers.Anesthetic maintenance.Anesthetic induction
General Anesthesia	Opiate analgesic drugs and antagonists. Neuromuscular blocking agents and reversal. Monitoring neuromuscular block.
Regional Anesthesia	Concept and typesIndicationsAnesthetic drugs used in regional anesthesiaAdjuvant drugs used in regional anesthesiaSpinal anesthesiaEpidural anesthesiaCaudal anesthesiaNerve plexus blockPeripheral nerve blockNeurostimulation and ultrasound in regional anesthesiaAlteration of homeostasis induced by regional anesthesia.Risks and complications of regional anesthesia

Intraoperative problems	Critical anesthetic incidentCauses of mortality related to anesthesiaRespiratory problems: laryngospasm, glottis edema, bronchospasm, pneumothorax, etc.Hemodynamic problems: myocardial infarction, heart failure, pulmonary embolism, cardiogenic shock, etc.Overdose or errors in drug administrationAnaphylactic reactionsLatex allergyTemperature changes: central hypothermia and malignant hyperthermia
Postoperative period	Transfer to the Postanesthesia Care Unit (PACU)MonitoringTreatment guidelinesURPA discharge criteria.Respiratory complications.Cardiovascular complications.Neurological complications.Postoperative nausea and vomiting
Approach to the management of the critical patient	Critical respiratory diseaseMechanic ventilationCritical cardiovascular diseaseCardiopulmonary resuscitation.Septic shockHemorrhagic shock
Anesthesia in different settings	Sedation for proceduresAnesthesia outside the operating roomAmbulatory anesthesiaAnesthesia in Thoracic SurgeryAnesthesia in Cardiac SurgeryAnesthesia in Abdominal SurgeryAnesthesia in the pediatric patient
Acute Postoperative Pain	Pain pathwaysEvaluationPharmacological approachNon-pharmacological treatment
Chronic pain	Definition and types of painChronic pain pathophysiologyTransition from acute to chronic painPain assessmentPharmacological treatment of chronic painInterventional techniques in the treatment of chronic pain

Temporary organization of learning:

Block of content	Number of sessions	Hours
The specialty of "Anestesia y Reanimación".	1,00	2,00
The preoperative period	1,00	2,00
The intraoperative period	1,00	2,00
General Anesthesia	1,00	2,00
General Anesthesia	1,00	2,00
Regional Anesthesia	1,50	3,00
Intraoperative problems	1,50	3,00
Postoperative period	1,50	3,00
Approach to the management of the critical patient	2,00	4,00
Anesthesia in different settings	3,00	6,00
Acute Postoperative Pain	2,00	4,00
Chronic pain	2,00	4,00

References

William E. Hurford.
Massachusetts General Hospital.Anestesia.2005. Marban Libros S.L.Madrid. España

N Roewer; H ThielAnestesia. Texto y Atlas. 4ª Edición2011. Editorial Médica Panamericana S.A.Madrid. España

James DukeAnestesia. Secretos. 3ª Ed.2008. Elsevier España S.L.Barcelona. España

Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

Situation 1: Teaching without limited capacity (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

Situation 2: Teaching with limited capacity (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

[X] Microsoft Teams

[ ] Kaltura

Situation 3: Confinement due to a new State of Alarm.

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

- [X] Microsoft Teams
- [ ] Kaltura

Explanation about the practical sessions:

2. System for Assessing the Acquisition of the competences and Assessment System

ONSITE WORK

Regarding the Assessment Tools:

[X] The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

[ ] The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

Comments to the Assessment System: