

Degree in Midwifery

Integrated Teaching: Physiopatology of Human Reproduction

SSD: MED/18, MED/42, MED40, MED/01, MED/09, BIO/14

Credits: 7

Responsible Professor: Tommaso Brancato

E-mail: tommaso.brancato@unicamillus.org

MODULE: General Surgery

SSD: MED/18

Number of Credits: 1

Professor: Tommaso Brancato CFU: 1

E-mail: tommaso.brancato@unicamillus.org

MODULE: General and Applied Hygiene

SSD: MED/42

Number of Credits: 1

Professor: Leonardo Palombi

E-mail: leonardo.palombi@unicamillus.org

MODULE: Gynecology and Obstetrics

SSD: MED/40

Number of Credits: 2

Professor: Emilio Piccione

E-mail: emilio.piccione@unicamillus.org

MODULE: Medical Statistics

SSD: MED/01

Number of Credits: 1

Professor: Daniele Di Giovanni

E-mail: daniele.digiovanni@unicamillus.org

MODULE: Internal Medicine

SSD: MED/09

Number of Credits: 1

Professor: Stefano Nardi

E-mail: stefano.nardi@unicamillus.org

MODULE: Pharmacology

SSD: BIO/14

Number of Credits: 1

Professor: Claudia Ceci

E-mail: claudia.ceci@unicamillus.org

PREREQUISITES

In order to follow the course profitably it is expected that students have preliminary knowledge of the basic principles of biochemistry, cell biology, anatomy, physiology, general pathology and the physiological changes during pregnancy,

LEARNING OBJECTIVES

At the end of the course the student will be able to describe the main complications related to the different phases of a woman's life, pregnancy and birth control, character, signs and symptoms of the main pathologies of surgical interest, preparation for surgery, risk factors in surgery and post-operative complications.



Further objective of the course is the identification of the main pathologies of interest to internal medicine, as well as a knowledge of the risk factors, clinical presentation, diagnostic approaches and, lastly, patient management. Later, the course shall also present some more detailed analyses of women of fertile age. When relevant specific arguments regarding the presentation and consequences of the treated pathologies in for pregnant women will be examined more specifically along with their pre-disposing factors.

Moreover, the course aims to provide students with the skills to understand the concept of Public Health, basic principles of epidemiology and clinical study designs and learn about food hygiene and health protection of workers in the places of life and work, especially for the prevention of biological risk. The course also aims to provide tools for health education and health literacy to involving people in decisions concerning their health and necessary statistical bases to set up a research and collect and analyse data. The student must acquire a correct statistical terminology and be able to understand and interpret a scientific study.

Finally, this course aims at providing the student with the fundamental knowledge of Pharmacology, including the branches of Pharmacokinetics and Pharmacodynamics, with specific reference to pharmacodynamic and pharmacokinetic parameters modification during pregnancy. The course also aims at providing the student with the fundamental knowledge of some Special Pharmacology topics, specifically related to steroidal and non-steroidal anti-inflammatory drugs, opioid analgesics and signs of endocrine pharmacology and contraceptives.

LEARNING OUTCOMES

The specific learning outcomes of the program are coherent with the general provisions of the Bologna Process and the specific provisions of EC Directive 2005/36/EC. They lie within the European Qualifications Framework (Dublin Descriptors) as follows.

At the end of this teaching, students will be able to:

Knowledge and Understanding

- recognize and evaluate signs and symptoms of factors that increase surgical surgical risk, of any post-operative complications (phlebothrombosis, thrombophlebitis, local and / or generalized infections)
- recognize and evaluate signs and symptoms of various types of burns, frostbite, traumatic injuries, bruises, fractures
- recognize and evaluate signs and symptoms of failed or difficult wound repair
- recognize and evaluate signs and symptoms of various shock pictures
- recognize and evaluate signs and symptoms of certain types of infections, such as tuberculosis, carbuncle and amoebiasis
- recognize and evaluate signs and symptoms of various acute abdomen pictures
- recognize and evaluate signs and symptoms of proctologic pathologies (hemorrhoids, fistulas, prolapse)
- describe basic principles of Hygiene and the determinants of health
- describe prevention measures and organization
- explain transmission and prophylaxis of infectious diseases
- describe evidence and type of immunization
- describe chronic-degenerative disease, the role of genetics and the environment
- explain basic principles of food hygiene, health protection of workers in the places of life and work
- list and manage obstetric gynecological care needs that require preventive and curative skills in specific ultra-specialist sectors such as alterations of the menstrual cycle, spontaneous and operative delivery methods, and uterine cavity revision techniques
- support a good relationship and inform about family planning problems according to the principle of responsible maternity and paternity
- carry out education interventions on the reproductive health of women/couples with specific reference to



sexually transmitted diseases

- carry out interventions of education to the prevention of neoplastic pathologies of the female genital apparatus and of the annexed glands through informational processes and methodology of which it competent (eg. Pap Test). These interventions must be implemented at different stages of a woman's life
- describe the clinical manifestations related to the woman's sexual biological cycle and those specific to pregnancy
- describe the methods of physiological birth, and in cases of urgency, operative delivery, and delivery in podalic presentation
- describe the clinical manifestations connected to the physiological puerperal, immediate, intermediate, and late admission regime including the evaluation of newborns without relevant pathologies and of pre- and post-term infants with lower weight than the norm or with various pathologies
- list the main pathologies commonly encountered in the setting of internal medicine
- describe the main risk factors, symptoms, and signs of these pathologies
- explain the main diagnostic approaches and patient management
- connect the problems regarding the pathologies studied and their consequences with pregnancy
- describe the design of a scientific study and to interpret the results
- describe what pharmacology, pharmacokinetics, and pharmacodynamics deals with
- describe different kinds of drug interactions
- explain pharmacodynamic and pharmacokinetic changes in a pregnant woman.
- describe concept and mechanisms of teratogenesis
- describe classification, mechanism of action, pharmacokinetics, pharmacodynamics, side effects, of steroidal anti-inflammatory drugs, non-steroidal anti-inflammatory drugs and opioid analgesics
- describe endocrine pharmacology principles, with specific reference to sexual hormones and contraceptive pill

Applying Knowledge and Understanding

- apply the principles of midwifery to selected cases, problems and a variable range of situations
- use the tools, methodologies language and conventions of midwifery to test and communicate ideas and explanations

Communication Skills

- present the topics orally in an organized and consistent manner
- use a proper scientific language coherent with the topic of discussion

Making Judgements

- recognize the importance of an in-depth knowledge of the topics consistent with a proper education
- identify the importance of a proper theoretical knowledge of the topic in the clinical practice

COURSE SYLLABUS

BRANCATO

Etiopathogenesis, diagnosis and surgical therapy of:

Acute and chronic inflammation: general and surgical characteristics

Risk factors in surgery, post-operative complications, preparation for surgery

Escara, Ulcer, sore and gangrene.

Burns and frostbite

Various types of shocks

Wounds and their healing



UNICAMILLUS

Tuberculosis, carbuncle, amoebiasis

Lymphatic system: lymphedema, lymphangitis.

Veins and arteries; varicose veins, thrombophlebitis and phlebothrombosis, embolisms, aneurysms, chronic obstructive arteriopathies, arteriovenous fistulas.

Anal abscesses and fistulas: Anatomy, physiology, incontinence, prolapse, hemorrhoids, anal fissure, neoplasms.

Peritoneum: acute abdomen, peritonitis, intestinal obstruction, mechanical and paralytic ileus.

Surgical oncology: epidemiology, etiology, prevention, oncology diagnostics and antineoplastic therapies.

PALOMBI

Public Health and Preventive Medicine definition and goals. Determinants of health; health promotion; health education; genetic and environmental factors of disease.

Introduction to epidemiology. Demography and bio-statistical principles and analysis of more important health indicators (e.g. birth rate, mortality rate, infant mortality, etc.); absolute and relative risk. Epidemiology of infectious disease, epidemiology of chronic disease.

Primary, secondary and tertiary Prevention. Definition, timing and tools

Natural history and spectrum of infectious disease. More important infectious disease and their spread (epidemic, pandemic and cluster); direct, indirect and specific prophylaxis; infectious risk: cause, transmission, preventive measure; chemical and physical cleaning, disinfection, sterilization.

Vaccine: indications, contraindications and preventive measure. Vaccine, history and perspectives; different type of immunity; different type of immunization; vaccine schedule.

Environment and health. Climate changes, micro-climate and water; prevention of biological risk; health protection and safety of health workers

Food Hygiene and food-borne outbreaks. Human nutrition; food education; food control; Hygiene and prevention in collective catering (HACCP system);

Principles of Public Health applied to the Hospital setting. Healthcare Associated Infections (HCAI) – definition, epidemiology and prevention; Sanitization, disinfection, sterilization and disinfestation; Waste management in the hospital; Prevention and quality system aimed to ensure patient safety in the hospital (Services based on international gold standards and regulations in healthcare – JCI accreditation).

PICCIONE

Adolescence - Menstrual cycle - Menopause

Conception - Placentation

Contraception - Emergency contraception

Prevention of sexually transmitted infectious diseases

Physiological changes in pregnancy

Twin pregnancy - The delivery

Episiotomy - Episiorrhaphy - Laceration of the birth canal

Revision of uterine cavity - Caesarean Section

Puerperium - Physiopathology

DI GIOVANNI

Introduction to statistics

Reality observation: clinical observation and epidemiological observation

Descriptive statistics and inferential statistics

Quantitative and qualitative variables

Absolute, relative and percentage frequency

Tables, diagrams and graphs

Statistical indices: measures of central tendency and dispersion

Central limit theorem



UNICAMILLUS

The normal curve (Gaussian) and its properties

Statistical inference: null hypothesis and alternative hypothesis, the value of p , the statistical association

Association and causality

Hypothesis testing and introduction to statistical significance tests

Correlation

NARDI

Each pathology will be introduced by base principles regarding:

Acquired and congenital anaemia

Diagnostic-therapeutic approach to chest pain

Acute and chronic respiratory insufficiency

Cardiac decompensation (heart failure)

Systemic arterial hypertension and the management of hypertensive emergencies

Acute and chronic renal impairment

Acute cerebrovascular pathologies

Diagnostic and therapeutic approach to syncope and lipothymic episodes (fainting)

Disorders in coagulation: thrombophilic syndromes and congenital and acquired haemorrhaging syndromes. The management of emergencies and coagulation in pregnancy.

Pulmonary embolism

Sepsis and the management of septic emergencies

Physiopathology of the endocrine gland: management of endocrine emergencies during pregnancy. (Type 1 and type 2 diabetes mellitus and gestational diabetes)

Syndromes arising from malabsorption and chronic intestinal inflammation

The main auto-immune pathologies

CECI

GENERAL PHARMACOLOGY: Basic definitions: pharmacology, drug, pharmacokinetics, pharmacodynamics, clinical pharmacology, toxicology, chemotherapy. Drug classification criteria: synthetic/semisynthetic; over the counter/prescription. Drug nomenclature: scientific name, generic name, brand name. New drug development: clinical trials and regulatory agencies (FDA and EMA). Pharmacodynamics: agonist and antagonist receptors. Dose-response curve. Pharmacodynamic parameters: potency, efficacy, affinity, EC50, ED50, TD50, LD50, therapeutic index. Different kinds of receptors: G-proteins coupled, tyrosine kinase, ion channels, intracellular receptors; second messengers. Pharmacokinetics: absorption, distribution, metabolism, excretion processes. Routes of administration, enteral and parenteral. Plasma proteins binding. Type I and II metabolism, CYP enzymes. Routes of excretion. Bioavailability. Pharmacokinetic and pharmacodynamic changes in pregnancy. Teratogenic drugs, mechanisms of teratogenesis; FDA risk categories in pregnancy.

SPECIAL PHARMACOLOGY: steroidal anti-inflammatory drugs: mechanism of action, pharmacokinetics, pharmacodynamics, side effects. Non-steroidal anti-inflammatory drugs: classification, mechanism of action, pharmacokinetics, pharmacodynamics, side effects. Aspirin and Paracetamol. Opioid analgesics: mechanism of action, pharmacokinetics, pharmacodynamics. Tolerance, dependence, and withdrawal concepts Endocrine Pharmacology: hypothalamic, pituitary, thyroid, sexual hormones. Different types of contraceptive pills.

COURSE STRUCTURE

The course consists of 98 hours of classroom teaching, composed of frontal lessons and interactive learning activities, especially using presentations of clinical cases.

COURSE GRADE DETERMINATION

CECI (written exam)

The preparation of the students will be evaluated through a written exam. The test will include 6 multiple



choice questions, receiving 1 point for each correct answer, and 3 open questions, receiving 8 points for each correct answer. The final score will be the sum of the partial scores assigned to each question answered correctly.

The exam will assess the student's ability to apply the acquired knowledge and will ensure that the acquired skills are adequate to resolve pharmacological issues. The exam will also evaluate: the ability to make judgements, communication skills, learning skills, according to Dublin Descriptors.

NARDI, DI GIOVANNI (written + oral)

Students' preparation shall be assessed by a written examination, followed by an oral test. The written exam shall be constituted by multiple-choice questions. Each correct answer shall receive one point. The final result of the written exam shall be given by the sum of the assigned partial point totals from correct answers. To have access to the oral test students must obtain a minimum of 18 points in the written exam. During the oral test the examining commission shall evaluate the student's ability in applying their knowledge and shall ensure that this ability is sufficient to affront and resolve gynaecological problems. In addition, the final assessment shall take into account the student's ability to discuss and reason about the arguments treated, the quality and clarity of their explanations, as well as their competence in using the specialist terms.

BRANCATO, PALOMBI, PICCIONE, NARDI, DI GIOVANNI

The final evaluation of the integrated course will be oral. The evaluation criteria for the oral exam will be acquired knowledge (range score: 0-8), making judgements (range score: 0-8), communication skills (range score: 0-7), learning skills (0-7). The students must be able to demonstrate their knowledge on the contents, to organize in a critical way the topics established by the program, using an appropriate language.

OPTIONAL ACTIVITIES

Students can request optional workshops to deepen some specific topics.

READING MATERIALS

Titolo: Argomenti di chirurgia

Autori: Piat - Borghese - Del Gaudio - Tonelli - Vagnoni

Editore: Casa Editrice Ambrosiana

ISBN: 9788808084392

Edizione: II 2000

Titolo: Manuale di Chirurgia

Autori: Pasquini Giorgio; Campa Rossella; D'Ambrosio Maurizio; Leonardo Giacomo

Editore: McGraw-Hill

ISBN/EAN: 9788838636783

Edizione: 1/2012

G. Bolis: Manuale di Ginecologia e Ostetricia – II Edizione 2017 – EdiSES, Napoli

Dewhurst's Textbook of Obstetrics and Gynaecology 7th ed. Edited by D. Keith Edmonds. EMSI Editore, Roma. Pag. 265-75, 2012.

Michelle A. Clark, Richard A. Harvey, Richard Finkel, Jose A. Rey, Karen Whalen. Pharmacology. Lippincott Williams & Wilkins, 5th edition.

Alexis L. Franks, Kimberly J. Berry, Donald B. DeFranco. Prenatal Drug Exposures and Neurodevelopmental Programming of Glucocorticoid Signaling. First published: 30 August 2019 <https://doi.org/10.1111/jne.12786>

Stock SJ, Norman JE. Medicines in pregnancy. F1000Res. 2019 Jun 20;8. pii: F1000 Faculty Rev-911. doi: 10.12688/f1000research.17535.1. eCollection 2019.

Ward RM, Varner MW. Principles of Pharmacokinetics in the Pregnant Woman and Fetus. Clin Perinatol. 2019 Jun;46(2):383-398. doi: 10.1016/j.clp.2019.02.014. Epub 2019 Mar 30.

Padberg S, Tissen-Diabaté T, Dathe K, Hultzsch S, Meixner K, Linsenmeier V, Meister R, Schaefer C. Safety of



UNICAMILLUS

diclofenac use during early pregnancy: A prospective observational cohort study. *Reprod Toxicol.* 2018 Apr;77:122-129. doi: 10.1016/j.reprotox.2018.02.007. Epub 2018 Mar 22.

Ji LW, Jing CX, Zhuang SL, Pan WC, Hu XP. Effect of age at first use of oral contraceptives on breast cancer risk: An updated meta-analysis. *Medicine (Baltimore).* 2019 Sep;98(36):e15719. doi: 10.1097/MD.00000000000015719.

Didactic and integrative material provided by the lecturer.