



UNICAMILLUS

Degree in Nursing

INTEGRATED TEACHING: NURSING IN EMERGENCY MEDICINE AND SURGERY AND CRITICAL CARE

NUMBER OF CFU: 7

SSD: BIO/14, MED/09, MED/45, MED/41, MED/18

RESPONSIBLE PROFESSOR: MANUELE CESARE

E-MAIL: manuele.cesare@unicamillus.com

MODULE: PHARMACOLOGY

NUMBER OF CFU: 2

SSD: BIO/14

PROFESSOR: MATTEO DE MARTINO

e-mail: matteo.demartino@unicamillus.com

Office hours (by appointment): Thursday from 3 pm to 4 pm

MODULE: INTERNAL MEDICINE – EMERGENCY MEDICINE

NUMBER OF CFU: 1

SSD: MED/09

PROFESSOR: SERGIO BONINI

e-mail: sergio.bonini@unicamillus.org

Office hours (by appointment): MON, THUR, WEND

MODULE: NURSING SCIENCES – CLINICAL NURSING CRITICAL CARE

NUMBER OF CFU: 2

SSD: MED/45

PROFESSOR: MANUELE CESARE

e-mail: manuele.cesare@unicamillus.com

Office hours (by appointment): Thursday from 3 pm to 4 pm

MODULE: ANESTHESIOLOGY

NUMBER OF CFU: 1

SSD: MED/41

PROFESSOR: MATTEO DE MARTINO

e-mail: matteo.demartino@unicamillus.com

Office hours (by appointment): Thursday from 3 pm to 4 pm

MODULE: GENERAL SURGERY – EMERGENCY SURGERY

NUMBER OF CFU: 1

SSD: MED/18

PROFESSOR: CELESTINO PIO LOMBARDI

e-mail: celestinopio.lombardi@unicamillus.org

Office hours (by appointment): Thursday from 3 pm to 4 pm

PREREQUISITES

Even though no prior exams passed are necessary to follow the course, in order to understand the elements of the course, the student should have basic knowledge of general nursing, clinical nursing, anesthesiology and pharmacology, biology, biochemistry, physiology, anatomy, physiopathology, semeiotics, and medical pathology. The student will have to know the method and timing of the main surgical procedures.

For students approaching the integrated course, it is recommended to have attended the integrated course of Nursing in Clinical Medicine, Surgery and Pharmacology, and have passed the final exam of this discipline.

LEARNING OBJECTIVES

Aim of the Teaching is to:

- Provide knowledge of the principles of advanced nursing care for the early recognition, management, monitoring and re-evaluation of the person in a vitally critical condition with reference to the main medical-surgical emergencies and clinical problems in conditions of high complexity of care.
- Provide knowledge of pharmacological concepts including an overview of the history of drugs along with current issues. The topics discussed will include: pharmacotherapeutics, pharmacodynamics, pharmacokinetics, along with drugs contraindications and precautions. Major emphasis will be placed on the drugs used in the nursing field, as well as the nurse's role in pharmacological research.
- Provide the students with methodological nursing skills to deal with the clinical, laboratory and instrumental management of patients with medical emergencies.
- Provide knowledge on: general and peripheral anesthesia in surgical specialties, monitoring in Intensive Care Unit, organ failure, physiopathology and treatment, mechanical ventilation, extracorporeal removal techniques, the patient in shock, stupor and coma.
- Provide students with knowledge of surgical diseases. In addition, general knowledge on diagnostic approaches is required. Moreover, general information concerning surgical approach on emergency will be explained.

LEARNING OUTCOMES

Knowledge and Understanding

At the end of this teaching the student will have to know:

- The role, skills and organization of the nurse in the critical care setting.

- The signs and symptoms related to clinical deterioration.
- The first-aid actions aimed at guaranteeing the stabilization of the vital parameters and the person's survival during clinical emergency situations.
- The clinical manifestations of the main diseases treated in the critical care setting.
- The strategies and tools used to support vital functions.
- The development of the nursing care plan in patients with high complexity of care.
- commonly used drug groups in relation to their actions, uses, side effects, and nursing implications.
- The process involved in bringing a drug to the market.
- The role of the nurse in drug testing and marketing, particularly in the realm of patient advocacy.
- How to compare gender, racial and ethnic differences in response to medication administration, action and response.
- How to delineate nursing strategies to optimize the administration of a reliable treatment.
- The organization of the emergency department.
- To define the concept of emergency.
- The triage procedure.
- Approach to the patient with dyspnea, chest pain, shock, headache, alteration or loss of consciousness or focal neurological disorder.
- Therapeutic management of the patient with acute coronary syndrome, stroke, pulmonary embolism, deep vein thrombosis, shock, respiratory failure, acute kidney injury, hypo and hyperglycemia.
- How to collaborate with the anesthesiologist in the main phases of general and peripheral anesthesia in surgical specialties.
- The main techniques for peripheral and central venous catheterization.
- The management of a patient in Intensive Care Unit. Monitoring and treatment.
- How to manage the surgical patient and some of the pathologies related to the surgical field. The course provides the theoretical knowledge useful for the planning of a safe nursing assistance based on scientific evidence through the application of nursing process.
- The basic principles of clinical pharmacology, pharmacokinetics and pharmacodynamics and of the main classes of drugs.
- The basic notions of clinical pharmacology, the main classes of drugs, and the history of the drug.
- The basic knowledge of the history of ancient and western modern pharmacology.
- The mechanisms of action, efficacy and adverse reactions of the main classes of drugs, in particular, anti-inflammatories and analgesics, antibiotics, antiparasitics, antifungals, antivirals.
- The most appropriate health care pathways in relation to the severity of medical diseases.
- The combined nursing and medical management paths in the management of patients suffering from internal pathology.
- How to recognize main signs and symptoms, diagnostic flow chart, risk and complication of an emergency surgical patient; to describe surgery principles and techniques.

Applying knowledge and understanding

At the end of the teaching, the student will be able to:

- Use and deepen the acquired knowledge necessary to apply the best evidence in an updated, clear and effective way during the professional clinical practice in critical care.

- Use the acquired knowledge for the autonomous deepening of aspects related to the specific field in which the student will focus within the professional activity.
- Describe the fundamental aspects of the pathological conditions envisaged by the program, in relation to the different clinical-assistance pathways.
- Judge the basic efficacy and toxicity of the main drug classes.

Communication skills

At the end of the teaching, the student will need to know:

- How to communicate the principles of nursing in the critical care setting using specific and appropriate scientific terminology.
- How to use the specific scientific terminology in an appropriate manner.
- How to communicate with the patient about his / her skills in the field of diseases that require a surgical approach.
- How to present historical notes on pharmacology, basic principles of pharmacokinetics and pharmacodynamics of the main classes of drugs.

Making judgements

At the end of the teaching, the student will need to know:

- How to collect, judge and interpret scientific evidence to choose the most appropriate nursing interventions in relation to the specific situation in the critical care setting.
- How to assess the condition of a patient admitted to a general surgery department.
- The difference, efficacy and toxicity between drugs belonging to the same pharmacological classes.
- How to carry out general conclusions regarding the topics covered.

COURSE SYLLABUS

Syllabus PHARMACOLOGY

General principles of pharmacology. Pharmacokinetics. Pharmacodynamics. Principles of therapy. Principles of toxicology. Active drugs on synapsis and neuroeffective junctions. Neurotransmission. Agonist antagonist muscarinic receptor. Catecholamines, sympathomimetic and adrenergic receptor antagonists. Principles of anesthesiology. Analgesics, opioids. Diuretics. Renine and angiotensin. Drugs for cardiac ischemia treatment. Anti-hypertensive drugs. Pharmacology of gastrointestinal tract. Chemotherapy of infectious diseases. Autacoids, pharmacologic therapy of inflammation.

Syllabus INTERNAL MEDICINE – EMERGENCY MEDICINE

Lipothymia and syncope. Shock. Heart failure. Arrhythmias. Acute abdomen. Stroke. Bleeding. Poisonings. Traumas. Epidemics and pandemics. Disaster Medicine.

Syllabus NURSING SCIENCES – CLINICAL NURSING CRITICAL CARE

- Fundamental concepts
 - Overview of critical care nursing: Definition of critical care nursing. Evolution of critical care. Professional organizations. Critical care nurse characteristics. Nursing care models in critical care settings. Primary Nursing in the intensive care unit (ICU).
 - Patient and family response to the critical care experience: The critical care environment. The critically ill patient. Family members of the critically ill patient. Transfer of the critically ill patient.
- Tools for the critical care nurse
 - The use of Early Warning Scores (EWS) for the identification of clinical deterioration
 - Comfort and Sedation in critical care: Assessment of pain and anxiety. Pain measurement tool. Anxiety and sedation measurement tools. Continuous monitoring of sedation. Management of pain and anxiety. Substance abuse.
 - The risk of falls in the ICU
 - Management of enteral nutrition in critical care: Nursing assessment of Nutritional Status. Enteral Nutrition and enteral access devices. Administering a tube feeding. Drug-Nutrient Interactions. Complications of Nutritional Support.
 - Management of fluid in critical care: Composition and regulating of body fluid. Intravenous solutions. Intravenous catheters (peripheral and central catheters). Management of venous catheters' exit site. Intravenous infusion equipment. Devices to control infusions. Adverse events from infusion catheters.
 - Hemodynamic Monitoring: Hemodynamic monitoring modalities (invasive, non-invasive). Direct arterial pressure monitoring. Central venous pressure monitoring.
 - Ventilatory Assistance in critical care: Physiology of breathing and respiratory mechanics. Nursing respiratory assessment. Arterial blood gas test and its interpretation. Oxygen administration. Oxygen delivery devices. Airway management. Endotracheal intubation. Tracheostomy. Endotracheal suctioning. Mechanical ventilation. Positive-pressure ventilation. Noninvasive positive-pressure ventilation. Respiratory monitoring during mechanical ventilation. Complications of mechanical ventilation. Nursing care during mechanical ventilation. Communication during mechanical ventilation. Weaning patients from mechanical ventilation. Extubation. Chest trauma and nursing management of pleural drainage.
 - Rapid response teams and clinical emergency management: Rapid response teams. Basic life support. Advanced cardiac life support. Recognition and treatment of dysrhythmias. Electrical therapy. Pharmacological interventions during an emergency. Documentation of nursing in the critical care setting (PAI – Professional Assessment Instrument).
- Nursing care during specific critical situations
 - The nursing role in the Covid-19 ICU.

Syllabus ANESTHESIOLOGY

Use of anesthetics. Management of preanesthesia phase in surgical specialties. Techniques for peripheral and central venous catheterization. Organ failure. Physiopathology and treatment. Mechanical Ventilation. Extracorporeal removal techniques. The patient in shock. Stupor and coma. Brain death.

Syllabus GENERAL SURGERY – EMERGENCY SURGERY

Shock. Digestive hemorrhage. Acute abdomen. Thoracic-abdominal trauma. Nursing framework of emergency surgical patients.

COURSE STRUCTURE

The module of Clinical Nursing Critical Care is structured in 28 hours of frontal teaching, divided into lessons of 3, 4 or 5 hours according to the academic calendar. Frontal teaching includes theoretical lessons and additional seminars on the topics covered.

The module of Pharmacology consists of 28 hours of frontal instruction, divided into lessons of 4 hours according to the academic calendar. Frontal instructions includes theoretical lessons and additional seminars on the topics covered.

The module of Emergency Medicine is structured in 14 hours of frontal teaching, divided into lessons of 2 or 4 hours according to the academic calendar. Frontal teaching will be integrated by professional and elective activities.

The module of Anesthesiology is structured in frontal interactive lessons for a total of 14 hours.

The module of Emergency Surgery is structured in 14 hours of frontal teaching, divided into lessons of 2 or 4 hours according to the academic calendar. Frontal teaching includes theoretical lessons and additional seminars on the topics covered.

COURSE GRADE DETERMINATION

The exam of the teaching of NURSING IN EMERGENCY MEDICINE AND SURGERY AND CRITICAL CARE consists of an oral exam for the modules of CLINICAL NURSING CRITICAL CARE, a written test (30 multiple-choice questions) for the modules of ANESTHESIOLOGY, PHARMACOLOGY and EMERGENCY SURGERY, and in a written exam (10 multiple-choice questions) and oral for the EMERGENCY MEDICINE module. The final evaluation will be discussed collegially among the professors of the integrated course, in order to come to a final grade out of thirty that keeps into account the evaluation of all modules.

The exam will cover the main topics of the teaching modules and will be considered passed if the student scores a final mark of 18/30.

The knowledge and ability to understand, the ability to apply knowledge and understanding, the autonomy of judgment and the communication skills of the student will weigh in the final score as follows 30%, 30%, 30% and 10%, respectively.

The evaluation criteria considered will be: acquired knowledge, independent judgment, communication skills and learning skills. The exams will be assessed according to the following criteria:

< 18 insufficient	The candidate possesses an inadequate knowledge of the topic, makes significant errors in applying theoretical concepts, and shows weak presentation skills.
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- 18 - 20** The candidate possesses a barely adequate and only superficial knowledge of topic, limited presentation skills, and only an inconsistent ability to apply theoretical concepts.
- 21 – 23** The candidate possesses an adequate, but not in-depth, knowledge of the topic, a partial ability to apply theoretical concepts, and acceptable presentation skills.
- 24 – 26** The candidate possesses a fair knowledge of the topic, a reasonable ability to apply theoretical concepts correctly and present ideas clearly.
- 27 - 29** The candidate possesses an in-depth knowledge of the topic, a sound ability to apply theoretical concepts, good analytical skills, clear argumentative clarity and an ability to synthesize
- 30 - 30L** The candidate possesses an in-depth knowledge of the topic, an outstanding ability to apply theoretical concepts, a high level of argumentative clarity, as well as excellent analytical skills, and a well-developed ability to synthesize and establish interdisciplinary connections.

OPTIONAL ACTIVITIES

In addition to teaching activities, students will be given the opportunity to participate in seminars, research internships, department internships and monographic courses. The topics discussed during the optional activities will not be asked during the exam. Advanced simulation. Individual study, group work, and home work on particular topics.

READING MATERIALS

Reading materials for PHARMACOLOGY

- Pharmacology textbooks, professor's notes.

Reading materials for INTERNAL MEDICINE – EMERGENCY MEDICINE

- Bersten, A. D., Soni, N. (2015). Oh. Manuale di terapia intensiva (6° ed.). Elsevier Masson.
- Tintinalli, J. E., Ma, O. J., Yealy, D. M., Meckler, G. D., Stapczynski, J. S., Cline, D. M., Thomas, S. H., (2019). Tintinalli's Emergency Medicine: A Comprehensive Study Guide (9° ed.). McGraw-Hill Education.

Reading materials for NURSING SCIENCES – CLINICAL NURSING CRITICAL CARE

- Adam, S. K., Osborne, S., Welch, J. (2017). Critical Care Nursing: Science and Practice. Oxford.
- Berman, A., Snyder, S. J., & Frandsen, G. (2016). Kozier & Erb's fundamentals of nursing: concepts, process, and practice (10th ed.). Boston: Pearson.

- Burns, S. M., Delgado, S. A. (2018). AACN Essentials of Critical Care Nursing (4° ed.). McGraw Hill Education.
- Emergency Nurses Association (ENA). (2017). Emergency Nursing Core Curriculum (7° ed). Elsevier.
- Sole, M. L., Klein, D. G., & Moseley, M. J. (2013). Introduction to Critical Care Nursing (6th ed.). St. Louis, Mo: Elsevier/Saunders.

Reading materials for ANESTHESIOLOGY

- Anesthesiology textbooks, professor's notes

Reading materials for GENERAL SURGERY – EMERGENCY SURGERY

- Divizia, A., Fiorani, C., Maggi, G., Romano, F. (2015). Compendio di chirurgia per le professioni sanitarie. UniversItalia.
- Giusti, G. D., Benetton, M. (2015). Guida al monitoraggio in area critica. Maggioli Editore.