BSc 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: FRANCO DI CESARE
e-mail: franco.dicesare@unicamillus.org
Office hours (by appointment): Monday from 10 am to 11 am

MODULE: INTERNAL MEDICINE – EMERGENCY MEDICINE
NUMBER OF CFU: 1
SSD: MED/09
PROFESSOR: CRISTIANO CARUSO
e-mail: cristiano.caruso@unicamillus.org
Office hours (by appointment): Monday from 3 pm to 4 pm

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): Tuesday from 3 pm to 4 pm

MODULE: ANESTHESIOLOGY
NUMBER OF CFU: 1
SSD: MED/41
PROFESSOR: MATTEO PIATTOLI
e-mail: matteo.piattoli@unicamillus.org
Office hours (by appointment): Tuesday from 3 pm to 4 pm

MODULE: GENERAL SURGERY – EMERGENCY SURGERY
NUMBER OF CFU: 1

SSD: MED/18
PROFESSOR: FRANCESCO GIOVINAZZO
e-mail: francesco.giovinazzo@unicamillus.org
Office hours (by appointment): Tuesday 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, 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.
- To provide knowledge of advanced nursing principles for clinical immunological evaluation and examination evaluation involving such critical evaluation. Among the training objectives, the assistance required in an internal medicine day hospital course, in particular the immunological one.
- To provide knowledge about adverse drug reactions in procedures involving a therapeutic switch related to infectious prophylaxis.
- To provide knowledge about clinical management of a patient undergoing systemic anaphylaxis characterized by: hypotension, angioedema, dyspnea, loss of consciousness.
- 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 monitoring in Intensive Care Unit, organ failure, physiopathology and treatment, mechanical ventilation, extracorporeal removal techniques, the patient in shock, stupor and coma.
- Provide knowledge on early recognition of major life-threatening conditions and their immediate management.
- Provide knowledge on advanced cardiopulmonary resuscitation, management of severe trauma and major incidents.
- Provide knowledge and basic principles related to effective communication with patients and/or family members.

- 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.
- The main techniques for peripheral and central venous catheterization.
- Know the principles of advanced cardiopulmonary resuscitation.
- Be able to recognize the main signs/symptoms underlying life-threatening conditions.
- Know the main elements of severe trauma and major incident management.
- Know the basic principles of effective communication in health care.
- 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.
- Interfacing with anesthesiology staff and afferent to critical care medicine departments.

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.

Learning skills

The student will have acquired skills and methods of learning suitable for deepening and improving their competencies in the field of nursing in emergency medicine and surgery and critical care, also through consulting scientific literature.

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.
- Arrythmias.
- 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

- Advanced Life Support - American Heart Association Guidelines.
- Major pediatric emergencies-urgencies: assessment, recognition, stabilization.

- Invasive hemodynamic monitoring, hemodynamic support: vasopressors and ExtraCorporeal Life Support. Organ support.
- Basics of electrocardiography in urgency-emergency settings.
- Airway management, mechanical ventilation, ARDS.
- Severe trauma.
- Death by neurological criteria.
- Major incidents.
- Effective communication techniques.

Syllabus GENERAL SURGERY – EMERGENCY SURGERY

- Shock.
- Digestive hemorrhage.
- Acute abdomen.
- Thoracic-abdominal trauma.
- Nursing framework of emergency surgical patients.
- Management of closed and penetrating chest injuries.
- Management of blunt and penetrating injuries to thoracic, abdominal and pelvic viscera, parietals and vasculature.
- Indications and techniques of resuscitative laparotomy and thoracotomy.
- Principles of damage control surgery.
- Principles of management of pelvic fractures and the management of fractures and dislocations of the limbs.
- Principles of diagnostic radiography (including interventional radiology), ultrasonography, computed tomography, magnetic resonance imaging and related techniques.
- Peri-operative management of medical co-morbidities in the emergency surgical patient including respiratory, cardiovascular, hepatic and renal disease, endocrine and psychiatric disorders.
- Peri-operative management of medical co-morbidities in the emergency surgical patient including respiratory, cardiovascular, hepatic and renal disease, endocrine and psychiatric disorders.
- Techniques and technology of dissection, haemostasis, excision, resection and anastomosis used in emergency surgery.
- Management of vascular injuries of the limbs and the principles of amputation and rehabilitation.
- Acute abdominal pain, including aetiologies more commonly encountered in the Tropics, Africa and Asia than in Europe and North America.
- Pathophysiology and management of acute and chronic pancreatitis and their complications.
- Pathophysiology and management of peritonitis and intra-abdominal sepsis.
- Pathophysiology and management of obstruction, inflammation, infection and bleeding of the liver and biliary tree.
- Ascites. Mechanical and functional obstruction of the gastrointestinal tract.
- Aetiology, diagnosis and management of gastrointestinal tract perforation.
- Acute mesenteric ischemia: arterial, venous, and nonocclusive.
- Assessment and management of the acute presentation of malignant disease.
- Ethics and medico-legal aspects of emergency surgery including assessment of mental capacity and competence.
- Principles of informed consent and "best interest" care.

COURSE STRUCTURE

The module of Clinical Nursing Critical Care is structured in 28 hours of frontal teaching, divided into lessons of 2, 3 or 4 hours according to the academic calendar. Frontal teaching includes theoretical lessons and additional seminars on the topics covered.

The module of Pharmachology is structured in 28 hours of frontal instruction, divided into lessons of 2 or 3 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 Anestesiology is structured in 14 hours of frontal instruction, divided into lessons of 2 or 3 hours according to the academic calendar. Frontal instructions includes theoretical lessons and additional seminars on the topics covered.

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 and ANESTHESIOLOGY, a written test (30 multiple-choice questions) for the modules of 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 at least 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.
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

- Professor's notes.
- Burchum, J.R., & Laura D. Rosenthal, L. D. Lehne'S Pharmacology for Nursing care, 10th Edition, Elsevier 2019.

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

- Badon, P., Giusti, G. D. (2022). Assistenza infermieristica in area critica e in emergenza. Rozzano, (MI): C.E.A. Casa Editrice Ambrosiana.
- Sole, M. L., Klein, D. G., & Moseley, M. J. (2020). Introduction to Critical Care Nursing (8th ed.). St. Louis, Mo: Elsevier.
- Berman, A., Snyder, S. J., & Frandsen, G. (2016). Kozier & Erb's fundamentals of nursing: concepts, process, and practice (10th ed.). Boston: Pearson.

Reading materials for ANESTHESIOLOGY

- Professor's notes and slides.
- Stoelting's Pharmacology & Physiology in Anesthetic Practice – Pamela Flood et al., edited by Wolters Kluwer.
- Dubin, D. (2000). Rapid Interpretation of EKG's, Sixth Edition 6th revised.
- Sitografia:
  https://cpr.heart.org/en/resuscitation-science/cpr-and-ecc-guidelines
  https://www.asahq.org/standards-and-practice-parameters
  https://www.sccm.org/SurvivingSepsisCampaign/Guidelines

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.