

FACULTY OF HEALTH SCIENCES

Faculty Administration

<i>Dean</i>	Prof. Rajaa Fakhoury
<i>Assistant Dean</i>	Dr. Rami Abbas
<i>Director, Tripoli Branch</i>	Dr. Nisrine Bissar
<i>Executive Administrator</i>	Ms. Mariam Zeidan

History

The **Faculty of Health Sciences** is the most recent addition to **Beirut Arab University** faculties. The Faculty was established to meet the rising needs for professionals specialized in health-related sciences, namely Nursing, Nutrition and Dietetics, Medical Laboratory Technology & Physical Therapy.

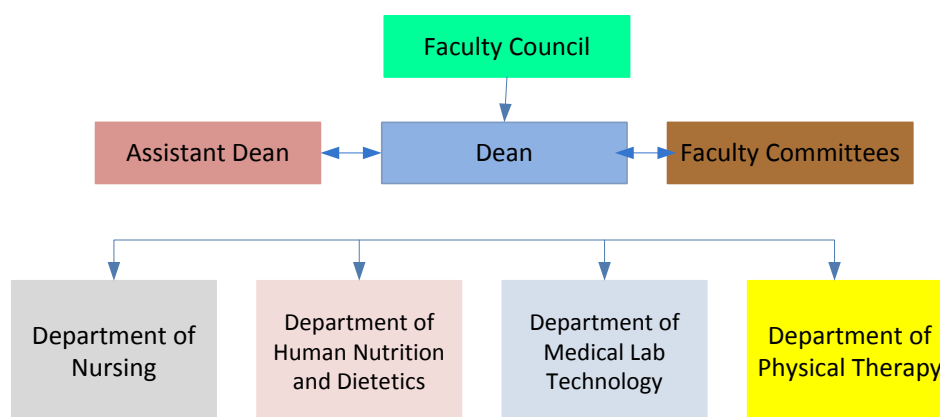
The strategic vision of the Faculty of Health Sciences is to contribute to the development and upgrading of health services in Lebanon and the region by providing excellent undergraduate and postgraduate education of the highest quality.

Graduates of this program will be able to function in changing and diversifying health care settings.

The Faculty has two branches: The first is in **Beirut** and was established in 2005/2006. The second is in **Tripoli** and was established in 2010/2011. It only offers 2 majors: Nutrition & Dietetics and Medical Laboratory Technology.

Organizational Structure

The Faculty of Health Sciences constitutes the following four departments: Nursing, Human Nutrition and Dietetics, Medical Lab Technology, and Physical Therapy. The organizational Chart of the College is shown:



Vision

To contribute to the development and upgrading of health services in Lebanon and the region by providing excellent education and scientific research of high quality.

Mission

The mission of the Faculty of Health Sciences is to promote and maintain the highest level of education through continuous improvement in education, research quality and community services in the fields of Nursing, Nutrition and Dietetics, Medical Laboratory Technology, and Physical Therapy. The Faculty offers comprehensive educational programs through varieties of teaching methodology, laboratory, clinical experience and field training, which are culturally and ethically sensitive. Graduates of these

programs will be able to function in changing and diversifying health care settings. The faculty provides evidence-based practice according to the highest professional standards by the incorporation of recent research findings into professional practice. To achieve its mission, the Faculty relies on highly specialized and dedicated staff members.

Academic Programs

The Faculty of Health Sciences admits students to the following undergraduate degree programs:

- BSc. in Nursing
- BSc. in Nutrition and Dietetics
- BSc. in Medical Laboratory Technology
- BSc. in Physical Therapy

Admission Requirements

To be accepted for an undergraduate degree, applicants must:

- Hold the official Lebanese Secondary School Certificate in a branch relevant to the chosen undergraduate field of specialization, or an official equivalent;
- Successfully pass an Entrance Exam to measure the level of proficiency in ***English Language, an aptitude test (thinking skills, scientific knowledge: Biology, Chemistry & Physics,)***, as well as to attend a ***Personal Interview***.

Graduation Requirements

To receive a BSc. Degree in the Health Sciences programs, a student must satisfactorily complete the credit hours required for each bachelor granting program at the Faculty and get an overall minimum grade point average (GPA) of 2.0 + ICDL (International Computer Driving License).

The following table summarizes the number of credits required for each bachelor program at the faculty:

Program	University Requirements		Program Requirements		Total Credit Hours
	Mandatory Courses	Elective Courses	Major Core Courses	Free and Major Elective Courses	
NURS	7	9	84	6	106
NUTR	7	9	79	6	101
MELS	7	9	75	9	100
PHTH	7	9	105	9	130
NURS: Nursing NUTR: Nutrition & Dietetics MELS: Medical Laboratory Technology PHTH: Physical Therapy					

DEPARTMENT OF NURSING

Academic Staff

Chairperson Prof.	Dr. Rajaa Fakhoury
Associate Professor	Dr. Waffa Nour Bousaili
Assistant Professors	Dr. Mirna Fawaz, Dr. Ahmad Tassi, Dr. Hiba Deek, Mr. Ibrahim Kadamani
Part-time Lecturers	Dr. Ali Samaha

Mission

The mission of the Nursing Department is to promote and maintain the highest level of education through improvement in education, research quality, and community services in the fields of Nursing. The Department offers a comprehensive educational program through varieties of teaching/learning methodology, laboratory, clinical experiences and field training, which are culturally and ethically sensitive. Graduates of the Department will be able to function in changing and diversifying health care settings. The Department provides evidence-based practice according to the highest professional standards by the incorporation of recent research findings into professional practice. To achieve its mission, the Department relies on highly specialized and dedicated staff members.

Objectives

Enhancement of the academic experience, growth and the provision of increased educational opportunities through:

- Providing competent professional graduates who can meet the rapid changes in the health field.
- Preparing graduates to practice in a manner responsive to the community needs while maintaining the highest professional and ethical standards.
- Promoting and maintaining continuous cooperation and interaction with local, regional and international health care organizations.

Developing research and knowledge transfer activities through:

- Providing open access to a number of international journals through the e-library.
- Allowing undergraduate and postgraduate nurses to participate in the development of research projects.
- Providing opportunities to the staff members to participate in research projects.
- Supervising and supporting post-graduate students while conducting research and writing their theses, which are selected according to the needs of the health care practice.
- Establishing a research committee as a liaison between the faculty of health science, Beirut Arab University and different health facilities.

Providing Community Services:

- Demonstrating awareness of community health needs and problems, factors affecting them, and different modalities of interventions; with attention to vulnerable population.
- Considering community and market needs when addressing curriculum changes.
- Participating in the process of continuous professional development of nurses in different health care practices
- Providing health education and services to various community sectors.

Organizational development and strategic investment of resources:

- Developing the existing nursing labs to provide high quality learning, teaching and research environment.

- Selecting and retaining of high quality staff and investing in staff development according to the university employment policies.
- Developing an information infrastructure to support excellence in learning, teaching and research.

Intended Learning Outcomes

Knowledge and understanding

- Identify principles underlying the interaction between humans and their environment that affect health.
- Recognize basic and health-related sciences underpinning nursing practices.
- List physiological, psychosocial, and educational needs of the health care consumers.
- Explain the role of the nurse in improving health, health promoting activities, and palliative care.
- Define the role variation of health care teams and service providers according to individual's/groups needs and health care settings.
- Recognize professional scope of practice.
- Identify principles of communication skills utilized for the development of effective personal interaction.
- Enumerate the principles and concepts of leadership/ management in health care.
- Explain policies, procedures and guidelines concerning ethical issues and the rights of consumers.
- Describe evidence based practice and research processes to be utilized in the delivery of health care.
- Discover new advancements in nursing that have an impact on the individual's capacity to practice nursing.

Intellectual Skills

- Synthesize knowledge derived from the basic/health and nursing sciences for the development of professional skills and decision making in nursing practice.
- Evaluate the collected information using logical judgment based on systematic approaches.
- Formulate specific plans for meeting needs/problems taking into account time scale, workload and resources available within the context of holistic health care.
- Use reasoning skills in prioritizing actions.
- Set health educational goals according to identified needs/problems.
- Analyze current and emerging health needs and problems within the surrounding society.
- Conduct a research/research proposal/independent project based on the best research evidence

Practical and Professional Skills

- Gather relevant information from a wide range of sources including electronic data.
- Conduct nursing assessments in different health care settings according to guidelines and standards.
- Deliver holistic, individualized and centered care.
- Apply health care promotion measures considering social, cultural, educational, technological, environmental, legal, ethical, economic and spiritual issues.
- Use teaching / learning principles in implementing educational activities to patient/ client and subordinates
- Practice in accordance to evidence-based guidelines and standards applicable to health care settings.
- Record professionally the collected data, nursing diagnosis, actions to be taken and their outcomes.
- Examine anatomical structure and features of specific human body organs.

General and Transferable Skills

- Appreciate the vision, mission, objectives and values of the organization.

- Use best available evidence- based standards and guidelines for conducting and evaluating nursing performance.
- Assume responsibility for safe, competent and ethical health care accountable to the profession.
- Communicate effectively with individuals and/or groups and communities through interpersonal, written and technological strategies.
- Act as a role model and mentor, sharing knowledge and experience with peers and experienced health providers.
- Demonstrate on-going commitment to personal and professional growth.
- Assume leadership skills through formal and informal roles.
- Consider culture diversity of individual groups, and communities.

Degree Requirements

To obtain a Bachelor Degree in Nursing, students must successfully complete a total of 106 credits + ICDL. The standard duration of study for attaining a Bachelor Degree in Nursing is 6 semesters.

Career Opportunities

Graduates can work in hospitals, primary health-care centers, schools, elderly homes, as well as national and international health organizations.

Program Overview

The **Student's Study Plan** is given to every Nursing student upon his/her enrollment. The Nursing curriculum consists of the following components:

Program Requirements	Credits
* University Requirement Mandatory Courses	7
* University Elective Courses	9
Major Core Courses	84
Major Elective Courses	6
Total	106

* A total of 16 credits is required as General University Requirements; 7 credits are selected from the University Mandatory courses list including: ARAB 001(2Cr.), ENGL 001 (2Cr.), BLAW 001 (1Cr.), MCOM 003 (2Cr.), and another 9 credits are selected from the University Elective courses list + ICDL.

Major Core Courses

Course	Title	Crs.	Co-/Pre -requisites
NURS 207	Nursing Fundamentals and Professional Ethics	3	
NURS 209	Nursing Fundamentals: Practice	2	Co/Pre: NURS207
NURS 215	Anatomy and Physiology for Nurses	3	
NURS 216	Adult Health Nursing I: Theory	3	Pre: NURS207
NURS 218	Adult Health Nursing I: Practice	2	Co/Pre: NURS216
NURS 220	Health Assessment Across the Lifespan	2	
NURS 222	Emergency Care Nursing: Theory	3	Co/Pre: NURS207
NURS224	Pharmacology for Nurses	3	Pre: PATH 203
NURS 226	Emergency Care Nursing: Practice	2	Co/Pre: NURS222
NURS 307	Adult Health Nursing II: Theory	3	Pre: NURS216
NURS 309	Adult Health Nursing II: Practice	2	Co/Pre: NURS307
NURS 310	Adult Health Nursing III: Theory	3	Pre: NURS307
NURS 324	Adult Health Nursing III: Practice	2	Co/Pre: NURS310
NURS 318	Pediatric Health Nursing: Theory	3	Pre: NURS310
NURS 319	Critical Care Nursing: Theory	3	Co/Pre: NURS207
NURS 320	Pediatric Health Nursing: Practice	2	Co/Pre: NURS318
NURS 321	Critical Care Nursing: Practice	2	Co/Pre: NURS319
NURS 322	Nursing Practicum I	4	Pre: NURS310, NURS319
NURS 405	Obstetric and Gynecological Health Nursing: Theory	2	Pre: NURS310
NURS 406	Community and Gerontological Health Nursing: Theory	3	Pre: NURS310, NURS318, NURS405
NURS 407	Obstetric and Gynecological Health Nursing: Practice	2	Co/Pre:NURS405
NURS 408	Community and Gerontological Health Nursing: Practice	2	Co/Pre: NURS406
NURS409	Mental Health and Illness Across the Lifespan	1	
NURS 410	Leadership and Management in Nursing	3	Pre: NURS310
NURS 416	Practicum II and Independent Project	4	Co/Pre: NURS322
NURS 419	Psychiatric and Mental Health Nursing	3	
COMM201	Epidemiology and Biostatistics	3	
PATH 203	Pathophysiology	3	Co:NURS215
BCHM 215	Biochemistry	3	
BIOL 226	Microbiology	3	
HESC301	Psychosocial Aspects of Health and Illness	2	
HESC 302	Research and Evidence Based Practice	2	
IPEH 512	Interprofessional Education for Health Care	1	

Description of Major Core Courses

NURS 207-NURSING FUNDAMENTALS AND PROFESSIONAL ETHICS (3Crs.:3Lec; 0Lab; 0Tut):

This course is designed to introduce undergraduate nursing students to the concepts of; nursing as a profession, health and illness, therapeutic safe hospital environment, basic human needs, comfort, rest and sleep, nutritional needs, urinary elimination, medical and surgical asepsis, hygienic care, vital signs, medication, heat and cold applications, as well as first aid. The theoretical base required for providing the skills of assessing and providing basic nursing care to adult patients, based on their needs, will be emphasized. In addition, this course focuses on professional code of ethics for nursing practice, nurses' rights, patients' duties and rights, legal and moral principles pertaining to health, newly arising dilemmas, rules, policies in health care practice.

NURS 209- NURSING FUNDAMENTALS: Practice (2Crs.:0Lec;6Lab; 0Tut):

This course provides undergraduate nursing students with the opportunities to develop clinical competencies necessary for assessing and providing basic nursing care to adult patients, based on the identified needs and in a safe, legal, and ethical manner. It provides students with a non-threatening environment in which they apply basic nursing skills accurately and safely through practice and return demonstration in a skill nursing laboratory. *Co/Pre-Req:* NURS 207.

NURS 215-ANATOMY AND PHYSIOLOGY FOR NURSES (3Crs.:2Lec; 2Lab; 0Tut):

This course provides a comprehensive study of the anatomy and physiology of the human body. It introduces the physiology of homeostasis and the structure and functions of body systems including: blood, central and peripheral nervous system, renal system, respiratory system, lymphatic/immune, endocrine system, cardiovascular system, digestive and reproductive system. Common human disease processes are emphasized. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. Laboratory practice includes studies of the human skeleton, human heart and its big blood vessels, human lungs and their pleurae, and abdominal and pelvic viscera.

NURS 216-ADULT HEALTH NURSING I: Theory (3Crs.:3Lec; 0Cln;0Tut):

This course provides undergraduate nursing students with the knowledge base related to the nursing process of immediate and long-term care of patients with cardiovascular, GIT, hepatic and biliary disorders, diabetes mellitus and thyroid gland, rehabilitation, common diagnostic procedures and fluids and electrolytes balance and imbalance. *Pre-req:* NURS207

NURS 218-ADULT HEALTH NURSING I: Practice (2Crs.:0Lec;6Cln;0Tut):

This course is designed to introduce the beginning-nursing students to the field of nursing practice, particularly skills related to caring in the hospital setting. The nursing process is utilized as a systematic approach to identify and provide nursing care. Emphasis is placed on developing skills needed to assess, implement and monitor nursing interventions provided to patients with cardiovascular, GIT, hepatic and biliary disorders, diabetes mellitus and thyroid gland disorders, and fluids and electrolytes balance and imbalance. Nursing role in rehabilitation and while obtaining common diagnostic procedures are focused. The role of the nurse as a member of the healthcare team is emphasized.

Co/ Pre-req: NURS216

NURS 220-HEALTH ASSESSMENT ACROSS THE LIFESPAN (2Crs.:1Lec; 3Cln;0Tut):

The course focuses on assessment of health across the life span and provides the student with the knowledge and skills needed to assess the health status of individuals throughout life cycle from infancy through old age. An emphasis is placed on assessment of the physical, developmental, psychosocial (cognitive, affective, and behavioral), cultural, and spiritual dimensions of the individual and/or families. The course facilitates opportunities to integrate the knowledge and skills necessary for history taking, physical and psychosocial examination, and documentation.

NURS 222-EMERGENCY CARE NURSING: Theory (3Crs.:3Lec; 0Cln;0Tut):

This course provides students with knowledge underlying the care of patients presenting with medical and traumatic emergencies with a review on the underlying patho-physiological processes. Emphasis is on triage, disaster management, basic and advanced life support, primary and secondary assessments, and immediate interventions of common various medical and traumatic emergencies. Poisoning, drug

overdose, collection and preservation of evidence, legal and forensic considerations are addressed. Critical thinking and problem solving are both focused in each topic. *Co/ Pre-req:* NURS207.

NURS224-PHARMACOLOGY FOR NURSES (3Cr.:3Lec; 0Lab;0Tut):

This course introduces the fundamental principles of pharmacology and toxicology. It addresses the principles of pharmacodynamics and mechanisms of drug actions, and the utilization of their properties in the diagnosis and treatment of disease. Focus is placed on interaction of drugs with specific receptors, fundamentals of how chemicals produce toxicity, aspects of dose-response, handling of toxicants following exposure, mechanisms of toxic action and their modification by chemical, environmental and biological factors. *Pre-req:* PATH 203

NURS 226-EMERGENCY CARE NURSING: Practice (2Cr.:0Lec;6Cln;0Tut):

This course provides students with the opportunity to develop skills needed to care for patients in emergency practice. The clinical experience focuses on the comprehensive nursing interventions appropriate to patients with various emergency problems. The acuity of patients, complexity of care and degree of technological intervention used are variable. Students are encouraged to anticipate and prioritize patient care, provide accurate assessment, intervention, and effective ongoing management with an evaluation of patient's responses. *Co/ Pre-req:* NURS222.

NURS 307-ADULT HEALTH NURSING II: Theory (3Cr.:3Lec;0Cln;0Tut):

This course is a continuation of Adult Health Nursing I course. It is designed to develop the student's knowledge in the nursing care of adult patients/families with cardiovascular disorders, respiratory disorders, burn, perioperative care, pain and cancer. Theoretical concepts and knowledge related to basic health sciences are incorporated in the didactic information. *Pre-req:* NURS216.

NURS 309-ADULT HEALTH NURSING II: Practice (2Cr.:0Lec;6Cln;0Tut):

This course focuses on application of theories gained from Adult Health Nursing II as well as critical thinking, decision making skills in special medical and surgical settings. It is designed to develop the student's skills in the nursing care of adult patients/families with cardiovascular disorders, respiratory disorders, burn, perioperative care, pain and cancer. *Co/ Pre-req:* NURS307.

NURS 310-ADULT HEALTH NURSING III: Theory (3Cr.:3Lec; 0Prac;0Tut):

This course is a continuation of adult health nursing I & II courses. It focuses on the knowledge as well as critical thinking and decision making skills as well as nursing therapeutics in special medical and surgical settings. It focuses on adult patients/families with orthopedic, urology, neurology and neurosurgery, ophthalmology, and ear disorders. *Pre-req:* NURS307.

NURS 324-ADULT HEALTH NURSING III: Practice (2Cr.:0Lec;6Cln;0Tut):

This course provides students with the chance to apply knowledge gained thorough the adult health nursing III: theory course. It focuses on application of theories, critical thinking and decision making skills, as well as nursing therapeutics to patients with orthopedic, urology, neurology and neurosurgery, ophthalmology, and ear disorders. *Co/ Pre-req:* NURS310.

NURS 318-PEDIATRIC HEALTH NURSING: Theory (3Cr.:3Lec; 0Cln;0Tut):

This course covers scientific knowledge enabling students to develop their own approach to care of pediatrics and their families. Growth and development theories will be explored as a basis of understanding health care needs of well and sick children. This course addresses the prevention of illnesses and accidents, common pediatric health problems, and communicable diseases. This is achieved through utilizing the nursing process, problem solving techniques, critical thinking skills, and family centered approached in the provision of empowered care. *Pre-requisite:* NURS310.

NURS 319-CRITICAL CARE NURSING: Theory (3Cr.:3Lec; 0Cln;0Tut):

This course focuses on the response of critically ill patients to actual or potential life threatening conditions. It provides students with the necessary in-depth knowledge and understanding of nursing and medical management of patients with acute and/or multi -systems failures as well as the theoretical base of the critical and technical skills required for practice. It also explores the interrelationship of the three dimensions of the critical care nursing practice and examines the theoretical basis and nursing process for alterations in human functioning as consequences of critical illness and care. *Co/ Pre-req:* NURS207.

NURS 320-PEDIATRIC HEALTH NURSING: Practice (2Crs.:0Lec;6Cln;0Tut):

This course allows students to utilize the nursing process in the provision of care of normal pediatric population or those who are at high risk or experiencing disruptions in bio/psycho/social/cultural and spiritual needs and their families. Emphasis is also placed on therapeutic communication and teaching to children and their families. *Co/ Pre-req:* NURS318.

NURS 321-CRITICAL CARE NURSING: Practice (2Crs.:0Lec; 6Cln; 0Tut):

The course provides students with the necessary skills of assessment and provision of comprehensive quality nursing care for patients with life threatening conditions, different body system alterations, attached with different types of supportive devices, and encountered in various critical care settings. Students are given the chance to reflect on their clinical practice through students' portfolio collecting their experience over the course. Nursing process is used as an approach of providing holistic patient care. Critical thinking, clinical judgment, decision making and team work are emphasized in this course. *Co/ Pre-req:* NURS319.

NURS 322-NURSING PRACTICUM I (4Crs.:0Lec;12Pract;0Tut):

A clinical course that provides an experience of incorporating concepts learned including nursing related knowledge, into clinical practice. Students work with their preceptors to synthesize knowledge and skills gained from previous coursework and apply it into practice. Emphasis is placed on refining nursing process skills with particular attention given to prioritization of care. The practicum provides an opportunity for the students to enhance their professional practice and demonstrate competency in standards of care, application of evidence, professionalism, and safe and legal practice. *Pre-req:* NURS310, NURS319.

NURS 405-OBSTETRIC AND GYNECOLOGICAL HEALTH NURSING: Theory (2Crs.:2Lec; 0Cln;0 Tut):

This course introduces the concepts and principles of obstetrical nursing. It presents the maternal cycle and provides students with knowledge related to care of mothers during antenatal, labor, delivery and postnatal periods as well as care of women with different gynecological health problems. *Pre-req:* NURS310.

NURS 406-COMMUNITY AND GERONTOLOGICAL HEALTH NURSING: Theory (3Crs.:3Lec; 0 Cln;0Tut):

The course provides students with knowledge necessary to meet health care needs of the individuals and families in the community within the context of primary healthcare. Tools for community assessment and diagnosis, concepts of health promotion and maintenance, prevention and early detection of diseases and disabilities, and rehabilitation and restoration of the highest possible level of health are covered. Special emphasis will be on the theoretical base of the elderly population care, theories and concepts of aging, the physiologic and psychosocial changes and problems, as well as ethical and legal aspects related to their care. *Pre-req:* NURS310, NURS318, NURS405.

NURS 407-OBSTETRIC AND GYNECOLOGICAL HEALTH NURSING: Practice (2Crs.:0Lec; 6Cln;0 Tut):

This course allows students to provide skills related to care of mothers during antenatal, labor, delivery and postnatal periods and care of women with different gynecological health problems. It will help students to appreciate the client as a holistic individual. *Co/Pre-req:* NURS405.

NURS 408-COMMUNITY AND GERONTOLOGICAL HEALTH NURSING: Practice (2Crs.:0Lec; 6 Cln; 0Tut):

This course is designed to provide the student with the opportunity for clinical application of the knowledge related to community and gerontological health nursing. Critical thinking skills will be utilized as students participate in clinical prevention and population-focused interventions, with attention to risk assessment, health promotion, disease prevention, and rehabilitation and restoration of the highest possible level of health. Special emphasis will be on the application of elderly care related theories while providing care to this population, considering ethical and legal aspects of their care. *Co/Pre-req:* NURS406.

NURS 409-MENTAL HEALTH AND ILLNESS ACROSS THE LIFESPAN (1Cr.:1Lec; 0Cln;0Tut):

This course examines the constructs of mental health and mental illness, and analyze factors that

contribute to the development and course of mental illness. Students will examine factors that modify behavior, cognition, and emotion and promote restoration of health and functioning.

NURS 410-LEADERSHIP AND MANAGEMENT IN NURSING (3Cr.:2Lec;3Cln;0Tut):

This course enables students to acquire and utilize scientific inquiry and theory in the management of the health care units and organizations and apply advanced knowledge in making decisions affecting the management of health care system. It assists the students employ relevant philosophies as these contribute to the management of health care units and organizations, and to utilize knowledge of the law and legislations and health policy in making decisions. In addition, it enables them to apply communication strategies and to demonstrate the ability to think critically in the Nurse Administrator role, as well as to demonstrate leadership skills in the performance of the Nurse Administrator role.
Pre-req: NURS310.

NURS 416-PRACTICUM II AND INDEPENDENT PROJECT (4Cr.:0Lec; 12Cln;0Tut):

A clinical course designed for students in the final semester before graduation to facilitate the transition from nursing student to professional nurse. Students will have the opportunity to increase the quality and quantity of the clinical experience. Decision making skills will be enhanced through working with preceptors in different nursing specialties which have been taught in the previous academic years.
Co/Pre-req: NURS322.

NURS 419-PsYCHIATRIC AND MENTAL HEALTH NURSING (3Cr.:2Le;3Cln; 0Tut):

The course provides knowledge and practical application of caring for patients with mental illness. It also provides opportunities for students to participate in the provision of mental health services to well and sick individuals and families, as well as learning the relationship between mind and body and impact of the biopsychosocial state on physical and mental health.

BCHM 215-BIOCHEMISTRY (3Cr.:2Lec; 2Lab; 0Tut):

This course analytically introduces the structure and function of biological macromolecules, especially proteins, lipids and carbohydrates. Important medical concepts include bioenergetics and metabolism, proteins as biological catalysts, and essential metabolic pathways. In addition, this course covers nucleic acids structure and function, enzyme classification and function, and the role of vitamins and minerals in metabolism.

PATH 203-PATHOPHYSIOLOGY (3Cr.:3Lec; 0Lab; 0Tut):

This course introduces the junior health care student to the pathophysiological changes incurred in various body systems. These systems comprise the respiratory, renal, gastrointestinal, musculoskeletal, endocrine and neurological systems. Symptoms as pain, ischemia, inflammation, allergy and altered clotting will be emphasized.

BIOL 226-MICROBIOLOGY (3Cr.:2Lec;2Cln;0Tut):

This course studies the characteristics and classification of microorganisms and bacteria, emphasizing mechanisms by which they replicate and reproduce, their means of growth and growth requirements, and the general properties of bacterial cultures and their properties. The course includes: i) Fundamentals of microbiology (The microbial world; Observing microorganisms through a microscope; Microbial metabolism; Microbial growth; Microbial genetics; and Microbial biotechnology); ii) A Survey of the microbial world (Classification of microorganisms; The prokaryotes: Domains bacteria and archaea; The Eukaryotes: Fungi, Algae, Protozoa, and Helminths; and Viruses, Viroids, and Prions); iii) Interaction between microbe and host (Microbial mechanisms of pathogenicity; and Antimicrobial drugs) and iv) Microorganisms causing human diseases.

HESC301-PSYCHOSOCIAL ASPECTS OF HEALTH AND ILLNESS (2Cr.:2Lec; 0Cln;0Tut):

This course will overview psychological, social, and behavioral theories and principles as they relate to the experiences of illness and disability. The course will help in understanding the various health behaviors, health care utilization, and decision making in the context of health. It emphasizes on the patient motivation and life satisfaction, restructuring social support systems, and changes in psychosocial/developmental needs. Attention will be given to the changing role of the health professional as direct care provider, manager, consultant, and advocate.

HESC 302-RESEARCH AND EVIDENCE BASED PRACTICE (2Cr.:2Lec; 0Cln; 0Tut):

This course is related to research and covers topics related to research designs and methodologies as well as various components of research proposal and work. In addition, it will cover Sackett's model of evidence-based practice, in which students formulate a clinical question, acquire, and appraise literature for quality and applicability. In addition this course allows students to integrate research evidence, clinical expertise, and patient values in order to make the best clinical decisions.

COMM 201-EPIDEMIOLOGY AND BIostatISTICS (3Cr.:3Lec;0Cln; 0Tut): General introduction to the science of epidemiology, biostatistics and distribution of diseases in a given population emphasizing on infectious disease epidemiology. In addition, the course will cover the statistical methods in assessing epidemiological distributions. Topics include research methods and design, descriptive statistics, performance characteristics of diagnostic tests, graphical methods, probability, estimation, hypothesis testing, p -values, regression and correlation, and clinical trials.

IPEH 512-INTERPROFESSIONAL EDUCATION FOR HEALTH CARE (1Cr.:0Lec; 2 free interactive learning activities; 0Tut):

The course aims to foster the skills, knowledge, attitudes and behaviours that facilitate effective interprofessional (IP) collaborative practice among health care providers. Through interactive learning students will explore ways in which their professions can work together in order to optimize patient's care respecting each other's roles and responsibilities. The course employs a variety of interactive methods and technologies

Major Elective Courses

Courses	Title	Crs.	Pre/co -requisites
NURS 211	Therapeutic Nutrition	2	
NURS 212	Health Concepts	2	
NURS 313	Infection Control	2	
NURS 317	Change in Health Care	2	
NURS 412	Palliative Care	2	
NURS 414	Health Informatics	2	
NURS 415	Health Education	2	
NURS 417	Quality Control	2	
NURS 330	Fundamentals of oncology	2	

Description of Major Elective Courses

NURS 211–THERAPEUTIC NUTRITION (2Cr.:2Lec,0Lab,0Tut): This Course presents therapeutic nutrition which involves diet modifications in order to correspond body's ability to metabolize certain nutrients, correct nutritional deficiencies related to the disease and eliminate certain foods from the diet that may be harmful to patients with various diseases including: hypertension, heart failure, myocardial infarction, peptic ulcer, gastritis, ulcerative colitis, hepatitis, esophageal varices, jaundice, hepatic failure, diabetes mellitus, acute and chronic glomerulonephritis, renal failure, fever, constipation and diarrhea.

NURS 212–HEALTH CONCEPTS (2Cr.:2Lec,0Lab,0Tut): This course examines selected clinical concepts from their scientific and theoretical bases. Theoretical issues related to the application of concepts across different settings will be addressed. Students will be introduced to the process of concept analysis. Emphasis is placed on selected medical surgical functional alterations and its related nursing assessment and intervention. Examples will include: homeostasis, immobility, pain, inflammation, ischemia, hypoxia, dyspnea, oedema, fatigue, impaired wound healing, allergic reactions, impaired immune competence and altered clotting.

NURS 313–INFECTION CONTROL (2Cr.:2Lec,0Lab,0Tut): This course focuses on theory in infection control, including infection control practices, transmission of disease and methods for prevention and control of pathogen transmission. It is designed to ensure nurses' adoption of safe and ethical infection control practices. Important related practice standards, that are evidence –based and outline expectations from nurses, in all settings, will be declared and discussed.

NURS 317-CHANGE IN HEALTH CARE (2Cr.:2Lec,0Lab,0Tut): This course offers learning opportunities assisting students to develop key skills required for leading or responding effectively to change in health care settings. It allows understanding the concept of change, leadership of change, power and resistance to change and methods of measuring and evaluating change. This course is delivered online and gives students the opportunity to participate in different self-directed learning activities; individually and in groups. A number of tutorials are conducted to facilitate course orientation, team work, and responding to students' queries.

NURS 412–PALLIATIVE CARE (2Cr.:2Lec,0Lab,0Tut): This course will introduce the concept of palliative care, highlighting the common issues with Hospice. It will also discuss the importance of caring behavior and its elements. High access to quality, symptomatic, spiritual and restorative care will be declared, together with regulations that govern this care. Palliative care team and their individual role together with the families members will be stressed. The ethical, moral and legal issues as well as problems arising from advanced medical treatment will be explored.

NURS 414–HEALTH INFORMATICS (2Cr.:2Lec,0Lab,0Tut): This course focuses on the history of health care informatics, basic informatics concepts, and health information management applications. The student progresses along a continuum: from developing knowledge and understanding of basic concepts and methods of health care informatics; to learning about specific information management applications in health care administration, practice, education, and research; and finally to a hands-on experience with a specific application of his/her own choice.

NURS 415–HEALTH EDUCATION (2Cr.:2Lec,0Lab,0Tut): The course provides students with the educational principles necessary for provision of health education to patients and public to increase their awareness of appropriate health practices and symptoms of illness to make them more inclined to seek medical help.

NURS 417–QUALITY CONTROL (2Cr.:2Lec,0Lab,0Tut): This course is formatted at the undergraduate level of study. It is intended to provide the nursing students with the theory and knowledge necessary to deal with advanced management practice issues related to quality control and development. The course also focuses on the development of skills necessary for dealing with quality standards required in today's practice in health care organizations. Students complete this course will have a far reaching knowledge base in which to practice quality related role and produce effective results.

NURS 330: Fundamentals of Oncology (2Cr.:2Lec,0Lab,0Tut):

This course is designed as an overview of oncology principles. It provides a foundation for providing care to patients experiencing a cancer diagnosis, treatment complications, or trouble

coping. It covers a range of basic topics, from cancer biology, diagnosis, prevention/screening measures, treatments, symptom management, and patient and family care.

1 Lecture = 1Credit hour

2-3 Lab = 1Credit hour

2-3 Cln = 1Credit hour

Study Plan
BSc. in Nursing (106 Credits)

First Semester (17 Credits)			Crs.	Pre-/co-requisites
NURS	207	Nursing Fundamentals and Professional Ethics	3	
NURS	209	Nursing Fundamentals: Practice	2	Co/Pre: <i>NURS207</i>
NURS	215	Anatomy and Physiology for Nurses	3	
PATH	203	Pathophysiology	3	
BCHM	215	Biochemistry	3	
		Elective (General) ¹	3	
Second Semester (16 Credits)			Crs.	Pre-/co-requisites
NURS	216	Adult Health Nursing I: Theory	3	Pre: <i>NURS207</i>
NURS	218	Adult Health Nursing I: Practice	2	Co/Pre: <i>NURS216</i>
NURS	220	Health Assessment Across the Life Span	2	
BIOL	226	Microbiology	3	
NURS	222	Emergency Care Nursing: Theory	3	Co/Pre: <i>NURS207</i>
NURS	224	Pharmacology for Nurses	3	Pre: <i>PATH 203</i>
Year-1 Summer I (4 Credits)			Crs.	Pre-/co-requisites
NURS	226	Emergency Care Nursing: Practice	2	Co/Pre: <i>NURS222</i>
		Elective (General) ¹	2	
Third Semester (17 Credits)			Crs.	Pre-/co-
requisites				
NURS	307	Adult Health Nursing II: Theory	3	Pre: <i>NURS216</i>
NURS	309	Adult Health Nursing II: Practice	2	Co-Pre: <i>NURS307</i>
NURS	319	Critical Care Nursing: Theory	3	Pre: <i>NURS207</i>
NURS	321	Critical Care Nursing: Practice	2	Co/Pre: <i>NURS319</i>
HESC	301	Psychosocial Aspects of Health and Illness	2	
		Elective (General) ¹	5	
Fourth Semester (17 Credits)			Crs.	Pre-/co-requisites
NURS	310	Adult Health Nursing III: Theory	3	Pre: <i>NURS307</i>
NURS	324	Adult Health Nursing III: Practice	2	Co/Pre: <i>NURS310</i>
HESC	302	Research and Evidence Based Practice	2	
NURS	405	Obstetric and Gynecological Health Nursing: Theory	2	Co/Pre: <i>NURS310</i>
NURS	407	Obstetric and Gynecological Health Nursing: Practice	2	Co/Pre: <i>NURS405</i>
		Elective (General) ¹	1	
		Elective ²	4	
Year-2 Summer II (4 Credits)			Crs.	Pre-/co-requisites
NURS	322	Nursing Practicum I	4	Pre: <i>NURS310, NURS319</i>

Fifth Semester (16 Credits)			Crs.	Pre-/co-requisites
NURS	318	Pediatric Health Nursing: Theory	3	Pre: <i>NURS310</i>
NURS	320	Pediatric Health Nursing: Practice	2	Co/Pre: <i>NURS318</i>
NURS	409	Mental Health and Illness Across the Life Span	1	
NURS	419	Psychiatric and Mental Health Nursing	3	
COMM	201	Epidemiology and Biostatistics	3	
		Elective (General) ¹	5	

Sixth Semester (15 Credits)			Crs.	Pre-/co-requisites
NURS	406	Community and Gerontological Health Nursing: Theory	3	Pre: <i>NURS310, NURS318, NURS405</i>
NURS	408	Community and Gerontological Health Nursing: Practice	2	Co/Pre: <i>NURS406</i>
NURS	410	Leadership and Management in Nursing	3	Pre: <i>NURS310</i>
NURS	416	Practicum II and Independent Project	4	Co/Pre <i>NURS322</i>
IPEH	512	Interprofessional Education for Health Care	1	
		Elective ²	2	

¹ A total of 16 credits is required as General University Requirement; 7 credits are selected from the *University Mandatory Courses* list including: ARAB 001 (2Cr.), ENGL 001 (2Cr.), BLAW 001 (1Cr.), MCOM 003 (2 Cr.), and 9 credits are selected from the *University Elective Courses* list.

- The list of University Requirement courses and their descriptions are presented in the introductory pages of this catalog.

² A total of 6 credits are selected from courses offered by the Department.

DEPARTMENT OF MEDICAL LABORATORY TECHNOLOGY

Academic Staff

Chairperson

Prof. Iman el Ghazzawi

Associate Professor

Dr. Fatima Saleh

Assistant Professor

Dr. Said El Shamieh, Dr. Sara Mina, Dr. Sara Khalife

Part-time Lecturers

Dr. Fatehia Awny, Dr. Rana Wafaai

Mission

The mission of the department of Medical Laboratory Technology (MLT) is to prepare graduate competent and ethically oriented clinical laboratory professionals with the knowledge and the skills for career entry and practice. It is also the Department's mission to prepare graduates for leadership roles in the clinical laboratory and professional organizations and to instill an understanding of the need for maintaining continuing competency in a rapidly changing and dynamic profession. To achieve its mission, the department relies on highly specialized dedicated staff members.

Objectives

Undergraduate education in the MLT Department provides:

- Fundamental knowledge in basic and clinical sciences.
- The opportunity to practice in different areas of interest such as Hematology and Blood Banking, Bacteriology, Virology, Parasitology, Serology/ Immunology, Clinical Chemistry, and Histopathology.
- Intensive training in problem solving, laboratory skills, and practical skills.
- A well-rounded education that includes communication skills, the ability to function well on a team, an appreciation for ethical behavior, and the ability to engage in lifelong learning.

This education is expected to prepare our students to thrive and to lead. It also prepares them to achieve our Program Educational Objectives:

Successful Careers: Graduates of the program will have successful technical or professional careers in the medical and pharmaceutical industries.

Lifelong Learning: Graduates of the program will continue to learn and to adapt in a world of constantly developing technology and technological devices.

Learning Outcomes

Knowledge and Understanding

On successful completion of the programs, graduates must be able to:

- Acquire preliminary knowledge about the fundamentals of basic medical sciences, social and behavioral sciences, including chemistry, organic chemistry, biology, microbiology, biochemistry, anatomy and physiology, epidemiology and biostatistics as well as psychology and sociology.
- Describe the anatomy and physiology of body systems and recall anatomic terminology in order to relate major areas of the clinical laboratory to general pathologic conditions associated with the body systems.
- Identify policies and procedures for maintaining laboratory safety and labelling biohazardous substances.
- Identify the modes of transmission of various infectious pathogens and their different preventive methods.
- List the general criteria for handling different specimens and reasons for specimen rejection or recollection.
- State the basic principles of various molecular techniques used in medical laboratory sciences and their various clinical applications.

- Describe homeostasis, the stages of coagulation and the properties of arterial, venous and capillary blood.
- Recognize different blood collecting equipment, types of additives used, substances that can interfere in clinical analysis of blood constituents and the special precautions needed.
- Explain the rationale for evidence-based practice and utilize it in researching a health-related question
- Recognize the basic code of ethics by which medical laboratory technologists practice their profession to maintain standards of excellence.

Intellectual Skills

On Successful completion of the program, graduates must be able to:

- Determine the basic functions of each of the main body systems, including the circulatory, genitourinary, and other body systems necessary to perform assigned specimen collection tasks.
- Evaluate various specimens for the presence of drugs/toxins
- Correlate laboratory results to potential pathological conditions.
- Interpret the results of the different laboratory tests performed
- Correlate antibiogram to different microorganisms.
- Differentiate between the various blood components (serum, plasma, RBCs, WBCs and platelets).
- Discriminate between normal & abnormal blood picture.
- Compare the gross and microscopic picture of normal tissue structures with that of abnormal tissue entities.
- Select the type of equipment needed, the additives used in various specimen collection with the special precautions needed to inhibit interferences during proper lab investigations.
- Determine the standard operating procedures for collection, labeling, transportation of specimens and their processing in the lab.
- Recognize and report any lab hazardous situations in a timely manner including hand contamination, needle stick injury and chemical splash.
- Interpret recently published research and its implications for professional practice
- Analyze and apply methods from external resources

Practical Skills

On Successful completion of the program, graduates must be able to:

- Perform in all labs the standard precautions for infection prevention and control such as hand hygiene, aseptic techniques, PPE, waste and sharp disposal, sterilization, disinfection of equipment and environmental cleaning.
- Apply laboratory techniques related to basic sciences
- Handle specimens according to established laboratory criteria to prevent hazardous situations for lab personnel as well as prevention of clinically significant errors in test results.
- Set up equipment for routine use and follow established quality control protocols for maintenance and calibration of equipment.
- Prepare stains, stock solutions, working solutions and media for use in clinical laboratories.
- Perform routine hematology, microbiology and histology staining procedures.
- Prepare specimens for histology i.e. specimen accessioning and tissue cassette labeling
- Analysis of chemical analytes and microscopic constituents of blood and other body fluids and report results
- Practice culturing, isolating and identifying of bacteria from various clinical specimens
- Prepare and perform analyses of clinical specimens for different pathologic parasites and fungi.
- Perform, read and interpret serologic tests for the presence of antibodies, antigens and/or specific proteins
- Instruct patients in the proper collection and preservation of urine and semen samples.
- Collect acceptable specimens for laboratory evaluation according to best practice and applicable regulation and maintain patient safety and specimen integrity during collection.

- Practice safe work procedures at all times to ensure the safety of patients and co-workers and protection of the workplace.

General Skills

The medical laboratory technologist must have the ability to:

- Demonstrate respect for diversity in the workplace and patient population
- Cooperate with persons involved in the context of the work in a manner which reflects consideration of the relevant human relations factors
- Demonstrate effective time management skills and respect time.
- Interacts in a professional and competent matter using effective listening, verbal and written communication in dealing with laboratory colleagues, patients and other health professionals.
- Demonstrate the ability to work effectively as a part of a team.
- Respect patient dignity and privacy and maintain confidentiality of information at all times.
- List the causes of stress in the work environment and discuss the coping skills used to deal with stress at the workplace.
- Implement continuous knowledge and educational activities and keep current with scientific advances.

Degree Requirements

To obtain a Bachelor Degree in **Medical Laboratory Technology**, students must successfully complete a total of 100 credits + ICDL. The standard duration of study for the award of a Bachelor Degree in **Medical Laboratory Technology** is 6 full semesters.

Career Opportunities

Graduates can work in hospital laboratories, private medical laboratories, laboratory-equipment supplying companies, biomedical research centers, pharmaceutical industries and blood banks.

Program Overview

The **Student's Study Plan** is given to every Medical Lab student upon his/her enrollment. The **Medical Laboratory Technology** undergraduate curriculum consists of the following components:

Program Requirements	Credits
University Mandatory Courses*	7
University Elective Courses*	9
Major Core Courses	75
Major Elective Courses	9
Total	100

* A total of 16 credits is required as *General University Requirements*; 7 credits are selected from the *University Mandatory Courses* list including: ARAB 001 (2 cr.), ENGL 001 (2 cr.), BLAW 001 (1 cr.), and MCOM 003 (2 cr.), and 9 credits are selected from *University Electives Courses* list + ICDL.

Major Core Courses

Courses	Title	Crs.	Pre/co-requisites
BIOL 223	Biology	3	
BIOL 226	Microbiology	3	
BCHM 215	Biochemistry	3	
CHEM 213	General Chemistry	3	
CHEM 215	Organic Chemistry	3	
COMM 201	Epidemiology and Biostatistics	3	
HESC 201	Human Anatomy and Physiology	3	
HESC 202	Healthcare Profession and Bioethics	1	
IPEH 512	Interprofessional Education for Health care	1	
MELS 202	Evidence-Based Laboratory Research	1	
MELS 204	Principles of Medical Laboratory Sciences	3	
MELS 301	Virology and Mycology	3	Pre: BIOL 226
MELS 302	Toxicology for Medical Laboratory	3	
MELS 303	Medical Parasitology	3	Pre: BIOL 226
MELS 304	Clinical Chemistry	3	Pre: BCHM 215
MELS 305	Clinical Laboratory Hematology	3	
MELS 306	Blood Banking and Transfusion Medicine	3	Pre: MELS 305
MELS 307	Clinical Laboratory Immunology	3	
MELS 308	Clinical Laboratory Bacteriology	3	Pre: BIOL 226
MELS 309	Quality Control and Laboratory Management	3	
MELS 401	Genetics and Molecular Biology	3	
MELS 402	Diagnostic Laboratory Procedures	3	
MELS 403	Histopathology	3	
MELS 404	Laboratory Body Fluid Analysis	3	
MELS 405	Clinical Rotations I	4	
MELS 406	Clinical Rotations II	4	
MELS 408	Clinical Seminar	1	

Description of Major Core Courses

BIOL 223–BIOLOGY (3Cr:2Lec,2Lab,0Tut): An introductory level course that covers the fundamental principles of cell biology, membrane transportations, genetics, human biology, evolution and ecology, morphology and physiology of body systems, with emphasis on the different types of cells and cellular structures. Moreover, the course will cover the organization of life, energy transfer through living systems, and diversity of life. This course includes: i) The molecular basis of life; ii) The biology of the cell; iii) Genetic and molecular biology; iv) Evolution; v) The diversity of life; vi) Plant form and function; vii) Animal form and function; and viii) Ecology and behavior.

BIOL 226–MICROBIOLOGY (3Cr:2Lec,2Lab,0Tut): This course studies the characteristics and classification of microorganisms and bacteria, emphasizing mechanisms by which they replicate and reproduce, their means of growth and growth requirements, and the general properties of bacterial cultures and their properties. The course includes: i) Fundamentals of microbiology (The microbial world; Observing microorganisms through a microscope; Microbial metabolism; Microbial growth; Microbial genetics; and Microbial biotechnology); ii) A Survey of the microbial world (Classification of microorganisms; The prokaryotes: Domains bacteria and archaea; The Eukaryotes: Fungi, Algae, Protozoa, and Helminths; and Viruses, Viroids, and Prions); iii) Interaction between microbe and host (Microbial mechanisms of pathogenicity; and Antimicrobial drugs); and iv) Microorganisms causing human diseases.

BCHM 215–BIOCHEMISTRY (3Cr:2Lec,2Lab,0Tut): This course analytically introduces the structure and function of biological macromolecules, especially proteins, lipids and carbohydrates. Important medical concepts include bioenergetics and metabolism, proteins as biological catalysts, and essential metabolic pathways. In addition, this course covers nucleic acids structure and function, enzyme classification and function, and the role of vitamins and minerals in metabolism.

CHEM 213–GENERAL CHEMISTRY (3Cr:2Lec,2Lab,0Tut): This course is an introduction to basic concepts of chemistry, chemical reactions and calculations, the three physical states of matter (gases, liquids and solids), solutions, chemical equilibrium, ionic equilibrium. The periodic table and properties of the elements, nomenclature are discussed. Theories of atomic structure, atomic spectra, and chemical bonding are also included.

CHEM 215–ORGANIC CHEMISTRY (3Cr:2Lec,2Lab,0Tut): This course introduces basic concepts in organic chemistry, macromolecules, stereoisomerism, and their basic structure and interactions. Organic chemistry applications and biosynthesis of biological compounds are also studied. The course includes the study of alkanes, alkenes, alkynes, and ethers and alcohols. In addition, it covers carboxylic acid derivative reaction mechanisms, with emphasis on biological macromolecules, including carbohydrates, proteins, lipids, and nucleic acids.

COMM 201–EPIDEMIOLOGY AND BIostatISTICS (3Cr:3Lec,0Lab,0Tut): General introduction to the science of epidemiology, biostatistics and distribution of diseases in a given population emphasizing on infectious disease epidemiology. In addition, the course will cover the statistical methods in assessing epidemiological distributions. Topics include research methods and design, descriptive statistics, performance characteristics of diagnostic tests, graphical methods, probability, estimation, hypothesis testing, p -values, regression and correlation, and clinical trials.

HESC 201–HUMAN ANATOMY AND PHYSIOLOGY (3Cr:2Lec,2Lab,0Tut): This course studies the structure (brief anatomy) and function (detailed physiology) of the following body systems: muscular, nervous, endocrine, blood, lymphatic, cardiovascular, respiratory, digestive, urinary, and reproductive.

HESC 202–HEALTHCARE PROFESSION AND BIOETHICS (1Cr:1Lec,0Lab,0Tut): The course centers around understanding the significance of healthcare ethics and bioethics. It explores a range of topics at the intersection of religion, ethics and law, including assisted reproductive technologies, cloning and transplantation. It also emphasizes on the ethics of professional conduct, such as privacy and confidentiality and other workplace related ethical issues, the importance of the work permit for health professions and on the ethics of research on human subjects.

IPEH 512-INTERPROFESSIONAL EDUCATION FOR HEALTH CARE (1Cr.:0Lec; 2 free interactive learning activities; 0Tut):

The course aims to foster the skills, knowledge, attitudes and behaviours that facilitate effective interprofessional (IP) collaborative practice among health care providers. Through interactive learning students will explore ways in which their professions can work together in order to optimize patient's care respecting each other's roles and responsibilities. The course employs a variety of interactive methods and technologies

MELS 202–EVIDENCE-BASED LABORATORY RESEARCH (1Cr:1Lec,0Lab,0Tut): This course introduces basic concepts in performing research in the clinical laboratory and professional methodologies in writing up a research project.

MELS 204–PRINCIPLES OF MEDICAL LABORATORY SCIENCES (3Cr:2Lec,2Lab,0Tut): This course familiarizes the student with the MLT program. The organization and role of the clinical laboratory are explored, as well as medical ethics and conduct, employment opportunities, and professional organizations. The course also covers laboratory math, laboratory safety, care and use of basic laboratory equipment, laboratory settings, sample collection, accreditation and certification.

MELS 301–VIROLOGY AND MYCOLOGY (3Cr:2Lec,2Lab,0Tut): A course primarily designed to study diagnostic virology, an offshoot of medical microbiology, covering the basic principles of viral structure and classification. It will also discuss viruses of medical significance, emphasizing on their control and possible prevention, in addition to laboratory techniques used for diagnosis. In addition, the course investigates the general characteristics and classification of various classes of fungi. Their mode of infection, disease spectrum, laboratory diagnosis and treatment of medically significant fungi will be covered. *Pre-req:* BIOL 226.

MELS 302–TOXICOLOGY FOR MEDICAL LABORATORY (3Cr:2Lec,2Lab,0Tut): The course enables the student to study analytical techniques and methods in identifying drugs in laboratory specimens, with emphasis on the clinical skills that help to assess and diagnose in the laboratory common disorders with referral to chronic and complicated cases.

MELS 303–MEDICAL PARASITOLOGY (3Cr:2Lec,2Lab,0Tut): A course primarily designed for understanding human and animal parasitology, including classification, morphology, development and the diseases they cause in man. Laboratory techniques used in the diagnosis of parasitic infections and the treatment of medically significant parasites will be discussed. *Pre-req:* BIOL 226.

MELS 304–CLINICAL CHEMISTRY (3Cr:2Lec,2Lab,0Tut): The course introduces students to the principles and procedures of various tests performed in Clinical Chemistry. It includes instrumentation, water balance, electrolytes, acid-base balance, proteins, carbohydrates, lipids, enzymes, Digestion and endocrinology, Liver function, tumor markers and pregnancy-related tests.. *Pre-req:* BCHM 215.

MELS 305–CLINICAL LABORATORY HEMATOLOGY (3Cr:2Lec,2Lab,0Tut): The course will focus on studying the basic and medical aspects of the structure and function of formed elements of blood, bone marrow and plasma, production, release and survival; morphological characteristics of normal and abnormal cells; quantitative and qualitative abnormalities. The course will also introduce students to different blood disorders with emphasis on coagulation and hemostatic disorders, white blood cell anomalies, anemias, and leukemias.

MELS 306–BLOOD BANKING AND TRANSFUSION MEDICINE (3Cr:2Lec,2Lab,0Tut): The course explores the major blood group systems that affect the practice of transfusion medicine and examines the processing and distribution of blood products supplied by transfusion services. The topics to be covered include donor screening, collection, preparation, and storage of blood products, prevention of transfusion reactions through identification of unsuspected antibodies and compatibility testing, transfusion-associated conditions and diseases. *Pre-req:* MELS 305.

MELS 307–CLINICAL LABORATORY IMMUNOLOGY (3Cr:2Lec,2Lab,0Tut): This course is designed to teach the basic tenants of immunology and serology. It also undertakes areas of

contemporary immunological knowledge and simultaneously provides a historical view of the discoveries that have built the groundwork of modern immunological thought and mechanism of fighting disease. The two functional divisions of the immune system, the innate and the adaptive immune system, antigens, antibodies and lymphocytes are studied, along with the cells and the soluble factors responsible for the immune response. The course also describes principles of immunology applicable to concepts in clinical medicine; introduction to diagnosis and management of human immuno-pathologic disorders. There are two major sections of this course: i) basic immunology; and ii) medical immunology and serology with particular emphasis on the immunoassays useful in the medical laboratory.

MELS 308–CLINICAL LABORATORY BACTERIOLOGY (3Cr:2Lec,2Lab,0Tut): Clinical Laboratory Bacteriology is based on the students' understanding of the basic principles of clinical microbiology. This course studies the characteristics and classification of microorganisms and bacteria from a medical perspective, emphasizing mechanisms by which they replicate and reproduce, their means of growth and growth requirements, and the general properties of bacterial cultures and their properties. The main topics covered in this course are: Development of diagnostic microbiology; The host's encounter with microbes; Safety and specimen collection; Cultivation of microorganisms; Presumptive identification and final identification; Aerobic gram-positive cocci; Aerobic gram-negative cocci; Aerobic gram-positive rods; *Enterobacteriaceae*; Anaerobic bacteria; *Mycobacterium* species; Intracellular microorganisms; Physiological and body system bacteriology; and Opportunistic and nosocomial infections. *Pre-req:* BIOL 226.

MELS 309–QUALITY CONTROL AND LABORATORY MANAGEMENT (3Cr:2Lec,2Lab,0Tut): The course is designed to introduce MLT students to the importance of quality control and laboratory management. It is also intended to give students a thorough understanding of the quality management system model implemented in the clinical laboratories with practical examples in order to relate theory to practice. In this course, all 12 quality system essentials will be addressed across phases of the laboratory workflow: pre-analytical, analytical and post-analytical.

MELS 401–GENETICS AND MOLECULAR BIOLOGY (3Cr:2Lec,2Lab,0Tut): The course will give a profound insight into human genetics, comprising the structure and function of genes at a molecular level. Classification and diagnostic screening of genetic disorders will also be covered, as well as biotechniques applied in genetics and molecular biology.

MELS 402–DIAGNOSTIC LABORATORY TECHNIQUES (3Cr:2Lec,2Lab,0Tut): This course introduces the student to basic principles of diagnostic testing in the medical laboratory. The principle and procedure of the tests, the clinical significance of the test results, quality control and normal values will be covered. Interpretation of laboratory tests including blood, liver, kidney, thyroid and cardiac tests will be discussed. The course also covers chemical laboratory safety.

MELS 403–HISTOPATHOLOGY (3Cr:2Lec,2Lab,0Tut): This course deals specifically with tissue pathology and abnormalities, study of smears and aspirates. This course will provide further understanding of the relation of cell, tissue, and organ microscopic and submicroscopic structure (mammals primarily) with function, and develop expertise in tissue handling techniques, preparation and staining of specimens.

MELS 404–LABORATORY BODY FLUID ANALYSIS (3Cr:2Lec,2Lab,0Tut): This course deals with the basic concepts of body fluid analysis, including urine, cerebrospinal fluid, vaginal secretions, semen and pulmonary fluids for diagnostic purposes in the identification of infection, inflammation and other-related disorders. In addition, students are introduced to measurement of drugs in urine and toxicity assessment and contraindications.

MELS 405–CLINICAL ROTATIONS I (4Cr:0Lec,12Cln,0Tut): This is the 1st part of the clinical rotations required as hospital or private laboratory training in partial fulfillment of the requirements for graduation with a MLT degree.

MELS 406–CLINICAL ROTATIONS II (4Cr:0Lec,12Cln,0Tut): This is the 2nd part of the clinical rotations required as hospital or private laboratory training in partial fulfillment of the requirements for graduation with a MLT degree.

MELS 408–CLINICAL SEMINAR (1Cr:1Lec,0Lab,0Tut): A seminar in which students are trained to read recently published scientific papers in medical journals, summarize, and present the information. This process also involves discussion and debate of the presented and/or published manuscripts.

Major Elective Courses

Courses	Title	Crs.	Pre/co- Requisites
MELS 220	Essential Biotechniques for Medical Laboratory	2	
MELS 222	Food-Borne Diseases	2	
MELS 314	Biotechnology for Medical Laboratory Sciences	3	
MELS 411	Forensic bioscience and criminology	3	
MELS 315	Cancer Biology	3	Prereq: MELS 307
MELS 412	Infection Control and Management	3	
MELS 414	Stem Cell Biology	3	
MELS 418	Clinical Laboratory Bacteriology II	3	

Description of Major Elective Courses

MELS 220-ESSENTIAL BIOTECHNIQUES FOR MEDICAL LABORATORY

(2crs.:2lec,0Lab,0Tut): This course is involved with understanding the basic and clinical varieties of bio-techniques and their relevant applications performed at the medical laboratory. This course provides an introduction to medical laboratory bio-techniques. Topics include: Basic immunoassays and serologic procedures, genetically-inherited diseases and methods of detection, cytogenetics, molecular diagnostic tests and procedures, DNA-based screening, flow cytometry and its clinical applications, electrophoretic analysis of specimens, and advances in analytical biotechnology. This course is well suited to students in all majors programs, including prospective laboratory technologists.

MELS 222-FOOD BORNE DISEASES (2crs.:2lec,0Lab,0Tut):

This course is involved with understanding common food-borne illnesses contracted from consumption of contaminated food or beverages, and adopting standards and policies for its prevention. This course covers the wide range of microorganisms occurring in food, both as contaminants and deliberate inoculation, hazards associated with food borne diseases, food safety and food handling practices, methods of investigations, and standards for prevention and control.

MELS 314-BIOTECHNOLOGY FOR MEDICAL LABORATORY SCIENCES

(3Cr.:3Lec,0Lab,0Tut): The applications of the methodologies of cell and molecular biology in the rapidly-evolving biotechnology and biopharmaceutical industries with an emphasis on the major sectors involving human therapeutics, human diagnostics, and genomics. Cell and molecular biology technologies adapted to mass production techniques to produce the products of biotechnology are surveyed. Typical pathways of product development from original basic research, product inception, clinical trials, regulatory approval, and commercialization are covered. Students will examine the current programs of the research and development of selected biotechnology and pharmacological corporations. The main topics covered in this course are: The biotechnology century and its workforce; An introduction to genes and genomes; Recombinant DNA technology and genomics; Proteins as products; Microbial biotechnology; Plant biotechnology; Animal biotechnology; DNA fingerprinting and forensic analysis; Bioremediation; Aquatic biotechnology; Medical biotechnology; Biotechnology regulations; and Ethics and biotechnology.

MELS 315-CANCER BIOLOGY (3Cr.:3Lec,0Lab,0Tut):

This course will explore the basic molecular and cellular concepts and principles related to the development of cancer. It will focus on the role of mutations in cancer cells and how they lead to the deregulation of essential biological properties such as programmed cell death, cell proliferation, and differentiation. Classical treatment methods will be compared with newer treatment modalities, such as targeted therapies. Prereq: MELS 307

MELS 316-ENVIRONMENTAL SCIENCES AND BIOMEDICINE (3Cr.:3Lec,0Lab,0Tut):

Introductory course in environmental sciences and their biological applications. The effect of environmental issues on human body and society are major themes of this course, in addition to understanding biomedical applications for dealing with, and understanding the impact of, environmental issues. The main topics covered in this course are: Environmental problems, their causes, and sustainability; Science, matter, and energy; Ecosystems, Biodiversity and evolution; Biodiversity, species interactions, and population control; The human population and urbanization; Climate and biodiversity; Sustaining biodiversity: The species and ecosystem approach; The impact of pollution on human health; Environmental hazards and human health; Air pollution, climate change, and ozone depletion; Solid and hazardous waste; and Environmental economics, politics, and worldviews.

MELS 411-FORENSIC BIOSCIENCE AND CRIMINOLOGY (3Cr.:3Lec,0Lab,0Tut):

This course is involved with understanding basic concepts in forensic biology/biomedicine and crime scene investigation. *Forensic Biomedicine* is cutting-edge field in the arena of medical criminology. The medical laboratory technologist is systematically introduced to the following topics: The role of the forensic pathologist; Investigation of traumatic deaths; Forensic toxicology; Recognition and identification of bloodstain patterns; The forensic laboratory; Identification of biological fluids and stains; Techniques of DNA analysis; Microanalysis and examination of trace evidence;

MELS 412-INFECTIOIN CONTROL AND MANAGEMENT (3Cr.:3Lec,0Lab,0Tut): This course studies basic concepts in laboratory infection control, handling of specimens and proper storage. The major causes of contaminations are delineated and unraveled such that systematic laboratory management is evident in infection control. In addition, the course investigates the role of medical laboratory technologist in curbing infection and its effect on laboratory analysis.

MELS 414-STEM CELL BIOLOGY (3Cr.:3Lec,0Lab,0Tut): This course studies the biology of stem cells and their role in regenerative medicine. In addition, students are given latest technologies available in stem cell biology and their applications in health and disease.

MELS 418: Clinical Laboratory Bacteriology II (3Cr.:3Lec,0Lab,0Tut):

The course will give a profound insight and knowledge of diagnostic bacteriology and antimicrobial resistance in bacteria. The topics to be covered include the procedures of sampling collection, transport and processing; the investigations of different biological samples and the classification of antibiotics, mechanisms for resistance development and spread, phenotypic and molecular methods for detection of resistance, clinically important resistance mechanisms in bacteria, with emphasis on molecular techniques for identification and typing of resistant bacterial clones.

Study Plan
BSc. in Medical Laboratory Technology (100 Credits)

First Semester (16 Credits)			Crs.	Pre-/co-requisites
BIOL	223	Biology	3	
CHEM	213	General Chemistry	3	
CHEM	215	Organic Chemistry	3	
HESC	201	Human Anatomy and Physiology	3	
COMM	201	Epidemiology and Biostatistics	3	
		Elective ¹	1	
Second Semester (15 Credits)			Crs.	Pre-/co-requisites
BCHM	215	Biochemistry	3	
BIOL	226	Microbiology	3	
HESC	202	Healthcare Profession and Bioethics	1	
MELS	202	Evidence-Based Laboratory Research	1	
MELS	204	Principles of Medical Laboratory Sciences	3	
		Elective ¹	4	
Summer I Semester (7 Credits)			Crs.	Pre-/co-requisites
		Elective ¹	4	
		Elective ²	3	
Third Semester (17 Credits)			Crs.	Pre-/co-requisites
MELS	301	Virology and Mycology	3	Pre: BIOL 226
MELS	303	Medical Parasitology	3	Pre: BIOL 226
MELS	305	Clinical Laboratory Hematology	3	
MELS	307	Clinical Laboratory Immunology	3	
MELS	309	Quality Control and Laboratory Management	3	
		Elective ¹	2	
Fourth Semester (15 Credits)			Crs.	Pre-/co-requisites
MELS	302	Toxicology for Medical Laboratory	3	
MELS	304	Clinical Chemistry	3	Pre: BCHM 215
MELS	306	Blood Banking and Transfusion Medicine	3	Pre: MELS 305
MELS	308	Clinical Laboratory Bacteriology	3	Pre: BIOL 226
		Elective ¹	3	
Summer II Semester (5 Credits)			Crs.	Pre-/co-requisites
		Elective ¹	2	
		Elective ²	3	

Fifth Semester (14 Credits)			Crs.	Pre-/co-requisites
MELS	401	Genetics and Molecular Biology	3	
MELS	404	Laboratory Body Fluid Analysis	3	
MELS	405	Clinical Rotations I	4	
MELS	408	Clinical Seminar	1	
		Elective ²	3	

Sixth Semester (11 Credits)			Crs.	Pre-/co-requisites
MELS	402	Diagnostic Laboratory Procedures	3	
MELS	403	Histopathology	3	
MELS	406	Clinical Rotations II	4	Pre: MELS 405
IPEH	512	Interprofessional Education for Healthcare	1	

¹ A total of 16 credits is required as *General University Requirements*; 7 credits are selected from the *University Mandatory Courses* list including: ARAB 001 (2Cr.), ENGL 001 (2Cr.), BLAW 001 (1 Cr.), and MCOM 003 (2Cr.), and 9 credits are selected from *University Electives Courses* list + ICDL.

² A total of 9 credits (three courses) are selected from courses offered by the Department.

DEPARTMENT OF NUTRITION & DIETETICS

Academic Staff

<i>Chairperson</i>	<i>Prof. Marwan El Ghosh</i>
<i>Associate Professor</i>	<i>Dr. Nada El Darra</i>
<i>Assistant Professor</i>	<i>Dr. Rozi Metri</i>
<i>Full-time Lecturers</i>	<i>Mrs. Leila Itani, Mrs. Dima Kraydeyeh, Miss Zeina El-Ali, Mrs. Hana Tannir</i>

Mission

To contribute to the development and upgrading of health services in Lebanon and the region by providing excellent education and scientific research of high quality by innovation in undergraduate education of qualified nutritionists and dieticians, and promoting public health through assessment, policy development, and delivering of programs and services.

Objectives

One of the ways of insuring that the program objectives are being fulfilled is by continuous observation of the following:

Staff performance: Each lecturer (full-time and part-time as well) is evaluated according to a lecturer assessment sheet which contains areas for evaluating his performance. The evaluation depends on several inputs including the students' feedback. Furthermore, the participation of the full time staff members in the department's administrative activities, social activities and scientific activities (published papers and attended conferences) are assessed by the university.

Course review sheet for each course: The course review sheet contains areas for comments on course aim and objective, performance, text books and references, tutorial and laboratory, rooms and computer usage....etc. It also contains a field to insert any recommendations for any changes in the course file summaries.

The Attributes of a Nutritionist

An ability to apply knowledge of nutrition and dietetics concepts to the nutritional health problems.

An ability to design and conduct nutrition surveys and to analyze and interpret data

An ability to function within multi-disciplinary teams

An ability to identify and solve nutritional problems

An understanding of professional and ethical responsibilities

An ability to communicate effectively

An ability to consider and avoid the detrimental impact of nutritional and health problems within social or global measures

An ability to use the techniques, skills and modern research findings in nutrition practice.

Program Intended Learning Outcomes (ILOs)

Knowledge and Understanding

On successful completion of the program, graduates must be able to:

- Recognize the fundamentals of basic and social and behavioral sciences, including chemistry, organic chemistry, biology, anatomy and physiology, biochemistry, microbiology, epidemiology and biostatistics as well as psychology and sociology.

- Describe the basic components of foods their chemical and physical characteristics, their nutritive value, functions, metabolism, food sources, their utilization by the body and the consequences of over or under consumption which lead to chronic diseases and deficiency diseases.
- Identify the role and responsibilities of a registered dietitian as a member of an interdisciplinary team in the healthcare system.
- Recognize the nutrient standards, nutritional needs and dietary guidelines for different stages of the life cycle including pregnancy, lactation, infancy, childhood, adolescence, adulthood and old age in health and disease.
- Identify the components of nutritional assessment and community needs assessment, the types of data to be collected, their resources and data collection methods in order to identify nutritional risks and classify nutritional status
- Explain diet disease association, pathophysiology of disease and the rationale for nutrition interventions for the prevention and treatment of disease at the individual and community levels and their public health significance.
- Recognize the basic principles of the nutrition care process and medical nutrition therapy for different diseases, life stages and in different settings at the individual and community levels.
- Recognize the basic principles of dietary planning and nutrition support including specific modifications, substitutions and feeding routes.
- Outline the principles of research and evidence based practice in nutrition and dietetics
- Recognize the process of planning, conducting, analyzing and reporting a nutrition research.
- Recognize the basic codes of ethics for professional dietetic practice and interdisciplinary relationship in various practice settings.
- Describe theories of behavior change and the role of environment, culture, influencing nutrition and lifestyle choices and their role in health promotion and disease prevention.
- Recognize the fundamentals of food chemistry, food service management, food technology and food safety used for food procurement and food production.

Intellectual Skills

On Successful completion of the program, graduates must be able to:

- Analyze, synthesize and summarize information critically to solve problems related to nutrition, dietetics and food service in different settings.
- Design the most appropriate nutritional assessment and screening tool in clinical and community settings situations
- Interpret anthropometric and biochemical measurements, dietary intake data, nutrition focused physical findings, patient history to identify nutritional risks and malnutrition in different population groups in different settings and disease conditions.
- Evaluate dietary intake data with reference to nutrient recommendations, food based dietary guidelines and the dietary diversity for various population groups or diseases conditions.
- Predict a nutrition diagnosis and the corresponding intervention, monitoring and evaluation plan for individuals with various disease conditions and age groups based on the assessment data.
- Determine a suitable method for estimating the energy and nutrient requirements for different population groups in different settings and disease conditions
- Analyze a nutritional problem and design a corresponding interventions to treat or prevent malnutrition at the level of community
- Distinguish dietary and life style risk factors and preventive measures for nutrition related non communicable diseases and the corresponding health consequences
- Determine the appropriate research methodology to plan a nutritional survey, collect data, report results and formulate a conclusion supported by relevant evidence.
- Illustrate food safety, food service systems and food technology practices used in food service establishments, hospitals and food industry.
- Distinguish risk factors for chemical reactions, food spoilage and bacterial contamination in food service and processing establishments
- Evaluate the role of adequate nutrition and food safety in public health, taking into consideration the major nutritional problems and food borne illnesses on the national and international levels.

Professional and Practical Skills

On Successful completion of the program, graduates must be able to:

- Apply laboratory techniques related to basic sciences including biology, chemistry, and biochemistry
- Use effectively nutritional assessment and screening techniques to detect malnutrition or nutritional risks in a variety of situations for various individuals or population groups.
- Use computerized dietary analysis packages for dietary assessment, nutritional assessment and meal planning to meet the needs of different population groups.
- Apply the nutrition care process and model in a variety of settings considering the psychosocial aspects of illness and health behavior as well as ethical issues.
- Calculate food energy as well as energy and nutrient needs for individuals and various population groups.
- Apply evidence based nutrition guidelines, meal planning principles and dietary planning tools in formulating dietary plans, recipes and menus that accommodate acceptability, affordability, cultural diversity as well as health and nutritional needs of various population groups and in health and disease.
- Demonstrate ability to use safely the full scope of therapeutic regimes and nutrition interventions available to the dietitian in the successful management of individuals and groups.
- Develop theory based nutrition education and counseling plans and material to disseminate evidence based dietary advice for different population groups for behavior change.
- Conduct research projects using appropriate research methods, ethical procedures data analysis and reporting within the context of the research.
- Evaluate the good manufacturing practices in various local food industries and food service establishments through onsite observation.
- Apply the knowledge and skills acquired to identify and solve food safety and technology related problems in food service establishments.

General Skills

The graduate must have the ability to:

- Gather information from a variety of information technology and scientific resources [library, electronic, and online resources] and critically investigate, analyze and formulate solutions to problems, to assess critically new concepts and to promote appropriate change in professional practice.
- Work effectively both independently and in a team as leader or member, clarifying tasks and making appropriate use of the capacities of group members
- Manage time effectively, prioritizing workloads, to meet demands in a timely fashion.
- Effectively use the Microsoft office package, electronic library and IT resources.
- Communicate effectively, using appropriate methods, to a range of audiences with different knowledge backgrounds or expertise.
- Use self-learning techniques to expand knowledge.
- Demonstrate the ability to form collaborative relationships with other health professionals in various settings to deliver effective services

Degree Requirements

To obtain a Bachelor Degree in Human Nutrition and Dietetics, students must successfully complete a total of 101 credits + ICDL. The standard duration of study for attaining a Bachelor Degree in Nutrition and Dietetics is 6 semesters. The six semesters integrate a period of six months of practical training at a hospital under the supervision of the University.

Career Opportunities

Graduates can work at the Ministry of Health, private hospitals, private clinics, food industry, food service institutions, research labs, biotechnology firms, and schools, nutrition counselors in various institutions, government agencies & pharmaceutical companies.

Program Overview

The **Student's Study Plan** is given to every Nutrition & Dietetics student upon his/her enrollment. The Nutrition & Dietetics curriculum consists of the following components:

Program Requirements	Credits
*University Requirement Mandatory Courses	7
*University Requirement Elective Courses	9
Major Core Courses	79
- Common Courses	27
- Departmental Courses	52
Major Departmental Elective Courses	6
Total	101

*A total of 16 credits is required as General University Requirements: 7 credits are selected from the University Mandatory courses list including: ARAB 001(2Cr.), ENGL 001 (2Cr.), BLAW 001 (1Cr.), MCOM 003 (2Cr), and another 9 credits are selected from the University Elective courses list + ICDL.

Major Core Courses

Courses	Title	Crs.	Pre-/co-requisites
NUTR 212	Basic Nutrition	3	Sophomore Standing
NUTR 309	Food Technology	3	Junior Standing
NUTR 310	Nutrition in the Life Span	3	Pre: NUTR 212
NUTR 313	Food Chemistry	3	Pre: CHEM 215
NUTR 315	Human Nutrition & Metabolism	3	Pre: BCHM 215, NUTR 212
NUTR 317	Malnutrition & Nutrition Intervention	3	Pre: NUTR 310, NUTR 315
NUTR 318	Nutrition Education	2	Pre: NUTR 212
NUTR 319	Meal and Diet Planning	3	Pre: NUTR 212
NUTR 320	Therapeutic Nutrition I	3	Pre: NUTR 315, NUTR 319
NUTR 322	Assessment of Nutritional Status	3	Pre: NUTR 212
NUTR 402	Community Nutrition	3	Pre: NUTR 310, NUTR 322
NUTR 406	Research Project	2	Pre: NUTR 310, NUTR 322
NUTR 408	Special Topics in Nutrition	2	Pre: NUTR 320
NUTR 409	Therapeutic Nutrition II	3	Pre: NUTR 320
NUTR 410	Therapeutic Nutrition Practicum	2	Pre: NUTR 409
NUTR 411	Sports Nutrition	3	Pre: NUTR 315
NUTR 413	Food Safety and Hygiene	3	Senior Standing
NUTR 415	Nutrition and Non-Communicable Diseases	2	Pre: NUTR 315
NUTR 417	Food Service Management	3	Senior Standing
BIOL 223	Biology	3	Sophomore Standing
BIOL 226	Microbiology	3	Sophomore Standing
BCHM 215	Biochemistry	3	
CHEM 213	General Chemistry	3	Sophomore Standing
CHEM 215	Organic Chemistry	3	Sophomore Standing
COMM 201	Epidemiology and Biostatistics	3	Sophomore Standing
HESC 201	Human Anatomy and Physiology	3	Sophomore Standing
HESC 202	Healthcare Profession and Bioethics	1	Sophomore Standing
HESC 302	Research and Evidenced Based Practice	2	Junior Standing
HESC 301	Psychosocial Aspects of Health and Illness	2	Sophomore Standing
IPEH 512	Inter Professional Education For Health Care	1	

Description of Major core Courses

BIOL 223– BIOLOGY (3Cr:2Lec,2Lab,0Tut): An introductory level course that covers the fundamental principles of cell biology, membrane transportations, genetics, human biology, evolution and ecology, morphology and physiology of body systems, with emphasis on the different types of cells and cellular structures. Moreover, the course will cover the organization of life, energy transfer through living systems, and diversity of life. This course includes: i) The molecular basis of life; ii) The biology of the cell; iii) Genetic and molecular biology; iv) Evolution; v) The diversity of life; vi) Plant form and function; vii) Animal form and function; and viii) Ecology and behavior.

CHEM 213-GENERAL CHEMISTRY (3Cr:2Lec,2Lab,0Tut): This course is an introduction to basic concepts of chemistry, chemical reactions and calculations, the three physical states of matter (gases, liquids and solids), solutions, chemical equilibrium, ionic equilibrium. Periodic table and properties of the elements, nomenclature are discussed. Theories of atomic structure, atomic spectra, and chemical bonding are also included.

HESC 201–HUMAN ANATOMY AND PHYSIOLOGY (3Cr:2Lec,2Lab,0Tut): This course studies the structure (brief anatomy) and function (detailed physiology) of the following body systems: muscular, nervous, endocrine, blood, lymphatic, cardiovascular, respiratory, digestive, urinary, and reproductive.

COMM 201–EPIDEMIOLOGY AND BIostatISTICS (3Cr: 3Lec,0Lab,0Tut): General introduction to the science of epidemiology, biostatistics and distribution of diseases in a given population emphasizing on infectious disease epidemiology. In addition, the course will cover the statistical methods in assessing epidemiological distributions. Topics include research methods and design, descriptive statistics, performance characteristics of diagnostic tests, graphical methods, probability, estimation, hypothesis testing, p -values, regression and correlation, and clinical trials.

BCHM 215–BIOCHEMISTRY (3Cr:2Lec, 2Lab, 0Tut): This course analytically introduces the structure and function of biological macromolecules, especially proteins, lipids and carbohydrates. Important medical concepts include bioenergetics and metabolism, proteins as biological catalysts, and essential metabolic pathways. In addition, this course covers nucleic acids structure and function, enzyme classification and function, and the role of vitamins and minerals in metabolism.

BIOL 226–MICROBIOLOGY (3Cr:2Lec,2Lab,0Tut): This course studies the characteristics and classification of microorganisms and bacteria, emphasizing mechanisms by which they replicate and reproduce, their means of growth and growth requirements, and the general properties of bacterial cultures and their properties. The course includes: i) Fundamentals of microbiology (The microbial world; Observing microorganisms through a microscope; Microbial metabolism; Microbial growth; Microbial genetics; and Microbial biotechnology); ii) A Survey of the microbial world (Classification of microorganisms; The prokaryotes: Domains bacteria and archaea; The Eukaryotes: Fungi, Algae, Protozoa, and Helminths; and Viruses, Viroids, and Prions); iii) Interaction between microbe and host (Microbial mechanisms of pathogenicity; and Antimicrobial drugs) and iv) Microorganisms causing human diseases..

CHEM 215–ORGANIC CHEMISTRY (3Cr:2Lec, 2Lab, 0Tut): This course introduces basic concepts in organic chemistry, macromolecules, stereoisomerism, and their basic structure and interactions. Organic chemistry applications and biosynthesis of biological compounds are also studied. The course includes the study of alkanes, alkenes, alkynes, and ethers and alcohols. In addition, it covers carboxylic acid derivative reaction mechanisms, with emphasis on biological macromolecules, including carbohydrates, proteins, lipids, and nucleic acids.

NUTR 212– BASIC NUTRITION (3Cr:3Lec,0Lab,0Tut): This course overview the physiological needs for energy, carbohydrates, lipids, proteins, vitamin and minerals. The the mechanisms of action of macronutrients and micronutrients, food sources, and the recommended intakes of carbohydrates, protein, fat, individual vitamins and individual minerals will be covered. The relationships between diet and specific lifestyle diseases as well as the deficiency or over intake of each nutrient will be stressed on.

NUTR 309–FOOD TECHNOLOGY (3Cr:2Lec,2Lab,0Tut): The course focuses on the technical aspects of food processing with emphasis on food industries common in the region. The course includes field visits to food processing establishments.

NUTR 310–NUTRITION IN THE LIFE SPAN (3Cr:3Lec,0Lab,0Tut): The course focuses on the nature, composition and specific needs of individuals throughout their life span. It covers the physiological changes and requirements during infancy, childhood and adolescence, adulthood and the elderly with special emphasis, on the needs during periods of physiological stress such as pregnancy and lactation. *Pre-req:* NUTR 212.

NUTR 313–FOOD CHEMISTRY (3Cr:2Lec,2Lab,0Tut): The course includes the chemical composition of foods, food composition tables and how the composition can affect the physical and sensory properties of food and consequently their acceptability or rejection by the consumer. The course discusses the chemical changes in the composition of food under various circumstances such as storage or processing. *Pre-req:* CHEM 215

NUTR 315–HUMAN NUTRITION & METABOLISM (3Cr:3Lec,0Lab,0Tut): The course discusses in depth the nutritional, biochemical, and physiological aspects of carbohydrates, lipids, proteins, vitamins and minerals. It focuses on the absorption mechanisms and transportation storage, mobilization and metabolism of the different nutrients. *Pre-req:* NUTR 212, BCHM 215.

NUTR 317–MALNUTRITION & NUTRITION INTERVENTION (3Cr:3Lec,0Lab,0Tut): The course will study the causes, symptoms and diagnosis of the nutrition deficiency diseases prevailing in the community. The course will concentrate on macronutrient deficiencies and micronutrient deficiencies. It focuses on the nutrition intervention programs at the community level according to the nutritional problems prevailing in the community in view of the social, cultural, educational factors and the available economic resources. *Pre-req:* NUTR 310, NUTR 315.

NUTR 318–NUTRITION EDUCATION (2Cr:2Lec,0Lab,0Tut): The course discusses the various methods used in the nutrition education of the individual and the community. It focuses on the selection of the appropriate method of communication according to the target group of the education program. The student will be trained on the development of educational material that suits the conditions prevailing in the Middle East area. *Pre-req:* NUTR 212.

NUTR 319–MEAL AND DIET PLANNING (3Cr:2Lec,2Lab,0Tut): Focuses on the planning of a nutritional sound meal in such a way to fulfill all the nutritional needs of the individual in view of his physiological and nutritional status. It also includes meal planning for population groups. The course includes practical training in diet planning. *Pre-req:* NUTR 212.

NUTR 320–THERAPEUTIC NUTRITION (I) (3Cr:2Lec,3Lab,0Tut): This course focuses on the role of diet in the management of diseases. The course introduces the principles of the nutritional care process as the basis for the dietary management of diseases. The etiology, pathophysiology, clinical picture of some nutrition related diseases will be discussed. The students will be trained on the development of individualized modified nutrition care plans for patients suffering from gastrointestinal disorders, liver, gall bladder, pancreatic and rheumatic diseases as well as cancer. *Pre-req:* NUTR 315, NUTR 319.

NUTR 322–ASSESSMENT OF NUTRITIONAL STATUS (3Cr:2Lec,2Lab,0Tut): The course introduces the foundations of nutritional assessment on both the community and individual levels. The various nutritional assessment tools including dietary methods, anthropometric measurements, biochemical tests and clinical examination will be discussed. The sensitivity, reliability and reproducibility of each technique will be emphasized. The students will be provided with practical training to be familiar to each technique. *Pre-req:* NUTR 212.

NUTR 402–COMMUNITY NUTRITION (3Cr:2Lec,2Cln,0Tut): The course covers the role of the nutritionist in the community. It deals with the identification of the nutritional problems prevailing in the community and how to recommend and apply the necessary corrective programs. The role of various community program in the promotion of the nutritional status of the community will be discussed. *Pre-req:* NUTR 310, NUTR 322.

NUTR 406–RESEARCH PROJECT (2Cr:1Lec,3Cln,0Tut): Under the supervision of a staff member, students will carry out a research project in the field of nutrition and dietetics, or each student will be assigned to make a literature review in specific topic in nutrition or dietetics. A scientific report will be presented and evaluated. *Pre-req:* NUTR 310, NUTR 322.

NUTR 408–SPECIAL TOPICS IN NUTRITION (2Cr:2Lec,0Lab,0Tut): This course is directed to study the recent trends and development in the field of nutrition and dietetics. The main focus of the course will be management of metabolic disorders and nutrition support. *Pre-req:* NUTR 320.

NUTR 409–THERAPEUTIC NUTRITION (II) (3Cr:2Lec,3Lab,0Tut): The course focuses on implementation of nutritional care plans provided for patients with diet related disorders based on the principles of the nutritional care process. The medical nutritional therapy of specific disorders including diabetes mellitus, obesity, cardiovascular and renal diseases, will be discussed in details.. The etiology, patho-physiology, clinical manifestations and specific nutritional needs of these diseases will be explored. The students will be trained on formulation of modified meal plans for patients suffering from the specified disorders. *Pre-req:* NUTR 320.

NUTR 410–THERAPEUTIC NUTRITION PRACTICUM (2Cr:0Lec,6Cln,0Tut): The course will provide practical training through case studies for various disease condition and further discussion of the corresponding medical nutrition therapy. The students will have experience in assessment, diagnosis and management of hypothetical cases. It includes group discussions as well as reporting the potential management of the case presented. *Pre-req:* NUTR 409.

NUTR 411–SPORTS NUTRITION (3Cr:3Lec,0Lab,0Tut): The course provides a broad coverage of the key areas of sports nutrition. It illustrates the general principals of athlete's nutrition, nutritional goals for training, competition, recovery. It also highlights the most recent scientifically based specific dietary strategies to enhance performance of the athletes engaged in different types of sports. *Pre-req:* NUTR 315.

NUTR 413–FOOD SAFETY AND HYGIENE (3Cr:2Lec,2Cln,0Tut): Focuses on the preparation of food under the best hygienic condition to guarantee its safety for the consumers. It covers the hygienic practices for the preparation of meals, milk, fish and dairy products. The course includes the principles of food toxicology with emphasis on the toxins present in natural food and food products.

NUTR 415–NUTRITION AND NON-COMMUNICABLE DISEASES (2Cr:2Lec,0Lab,0Tut): The course focuses on the role of nutrition in the development of non communicable diseases such as diabetes mellitus, cardiovascular diseases, cancer, osteoporosis and obesity. The course emphasizes the increasing prevalence of non communicable diseases in developing and developed countries, the factors enhancing the prevalence and the role of nutrition in the prevention and treatment. *Pre-req:* NUTR 315.

NUTR 417–FOOD SERVICE MANAGEMENT (3Cr:2Lec,2Cln,0Tut): The course covers the technical and managerial aspects of food establishments including supervision, evaluation and intervention in various activities. The course includes field trips to food establishment followed by reporting and group discussion.

HESC 202–HEALTHCARE PROFESSION AND BIOETHICS (1Cr:1Lec,0Cln,0Tut): The course centers around understanding the significance of healthcare ethics and bioethics. It explores a range of topics at the intersection of religion, ethics and law, including assisted reproductive technologies, cloning and transplantation. It also emphasis on the ethics of professional conduct, such as privacy and confidentiality and other workplace related ethical issues, the importance of the work permit for health professions and on the ethics of research on human subjects.

HESC 301– PSYCHOSOCIAL ASPECTS OF HEALTH AND ILLNESS (2Cr:2Lec,0Cln,0Tut):

This course will overview psychological, social, and behavioral theories and principles as they relate to the experiences of illness and disability. The course will help in understanding the various health behaviors, health care utilization, and decision making in the context of health. It emphasizes on the patient motivation and life satisfaction, restructuring social support systems, and changes in psychosocial/developmental needs. Attention will be given to the changing role of the health professional as direct care provider, manager, consultant, and advocate.

HESC 302– RESEARCH AND EVIDENCED BASED PRACTICE (2Cr:2Lec,0Cln,0Tut):

This course is related to research and covers topics related to research designs and methodologies as well as various components of research proposal and work. In addition, it will cover Sackett's model of evidence-based practice, in which students formulate a clinical question, acquire, and appraise literature for quality and applicability. In addition, this course allows students to integrate research evidence, clinical expertise, and patient values in order to make the best clinical decisions.

IPEH 512-INTERPROFESSIONAL EDUCATION FOR HEALTH CARE (1Cr.:0Lec; 2 free interactive learning activities; 0Tut):

The course aims to foster the skills, knowledge, attitudes and behaviours that facilitate effective interprofessional (IP) collaborative practice among health care providers. Through interactive learning students will explore ways in which their professions can work together in order to optimize patient's care respecting each other's roles and responsibilities. The course employs a variety of interactive methods and technologies

Major Departmental Elective Courses

Courses	Title	Crs.	Pre/co-requisites
NURS 212	Health Concepts	2	
NURS 213	Community Health	2	
NUTR 314	Food Laws and Regulations	2	Pre: NUTR 002 or NUTR 413
NURS 315	Child Development	2	
NURS 414	Health Informatics	2	
NURS 415	Health Education	2	
NUTR 420	Drug & Nutrient Interaction	2	Pre: NUTR 315
NUTR 422	Dietary Analysis Simulations	2	Pre: NUTR 319
NUTR 332	Food Additives	2	
NURS 330	Fundamentals of oncology	2	

Description of Major Elective Courses

NURS 212–HEALTH CONCEPTS (2Cr.:2Lec,0Lab,0Tut): This course examines selected clinical concepts from their scientific and theoretical bases. Theoretical issues related to the application of concepts across different settings will be addressed. Students will be introduced to the process of concept analysis. Emphasis is placed on selected medical surgical functional alterations and its related nursing assessment and intervention. Examples will include: homeostasis, immobility, pain, inflammation, ischemia, hypoxia, dyspnea, oedema, fatigue, impaired wound healing, allergic reactions, impaired immune competence and altered clotting

NURS 213–COMMUNITY HEALTH (2Cr.:2Lec,0Lab,0Tut): The course is designed to introduce students to the concepts of health and diseases. It enables students to apply the concept of primary health care in various community health settings. Culture and environmental aspects affecting community health will be emphasized. Special consideration will be directed toward family, adolescents, women and men health in the community.

NUTR 314–FOOD LAWS AND REGULATIONS (2Cr.:2Lec,0Lab,0Tut): The course explores the history, importance, development and enforcement of local, national and international food laws and regulations that affect the food processing industry and food consumers and how they contribute to a safe, nutritious, and wholesome food supply. In addition, the course will give students a comprehensive awareness of the different types of food standard, especially those in connection with food quality, safety, labeling, marketing, grading, food additives as well as toxic and harmful substances in foods and international trade.

NURS 315–CHILD DEVELOPMENT (2Cr.:2Lec,0Lab,0Tut): This course examines the development potential of the child from the prenatal period through adolescence and the factors that enhance or constrain this development. Integration of developmental theories and current basic and applied research findings and their clinical application will be stressed. Strategies to promote optimal child health and developmental outcomes will be explored.

NUTR 332- Food Additives (2Cr.: 2Lec, 0Lab, 0Tut): The course describes food additives, which are any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological purpose in the manufacturing, processing, preparation, treatment and packing.

NUTR 420–DRUG & NUTRIENT INTERACTION (2Cr.:2Lec,0Lab,0Tut): The course aims at giving an overview of the different types of drug – nutrient interactions with special reference to those interactions that are clinically significant and relevant to practice. Students will be equipped with knowledge and skills to understand the main interactions, mechanisms and consequences of mixing food and drugs in addition to nutritional management of the interactions. *Pre-req: NUTR 315.*

NUTR 422–DIETARY ANALYSIS SIMULATIONS (2Cr.:0Lec,4Lab,0Tut): The course focuses on the analysis of dietary intake using nutrient analysis software. The students will be trained on collecting data about dietary intake, data entry, nutrient analysis, and reporting. *Pre-req: NUTR 319*

NURS 414–HEALTH INFORMATICS (2Cr.:2Lec,0Lab,0Tut): This course focuses on the history of health care informatics, basic informatics concepts, and health information management applications. The student progresses along a continuum: from developing knowledge and understanding of basic concepts and methods of health care informatics; to learning about specific information management applications in health care administration, practice, education, and research; and finally to a hands-on experience with a specific application of his/her own choice.

NURS 415–HEALTH EDUCATION (2Cr.:2Lec,0Lab,0Tut): The course provides students with the educational principles necessary for provision of health education to patients and public to increase their awareness of appropriate health practices and symptoms of illness to make them more inclined to seek medical help.

NURS 330: Fundamentals of Oncology (2Cr.:2Lec,0Lab,0Tut):
This course is designed as an overview of oncology principles. It provides a foundation for providing care to patients experiencing a cancer diagnosis, treatment complications, or trouble

coping. It covers a range of basic topics, from cancer biology, diagnosis, prevention/screening measures, treatments, symptom management, and patient and family care.

1 Lecture = 1 Credit hour

2-3 Lab = 1 Credit hour

2-3 Cln = 1 Credit hour

Study Plan
BSc. in Nutrition & Dietetics (101 Credits)

First Semester (17 Credits)			Crs.	Pre-/co-requisites
BIOL	223	Basic Biology	3	Sophomore Standing
CHEM	213	General Chemistry	3	Sophomore Standing
HESC	201	Human Anatomy and Physiology	3	Sophomore Standing
CHEM	215	Organic Chemistry	3	Sophomore Standing
COMM	201	Epidemiology and Biostatistics	3	Sophomore Standing
		Elective ¹	2	

Second Semester (17 Credits)			Crs.	Pre-/co-requisites
BCHM	215	Biochemistry	3	
BIOL	226	Microbiology	3	
HESC	202	Healthcare Profession and Bioethics	1	
NUTR	212	Basic Nutrition	3	
		Elective ¹	7	

Third Semester (17 Credits)			Crs.	Pre-/co-requisites
NUTR	313	Food Chemistry	3	Pre: CHEM 215
NUTR	315	Human Nutrition and Metabolism	3	Pre: BCHM 215, NUTR 212
NUTR	322	Assessment of Nutritional Status	3	Pre: NUTR 212
HESC	301	Psychosocial Aspects of Health and Illness	2	Sophomore Standing
NUTR	319	Meal and Diet Planning	3	Pre: NUTR 212
		Elective ¹	3	

Fourth Semester (17 Credits)			Crs.	Pre-/co-requisites
NUTR	310	Nutrition in the Life Span	3	Pre: NUTR 212
NUTR	318	Nutrition Education	2	Pre: NUTR 212
NUTR	320	Therapeutic Nutrition I	3	Pre: NUTR 315, NUTR 319
NUTR	309	Food Technology	3	
HESC	302	Research and Evidenced Based Practice	2	Junior Standing
		Elective ¹	4	

Fifth Semester (17 Credits)			Crs.	Pre-/co-requisites
NUTR	317	Malnutrition and Nutrition Intervention	3	Pre: NUTR 310,315
NUTR	409	Therapeutic Nutrition II	3	Pre: NUTR 320
NUTR	411	Sports Nutrition	3	Pre: NUTR 315
NUTR	413	Food Safety and Hygiene	3	Senior Standing

NUTR	415	Nutrition and Non-Communicable Diseases	2	Pre: NUTR 315
NUTR	417	Food Service Management	3	Senior Standing

Sixth Semester (16 Credits)			Crs.	Pre-/co-requisites
NUTR	402	Community Nutrition	3	Pre: NUTR 310, NUTR 322
NUTR	406	Research Project	2	Pre: NUTR 310, NUTR 322
NUTR	410	Therapeutic Nutrition Practicum	2	Pre: NUTR 409
NUTR	408	Special Topics in Nutrition	2	Pre: NUTR 320
IPEH	512	Interprofessional Education For Health Care	1	
		Elective ²	6	

¹ A total of 16 credits is required as General University Requirement; 7 credits are selected from the University Mandatory courses list including: ARAB 001(2Cr.), ENGL 001 (2Cr.), BLAW 001 (1Cr.), MCOM 003 (2Cr.), and another 9 credits are selected from the University Elective courses list + ICDL.

- The list of University Requirement courses and their descriptions are presented in the introductory pages of this catalog.

² Selected from courses offered by the department and the faculty.

DEPARTMENT OF PHYSICAL THERAPY

Academic Staff

Chairperson	Dr. Ibtissam Saab
Assistant Professors	Dr. Rami Abbass, Dr. Khaled Taki, Dr. Ayman El Khatib
Full-time Lecturer	Mr. Hussein Abu Yassin

Mission

The mission of the Physical Therapy Department is to promote and maintain the highest level of education through improvement in education, research quality, and community services in the field of physical therapy. The Department offers a comprehensive educational program through varieties of teaching methodology, laboratory, clinical experiences and field training which are culturally and ethically sensitive. Graduates of the Department will be able to function in changing and diversifying health care settings. The Department provides evidence-based practice according to the highest professional standards by the incorporation of recent research findings into professional practice. To achieve its mission, the department relies on highly specialized and dedicated staff members.

Objectives

Undergraduate education in the Physical Therapy Department provides:

- Fundamental knowledge in physical therapy science.
- The opportunity to practice in different areas of interest in physical therapy.
- Intensive training in problem solving, laboratory skills, and practical skills.
- A well-rounded education that includes communication skills, the ability to function well on a team, an appreciation for ethical behaviour, and the ability to engage in lifelong learning.
This education is expected to prepare our students to thrive and to lead. It also prepares them to achieve our Educational Program Objectives:
- Provide competent professional graduates who can meet the rapid changes in the physical therapy field.
- Prepare graduates to practice in a manner responsive to the community needs while maintaining the highest ethical standards.
- Promote and maintain continuous cooperation and interaction with local, regional and international health care organizations.

Learning Outcomes

The program aims to enable students to:

- Fulfill the requirements for registration/qualification according to the Lebanese Ministry of Education, Public Health, and the Order of Physical Therapists of Lebanon.
- Be reflective physiotherapy practitioners with the requisite skills, knowledge and professional attributes consistent with those expected of newly qualified staff.
- Be equipped with the graduate skills and attitudes that are necessary to enable them to function effectively in the complex, changing environment of the modern workplace.
- Become independent autonomous practitioners.
- Evaluate knowledge which arises from practice.
- Evaluate knowledge from both a theoretical and practical perspective.
- Implement safe and effective assessment, examination and treatment in the scope of physiotherapy practice.
- Understand and implement research-based and evidence-based practice to the field/scope of practice.
- Develop effective and appropriate relationships with service users, colleagues and other agencies.
- Function effectively within an interprofessional team.
- Develop key and transferable skills.

- Develop leadership potential.
- Engage in the analysis of academic discourse.
- Use information and information technology effectively to inform and support patient care.
- Engage in health promotional activities.
- Link their undergraduate learning outcomes with future continuing professional development.

Degree Requirements

To obtain a Bachelor Degree in Physical Therapy, students must successfully complete a total of 130 credits + ICDL. The standard duration of study for attaining of a Bachelor Degree in Physical Therapy is 8 semesters.

Career Opportunities

Graduates can work in outpatient clinics or offices (private practice), hospitals, inpatient rehabilitation facilities, extended care facilities, homes, educational or research centers, schools, industrial workplaces or other occupational environments, fitness and wellness centers and sports training facilities.

Program Overview

The **Student's Study Plan** is given to every Physical Therapy student upon his/her enrollment. The Physical Therapy curriculum consists of the following components:

Program Requirements	Credits
*University Requirement Mandatory Courses	7
*University Requirement Elective Courses	9
Major Core Courses.	105
Major Elective Courses	9
Total	130

* A total of 16 credits is required as General University Requirements: 7 credits are selected from the University Mandatory courses list including: ARAB 001 (2Cr.), ENGL 001 (2Cr.), MCOM 003 (2Cr.), BLAW 001 (1Cr.), and another 9 credits are selected from the University Elective courses list + ICDL.

Major Core Courses

Courses	Title	Crs.	Pre-/co-requisites
ANAT 203	Anatomy I	3	
ANAT 204	Anatomy II	3	
ANAT 205	Anatomy I Lab	1	
ANAT 206	Anatomy II Lab	1	
BCHM 215	Biochemistry	3	
COMM 201	Epidemiology and Biostatistics	3	
PATH 203	Pathophysiology	3	
HESC 301	Psychosocial Aspects of Health and Illness	2	
HESC 302	Research and Evidence Based Practice	2	
IPEH 512	Interprofessional Education for health care	1	
MICA 210	Histology	1	
PHTH 208	Physical Therapy Intervention I	3	
PHTH 211	Ethics and Professionalism in Physical Therapy	3	
PHTH 212	Physical Therapy Intervention II	3	
PHTH 213	Health Promotion and Wellness	2	
PHTH 214	Musculoskeletal Physical Therapy I	3	Pre: ANAT 203
PHTH 215	Kinesiology And Biomechanics	3	
PHTH 216	Neuromuscular Physical Therapy I	3	Pre: ANAT 204
PHTH 217	Assessment in Physical Therapy	3	
PHTH 218	Physical Therapy Intervention I Lab	1	
PHTH 219	Pharmacology in Physical Therapy	2	
PHTH 222	Physical Therapy Intervention II Lab	1	
PHTH 224	Musculoskeletal Physical Therapy I Lab	1	
PHTH 226	Neuromuscular Physical Therapy I Lab	1	
PHTH 227	Assessment in Physical Therapy Lab	1	
PHTH 314	Cardiopulmonary Physical Therapy	3	Pre: ANAT 203, PHYL 205
PHTH 315	Musculoskeletal Physical Therapy II	3	Pre: ANAT 204
PHTH 316	Medical Surgical Physical Therapy	3	Pre: ANAT 203, ANAT 204, PHYL 205
PHTH 317	Neuromuscular Physical Therapy II	3	Pre: ANAT 204
PHTH 319	Imaging and Diagnostics in Physical Therapy	2	Pre: ANAT 203, ANAT 204
PHTH 324	Cardiopulmonary Physical Therapy Lab	1	
PHTH 325	Musculoskeletal Physical Therapy II Lab	1	
PHTH 327	Neuromuscular Physical Therapy II Lab	1	
PHTH 335	Musculoskeletal Physical Therapy Practice I	3	Pre: PHTH 211
PHTH 336	Musculoskeletal Physical Therapy Practice II	3	Pre: PHTH 211
PHTH 337	Neuromuscular Physical Therapy Practice I	3	Pre: PHTH 211
PHTH 338	Neuromuscular Physical Therapy Practice II	3	Pre: PHTH 211
PHTH 413	Pediatric Physical Therapy	3	Pre: ANAT 203, ANAT 204

PHTH 415	Geriatric Physical Therapy	3	Pre: ANAT 203, PHYL 205
PHTH 423	Pediatric Physical Therapy Lab	1	
PHTH 431	Cardiopulmonary Physical Therapy Practice	2	Pre: PHTH 211
PHTH 432	Pediatric Physical Therapy Practice	2	Pre: PHTH 211
PHTH 433	Medical Surgical Physical Therapy Practice	2	Pre: PHTH 211
PHTH 434	Geriatric Physical Therapy Practice	2	Pre: PHTH 211
PHTH 436	Research Project	2	Pre: PHTH 211
PHYL 205	Physiology	2	
PHYL 206	Neurophysiology	2	
PHYS 218	Biophysics	2	

Description of Major Core Courses

ANAT 203-ANATOMY I (3Cr.:3Lec,0Cln,0Tut): Introduction to anatomy including anatomicomedical terminology, skin and fascia, skeletal system, muscular system, cardiovascular system, respiratory system, lymphatic system, and nervous system. This course also covers regional anatomy of upper limb: bones, muscles, blood vessels, brachial plexus, nerves, and joints. Head and neck: bones of the skull, bones of the neck, muscles of the face and scalp, muscles of mastication, muscles of the neck, nerves of head and neck, cranial nerves, vertebral and temporomandibular joint. Thorax: bones of the thoracic cage, intercostal muscles and diaphragm, broncho-pulmonary segment and lungs, and heart.

ANAT 204- ANATOMY II (3Cr.:3Lec,0Cln,0Tut): This anatomy course covers many topics: Abdomen: anterior and posterior abdominal wall, nerves of the abdomen, lumbar plexus, abdominal viscera. Pelvis: bones, muscles, and joints of the pelvis, sacral plexus, and pelvic viscera. Lower limb: bones, muscles, blood vessels, nerves, and joints.

Also this course discusses the spinal cord: morphology and blood supply; cerebrum: cerebral cortex (main centers and its arterial supply), basal ganglia, internal capsule, diencephalon (thalamus, hypothalamus, geniculate bodies); cerebellum and its blood supply; brain stem: general features and nuclei of cranial nerves; ventricular system: third, fourth, and lateral ventricles, and cerebrospinal fluid; and circle of Willis.

ANAT 205-ANATOMY I LAB (1Cr.:0Lec,3Lab,0Tut): This lab course provides the student with the opportunity to visualize cadaver dissection and exploration of structures studied in the Anatomy I course. Students will also learn surface anatomy and palpation techniques in addition to radiological anatomy: study of some X-ray films of related structures studied.

ANAT 206- ANATOMY II LAB (1Cr.:0Lec,3Lab,0Tut): This lab course provides the student with the opportunity to visualize cadaver dissection and exploration of structures studied in the Anatomy II course. Students will also learn surface anatomy and palpation techniques in addition to radiological anatomy: study of some X-ray films of related structures studied.

BCHM 215- BIOCHEMISTRY (3Cr.:2Lec,2Lab,0Tut): This course analytically introduces the structure and function of biological macromolecules, especially proteins, lipids and carbohydrates. Important medical concepts include bioenergetics and metabolism, proteins as biological catalysts, and essential metabolic pathways. In addition, this course covers nucleic acids structure and function, enzyme classification and function, and the role of vitamins and minerals in metabolism.

COMM 201- EPIDEMIOLOGY AND BIostatISTICS (3Cr.:3Lec,0Cln,0Tut): General introduction to the science of epidemiology, biostatistics and distribution of diseases in a given population emphasizing on infectious disease epidemiology. In addition, the course will cover the statistical methods in assessing epidemiological distributions. Topics include research methods and design, descriptive statistics, performance characteristics of diagnostic tests, graphical methods, probability, estimation, hypothesis testing, p-values, regression and correlation, and clinical trials.

PATH 203- PATHOPHYSIOLOGY (3Cr.:3Lec,0Cln,0Tut): This course introduces the junior health care student to the pathophysiological changes incurred in various body systems. These systems comprise the respiratory, renal, gastrointestinal, musculoskeletal, endocrine and neurological systems. Symptoms as pain, ischemia, inflammation, allergy and altered clotting will be emphasized.

HESC 301- PSYCHOSOCIAL ASPECTS OF HEALTH AND ILLNESS (2Cr.:2Lec,0Cln,0Tut): This course will overview psychological, social, and behavioral theories and principles as they relate to the experiences of illness and disability. The course will help in understanding the various health behaviors, health care utilization, and decision making in the context of health. It emphasizes on the patient motivation and life satisfaction, restructuring social support systems, and changes in psychosocial/developmental needs. Attention will be given to the changing role of the health professional as direct care provider, manager, consultant, and advocate.

HESC 302- RESEARCH AND EVIDENCE BASED PRACTICE (2Cr.:2Lec,0Cln,0Tut): This course is related to research and covers topics related to research designs and methodologies as well as various components of research proposal and work. In addition, it will cover Sackett's model of evidence-based practice, in which students formulate a clinical question, acquire, and appraise literature for quality and applicability. In addition this course allows students to integrate research evidence, clinical expertise, and patient values in order to make the best clinical decisions.

IPEH 512-INTERPROFESSIONAL EDUCATION FOR HEALTH CARE (1Cr.:0Lec; 2 free interactive learning activities; 0Tut):

The course aims to foster the skills, knowledge, attitudes and behaviours that facilitate effective interprofessional (IP) collaborative practice among health care providers. Through interactive learning students will explore ways in which their professions can work together in order to optimize patient's care respecting each other's roles and responsibilities. The course employs a variety of interactive methods and technologies

MICA 210- HISTOLOGY (1Cr.:1Lec,0Cln,0Tut): The histology course includes the following subjects: cytology, epithelium, connective tissue proper and supporting connective tissue (cartilage and bone), muscle, nervous tissue, blood, and the following systems: Blood vascular system, lymphatic system, skin and its appendages, respiratory system, and central nervous system.

PHTH 208- PHYSICAL THERAPY INTERVENTION I (3Cr.:3Lec,0Cln,0Tut): This course covers basic principles, physiologic effects, indications and contraindications, application and usage of equipment, and intervention rationale for thermotherapy, hydrotherapy, cryotherapy, and functional taping principles are discussed, in addition to foundations of therapeutic exercises and techniques.

PHTH 211- ETHICS AND PROFESSIONALISM IN PHYSICAL THERAPY (3Cr.:3Lec,0Cln,0Tut): This course prepares the students for professional practices that will be used throughout the curriculum and their professional careers. It provides an overview of physical therapy as a profession and covers the scope and standards of practice for physical therapy with emphasis on ethical/legal considerations, administration of the physical therapy service, patient/client management (guidelines for documentation), and education.

PHTH 212- PHYSICAL THERAPY INTERVENTION II (3Cr.:3Lec,0Cln,0Tut): This course covers basic principles, physiologic effects, indications and contraindications, application and usage of equipment, and intervention rationale regarding massage therapy, assistive/adaptive, prosthetic, orthotic devices, basic patient handling and transfer skills, in addition to mechanical devices, electrotherapy, and electromagnetic radiations equipment used in physical therapy practice.

PHTH 213- HEALTH PROMOTION AND WELLNESS (2Cr.:2Lec,0Cln,0Tut): This course introduces students to important health promotion/disease prevention topics and resources, including health promotion, health education, and models for behavior change. Health and wellness programs presented with emphasis on the role of physical therapist in intervention, prevention, and promotion of health and wellness across the lifespan.

PHTH 214- MUSCULOSKELETAL PHYSICAL THERAPY I (3Cr.:3Lec,0Cln,0Tut): This course covers knowledge related to general musculoskeletal conditions, as well as disorders, sports injuries, and surgeries of upper quadrant in addition to related orthotics and prosthetics. Emphasis will be done on pathophysiology, clinical features, medical and surgical interventions, and the corresponding physical therapy management including examination, evaluation/assessment, treatment planning, intervention, and prevention are thus discussed for each of the conditions or surgeries covered. A problem solving approach, to resolve impairments contributing to functional limitations and disabilities, is emphasized. *Pre-req:* ANAT 203.

PHTH 215- KINESIOLOGY AND BIOMECHANICS (3Cr.:3Lec,0Cln,0Tut): In this course the student will learn the basic concepts of biomechanics. Also, the course will cover motion description and analysis of human motion. Emphasis will be put on the description of the design and function of joints and muscles and pathokinesiology of movements including normal and pathological gait. Correlation will be done to transfer knowledge taken through this course into ergonomical planning and intervention.

PHTH 216- NEUROMUSCULAR PHYSICAL THERAPY I (3Cr.:3Lec,0Cln,0Tut): This course will introduce the principles of neuroscience and describe their application as relevant to physical therapists, in addition to the terminology of the nervous system and cover the major functions of the nervous systems. This course will also integrate neurophysiology and neuroanatomy into the clinical presentation of adults with neurologic pathology. The etiology, epidemiology signs, and symptoms of selected neurological conditions will be presented. The medical and/or surgical management of patients with nervous system disorders will be presented in relationship to the practice of physical therapy. The course will introduce examination of impairments for persons with neuromuscular pathologies. *Pre-req:* ANAT 204.

PHTH 217- ASSESSMENT IN PHYSICAL THERAPY (3Cr.:3Lec,0Cln,0Tut): This course provides student with the basic elements of assessment that apply to all body regions. Students will learn the basics of examination and evaluation, critical thinking, and decision making regarding selection of appropriate tests and measures.

PHTH 218- PHYSICAL THERAPY INTERVENTION I LAB (1Cr.:0Lec,3Lab,0Tut): This laboratory course allows the student to apply didactic knowledge, gained through the Physical Therapy Intervention I course, to clinical situations. Safety and effectiveness of performance of various techniques are emphasized.

PHTH 219- PHARMACOLOGY IN PHYSICAL THERAPY (2Cr.:2Lec,0Cln,0Tut): This course will discuss the chemistry, biochemistry and physiological actions of various pharmaceuticals in addition to, drug receptors, drug receptor interactions, pharmacokinetics, enzyme induction, drug metabolism, drug safety and effectiveness and idiosyncratic reactions. Several major groups of drugs will be studied including: Central nervous system stimulants, hypnotics, narcotic analgesics, anti-inflammatory drugs, skeletal muscle relaxation drugs, cholinergics, adrenergics, adrenergic blocking drugs, antihypertensives, antihistamines, diuretics, adrenal steroids, anti-anemic drugs and antibiotics.

PHTH 222- PHYSICAL THERAPY INTERVENTION II LAB (1Cr.:0Lec,2Lab,0Tut): This laboratory course allows the student to apply didactic knowledge, gained through the Physical Therapy Intervention II course, to clinical situations. Safety and effectiveness of performance of various techniques are emphasized.

PHTH 224- MUSCULOSKELETAL PHYSICAL THERAPY I LAB (1Cr.:0Lec, 2Lab,0Tut): This laboratory course allows the student to apply didactic knowledge, gained through the Musculoskeletal Physical Therapy I course, to clinical situations. Safety and effectiveness of performance of various techniques are emphasized.

PHTH 226- NEUROMUSCULAR PHYSICAL THERAPY I LAB (1Cr.:0Lec, 2Lab,0Tut): This laboratory course allows the student to apply didactic knowledge, gained through the Neuromuscular Physical Therapy I course, to clinical situations. Safety and effectiveness of performance of various techniques are emphasized.

PHTH 227- ASSESSMENT IN PHYSICAL THERAPY LAB (1Cr.:0Lec,3Lab,0Tut): This laboratory course allows the student to apply didactic knowledge, gained through the Assessment in Physical Therapy course, to clinical situations. Safety and effectiveness of performance of various techniques are emphasized.

PHTH 314- CARDIOPULMONARY PHYSICAL THERAPY (3Cr.:3Lec,0Cln,0Tut): This course covers knowledge related to diseases, disorders, and surgeries of both cardiovascular and respiratory system. Also this course will cover special knowledge about critical care evaluation and intervention. Emphasis will be done on pathophysiology, clinical features, medical and surgical interventions, and the corresponding physical therapy management including examination, evaluation/assessment, treatment planning, intervention skills, and prevention are thus discussed for each of the conditions or surgeries covered. A problem solving approach, to resolve impairments contributing to functional limitations and disabilities, is emphasized. *Pre-req:* ANAT 203, PHYL 211.

PHTH 315- MUSCULOSKELETAL PHYSICAL THERAPY II (3Cr.:3Lec,0Cln,0Tut): This course covers knowledge related to disorders, sports injuries, and surgeries of spine and lower quadrant in addition to related orthotics and prosthetics. Emphasis will be done on pathophysiology, clinical

features, medical and surgical interventions, and the corresponding physical therapy management including examination, evaluation/assessment, treatment planning, intervention, and prevention are thus discussed for each of the conditions or surgeries covered. A problem solving approach, to resolve impairments contributing to functional limitations and disabilities, is emphasized. **Pre-req:** ANAT 204.

PHTH 316- MEDICAL SURGICAL PT (3Cr.:3Lec,0Cln,0Tut): This course covers knowledge related to burn and integumentary disorders, selected general medical conditions, general and joint replacement surgeries, plastic surgery, obesity, and women's health; emphasis will be done on pathophysiology, clinical features, medical and surgical interventions, and the corresponding physical therapy management including examination, evaluation/assessment, treatment planning, intervention skills, and prevention are thus discussed for each of the conditions encountered. A problem solving approach, to resolve impairments contributing to functional limitations and disabilities, is emphasized. **Pre-req:** ANAT 203, ANAT 204, PHYL 205.

PHTH 317- NEUROMUSCULAR PT II (3Cr.:3Lec,0Cln,0Tut): This course will focus on rehabilitation approaches for people with neurologic pathology. Students will examine factors that contribute to the control of voluntary movement and the learning of motor skills, and develop an understanding of the relationship between the brain and the purposeful movements that make us human. Students will acquire the skills to hypothesize about the relationship of health conditions and body function/structure to limitations in activities and participation in adults with neurologic pathology. A clinical decision making approach will combine contemporary rehabilitation approaches, consideration of psychosocial and cognitive factors, and research evidence in the discussion of complex patient cases. After completing this course, students will demonstrate novice-level knowledge necessary to complete a physical therapy examination and develop a comprehensive treatment plan for adults with neurologic pathology. **Pre-req:** ANAT 204.

PHTH 319-IMAGING AND DIAGNOSTICS IN PHYSICAL THERAPY (2Cr.:2Lec,0Cln,0Tut): This course covers information related to various imaging techniques used in the diagnosis of musculoskeletal and neuromuscular disorders including x-ray, computerized tomography, magnetic resonance, ultrasound, radioisotope imaging, and electromyography. The class covers the principles of each technique, discusses the advantages and disadvantages of each and focuses on the clinical interpretation and implications for physical therapy. **Pre-req:** ANAT 203, ANAT 204.

PHTH 324- CARDIOPULMONARY PHYSICAL THERAPY LAB (1Cr.:0Lec,2Lab,0Tut): This laboratory course allows the student to apply didactic knowledge, gained through the Cardiopulmonary Physical Therapy course, to clinical situations. Safety and effectiveness of performance of various techniques are emphasized.

PHTH 325- MUSCULOSKELETAL PHYSICAL THERAPY II LAB (1Cr.:0Lec, 2Lab,0Tut): This laboratory course allows the student to apply didactic knowledge, gained through the Musculoskeletal Physical Therapy II course, to clinical situations. Safety and effectiveness of performance of various techniques are emphasized.

PHTH 327- NEUROMUSCULAR PHYSICAL THERAPY II LAB (1Cr.:0Lec, 2Lab,0Tut): This laboratory course allows the student to apply didactic knowledge, gained through the Neuromuscular Physical Therapy II course, to clinical situations. Safety and effectiveness of performance of various techniques are emphasized.

PHTH 335- MUSCULOSKELETAL PT Practice I (3Cr.:0Lec,9Cln,0Tut): Throughout various clinical settings, including Faculty's Out Patient Clinic and different training sites, students are expected to implement strategies that have been learned and demonstrated in simulated situations in both the classroom and laboratory that are related to a variety of clients. Under direct supervision of the clinical instructor, students apply the knowledge which they have gained throughout the Musculoskeletal Physical Therapy I and Musculoskeletal Physical Therapy I Lab courses to the screening, examining, evaluating, and planning of appropriate interventions, as well as to the documenting of care. Students are also expected to participate in management activities and the delivery of service. Emphasis is placed on evidence-based practice. **Pre-req:** PHTH 211.

PHTH 336- MUSCULOSKELETAL PHYSICAL THERAPY PRACTICE II (3Cr.:0Lec,9Cln,0Tut): Throughout various clinical settings, including Faculty's Out Patient Clinic

and different training sites, students are expected to implement strategies that have been learned and demonstrated in simulated situations in both the classroom and laboratory that are related to a variety of clients. Under direct supervision of the clinical instructor, students apply the knowledge which they have gained throughout the Musculoskeletal Physical Therapy II and Musculoskeletal Physical Therapy II Lab courses to the screening, examining, evaluating, and planning of appropriate interventions, as well as to the documenting of care. Students are also expected to participate in management activities and the delivery of service. Emphasis is placed on evidence-based practice. **Pre-req:** PHTH 211.

PHTH 337- NEUROMUSCULAR PHYSICAL THERAPY PRACTICE I (3Cr.:0Lec,9Cln,0Tut): Throughout various clinical settings, including Faculty's Out Patient Clinic and different training sites, students are expected to implement strategies that have been learned and demonstrated in simulated situations in both the classroom and laboratory that are related to a variety of clients. Under direct supervision of the clinical instructor, students apply the knowledge which they have gained throughout the Neuromuscular Physical Therapy I and Neuromuscular Physical Therapy I Lab courses to the screening, examining, and evaluating of neurological patients, as well as to the documenting of findings. Students are also expected to participate in management activities and the delivery of service. Emphasis is placed on evidence-based practice. **Pre-req:** PHTH 211.

PHTH 338- NEUROMUSCULAR PHYSICAL THERAPY PRACTICE II (3Cr.:0Lec,9Cln,0Tut): Throughout various clinical settings, including Faculty's Out Patient Clinic and different training sites, students are expected to implement strategies that have been learned and demonstrated in simulated situations in both the classroom and laboratory that are related to a variety of clients. Under direct supervision of the clinical instructor, students apply the knowledge which they have gained throughout the Neuromuscular Physical Therapy II and Neuromuscular Physical Therapy II Lab courses to the screening, examining, evaluating, and planning of appropriate interventions, as well as to the documenting of care of neurological patients. Students are also expected to participate in management activities and the delivery of service. Emphasis is placed on evidence-based practice. **Pre-req:** PHTH 211.

PHTH 413-PEDIATRIC PHYSICAL THERAPY (3Cr.:3Lec,0Cln,0Tut): This course provides an overview of embryologic development, followed by normal infant/child development to 5 years of age with an emphasis on motor development. This course also covers concepts, practical applications, and strategies based on theories of motor skill development, motor control, and motor learning. Also, this course will discuss knowledge related to selected pediatric conditions, dysfunctions, and surgeries including physical therapy management including examination, evaluation/assessment, treatment planning, intervention, and prevention are thus discussed for each of the conditions or surgeries covered. A problem solving approach, to resolve impairments contributing to functional limitations and disabilities, is emphasized. **Pre-req:** ANAT 203, ANAT 204.

PHTH 415-GERIATRIC PHYSICAL THERAPY (3Cr.:3Lec,0Cln,0Tut): This course covers knowledge related to geriatrics; emphasis will be done on all changes related to aging, study of the characteristics of the geriatric patient, especially the physiological, psychological and social aspects. Physical therapy management including examination, evaluation/assessment, treatment planning, intervention, and prevention are thus discussed for each of the conditions encountered in elderly. **Pre-req:** ANAT 203, PHYL 205.

PHTH 423-PEDIATRIC PHYSICAL THERAPY LAB (1Cr.:0Lec, 2Lab,0Tut): This laboratory course allows the student to apply didactic knowledge, gained through the Pediatric Physical Therapy course, to clinical situations. Safety and effectiveness of performance of various techniques are emphasized.

PHTH 431- CARDIOPULMONARY PHYSICAL THERAPY PRACTICE (2Cr.:0Lec,6Cln,0Tut): Throughout various clinical settings, including Faculty's Out Patient Clinic and different training sites, students are expected to implement strategies that have been learned and demonstrated in simulated situations in both the classroom and laboratory that are related to a variety of clients. Under direct supervision of the clinical instructor, students apply the knowledge which they have gained throughout the Cardiopulmonary Physical Therapy and Cardiopulmonary Physical Therapy Lab courses to the screening, examining, evaluating, and planning of appropriate

interventions, as well as to the documenting of care. Students are also expected to participate in management activities and the delivery of service. Emphasis is placed on evidence-based practice.

Pre-req: PHTH 211.

PHTH 432- PEDIATRIC PHYSICAL THERAPY PRACTICE (2Cr.:0Lec,6Cln,0Tut):

Throughout various clinical settings, including Faculty's Out Patient Clinic and different training sites, students are expected to implement strategies that have been learned and demonstrated in simulated situations in both the classroom and laboratory that are related to a variety of pediatric cases. Under direct supervision of the clinical instructor, students apply the knowledge which they have gained throughout the Pediatric Physical Therapy and Pediatric Physical Therapy Lab courses to the screening, examining, evaluating, and planning of appropriate interventions, as well as to the documenting of care. Students are also expected to participate in management activities and the delivery of service. Emphasis is placed on evidence-based practice. **Pre-req:** PHTH 211.

PHTH 433- MEDICAL SURGICAL PHYSICAL THERAPY PRACTICE (2Cr.:0Lec,6Cln,0Tut):

Throughout various clinical settings, including Faculty's Out Patient Clinic and different training sites, students are expected to implement strategies that have been learned and demonstrated in simulated situations in the classroom that are related to a variety of clients. Under direct supervision of the clinical instructor, students apply the knowledge which they have gained throughout the Medical Surgical Physical Therapy course to the screening, examining, evaluating, and planning of appropriate interventions as well as to the documenting of care. Students are also expected to participate in management activities and the delivery of service. Emphasis is placed on evidence-based practice. **Pre-req:** PHTH 211.

PHTH 434- GERIATRIC PHYSICAL THERAPY PRACTICE (2Cr.:0Lec,6Cln,0Tut):

Throughout various clinical settings, including Faculty's Out Patient Clinic and different training sites, students are expected to implement strategies that have been learned and demonstrated in simulated situations in the classroom that are related to a variety of clients. Under direct supervision of the clinical instructor, students apply the knowledge which they have gained throughout the Geriatric Physical Therapy course to the screening, examining, evaluating, and planning of appropriate interventions as well as to the documenting of care. Students are also expected to participate in management activities and the delivery of service. Emphasis is placed on evidence-based practice. **Pre-req:** PHTH 211.

PHTH 436- RESEARCH PROJECT (2Cr.:0Lec,6Cln,0Tut): The project provides the student with the opportunity to develop skills in an area of research. This involves a critical analysis of pertinent literature, the development and execution of an activity, analysis of the data or outcomes of the activity, and the generation of a manuscript. This project is an academic experience, in that the student integrates many of the skills acquired through formal coursework and clinical education. All students present their work in an open oral presentation and defense in the last semester of study. **Pre-req:** PHTH 211.

PHYL 205-PHYSIOLOGY (2Cr.:2Lec,0Cln,0Tut): This course explains the blood including composition, function of red blood cells and white blood cells and platelets, homeostasis, and blood groups; cardiovascular system including properties of cardiac muscle, cardiac output, heart rate and its regulation, the arterial blood pressure, tissue fluid formation and edema; respiration including mechanics of pulmonary ventilation, pulmonary function tests, diffusion and transport of oxygen and carbon dioxide, control of breathing; endocrine glands including thyroid gland, adrenal gland, calcium metabolism and endocrine pancreas; body temperature and its regulation; sports physiology including cardiovascular and respiratory changes during exercises.

PHYL 206-NEUROPHYSIOLOGY (2Cr.:2Lec,0Cln,0Tut): This course covers the following topics: organization of the nervous system; excitable tissues: the nerve (resting membrane potential, action potential, types of nerve fibers, conduction of nerve impulses), the muscle (the types of skeletal muscle fibres, neuromuscular junction, mechanism of muscle contraction); the autonomic nervous system: subdivisions (sympathetic and parasympathetic and their function); the central nervous system: sensory receptors, somatic sensations, reflexes including the stretch reflex, motor function of the nervous system (descending tracts, lesions), cerebellum, vestibular system.

PHYS 218-BIOPHYSICS (2Cr.:2Lec,0Cln,0Tut): This course covers many topics: statics and dynamics, thermodynamics and heat transfer, physics related to hydrotherapy and buoyancy, bioelectricity and biomagnetism, mechanical properties of matter, and acoustic and electromagnetic radiations as it relates to physical therapy practice.

Major Elective Courses

Courses	Title	Crs.	Pre/co-requisites
PHTH 250	Health Promotion and Wellness Practice	3	Pre: PHTH 211, PHTH 213
PHTH 252	Manual Therapy Practice	3	Pre: PHTH 211
PHTH 450	Functional Taping Practice	3	Pre: PHTH 211
PHTH 451	Practice of Physical Therapy in Women's Health	3	Pre: PHTH 211
PHTH 452	Vestibular and Balance Rehabilitation Practice	3	Pre: PHTH 211
PHTH 453	Current Practices in Physical Therapy Care	3	Pre: PHTH 211

Description of Major Elective Courses

PHTH 250- HEALTH PROMOTION AND WELLNESS PRACTICE (3Cr.:0Lec,9Cln,0Tut): Throughout various clinical settings, including Faculty's Out Patient Clinic and different training sites, students are expected to implement strategies that have been learned in the health promotion and wellness course to a variety of patients/clients. These strategies will include evaluation, planning, and intervention to promote health and prevent diseases and disorders. *Pre-req:* PHTH 211, PHTH 213.

PHTH 252- MANUAL THERAPY PRACTICE (3Cr.:0Lec, 9Cln,0Tut): This course allows students to implement appropriate manual therapy treatment programs in the application of passive treatment techniques for particular and associated structures. The course includes a review of current trends and issues in relation to evidence-based practice and how they have an impact on the practice of physical therapy. Students become familiar with methods of treatment, outcome evaluation and their role in manual therapy practice. *Pre-req:* PHTH 211.

PHTH 450- FUNCTIONAL TAPING PRACTICE (3Cr.:0Lec, 9Cln,0Tut): Throughout various clinical settings, including Faculty's Out Patient Clinic and different training sites, students are expected to implement various functional taping applications throughout different parts of the body for different musculoskeletal conditions and sports injuries. *Pre-req:* PHTH 211.

PHTH 451- PRACTICE OF PHYSICAL THERAPY IN WOMEN'S HEALTH (3Cr.:0Lec, 9Cln,0Tut): Throughout various clinical settings, including Faculty's Out Patient Clinic and different training sites, students are expected to implement appropriate strategies related to Women's health issues from adolescence to post-menopause. These strategies will include evaluation, planning, and intervention to promote health and prevent diseases and disorders. Self-care and preventive strategies are included. *Pre-req:* PHTH 211.

PHTH 452- VESTIBULAR AND BALANCE REHABILITATION PRACTICE (3Cr.:0Lec, 9Cln,0Tut): Throughout various clinical settings, including Faculty's Out Patient Clinic and different training sites, students are expected to practice and easily apply evaluation and treatment strategies for vestibular disorders immediately in the clinical setting. *Pre-req:* PHTH 211.

PHTH 453- CURRENT PRACTICES IN PHYSICAL THERAPY CARE (3Cr.:0Lec, 9Cln,0Tut): This course requires that the student to perform two in-depth analyses of initial evaluation and treatment plan of a patient treated by the student. The goal is to enhance the students' ability to monitor their ability to base treatment on quantifiable outcome measures, identified patient problems, and goals. In addition, students are expected to analyze the evidence justifying the use of evaluation and treatment procedures. *Pre-req:* PHTH 211.

1 Lecture = 1Credit hour
2-3 Lab = 1Credit hour
2-3 Cln = 1Credit hour

Study Plan
BSc. in Physical Therapy (130 Credits)

First Semester (16 Credits)			Crs.	Pre-/co-requisites
ANAT	203	Anatomy I	3	
ANAT	205	Anatomy I Lab	1	
PHYL	205	Physiology	2	
BCHM	215	Biochemistry	3	
PHTH	211	Ethics and Professionalism in Physical Therapy	3	
PHTH	213	Health Promotion and Wellness	2	
HESC	301	Psychosocial Aspect of Health and Illness	2	
Second Semester (17 Credits)			Crs.	Pre-/co-requisites
ANAT	204	Anatomy II	3	
ANAT	206	Anatomy II Lab	1	
PHYL	206	Neurophysiology	2	
MICA	210	Histology	1	
PHYS	218	Biophysics	2	
PHTH	208	Physical Therapy Intervention I	3	
PHTH	218	Physical Therapy Intervention I Lab	1	
		Elective ¹	4	
Third Semester (17 Credits)			Crs.	Pre-/co-requisites
PHTH	215	Kinesiology and Biomechanics	3	
PHTH	217	Assessment in Physical Therapy	3	
PHTH	227	Assessment in Physical Therapy Lab	1	
PATH	203	Pathophysiology	3	
PHTH	219	Pharmacology in Physical Therapy	2	
COMM	201	Epidemiology and Biostatistics	3	
		Elective ¹	2	
Fourth Semester (18 Credits)			Crs.	Pre-/co-requisites
PHTH	212	Physical Therapy Intervention II	3	
PHTH	222	Physical Therapy Intervention II Lab	1	
PHTH	214	Musculoskeletal Physical Therapy I	3	Pre: ANAT 203
PHTH	224	Musculoskeletal Physical Therapy I Lab	1	
PHTH	216	Neuromuscular Physical Therapy I	3	Pre: ANAT 204
PHTH	226	Neuromuscular Physical Therapy I Lab	1	
HESC	302	Research and Evidence Based Practice	2	
		Elective ¹	1	
		Elective ²	3	

Fifth Semester (18 Credits)			Crs.	Pre-/co-requisites
PHTH	315	Musculoskeletal Physical Therapy II	3	Pre: ANAT 204
PHTH	325	Musculoskeletal Physical Therapy II Lab	1	
PHTH	317	Neuromuscular Physical Therapy II	3	Pre: ANAT 204
PHTH	327	Neuromuscular Physical Therapy II Lab	1	
PHTH	319	Imaging and Diagnostics in Physical Therapy	2	Pre: ANAT 203, ANAT 204
PHTH	335	Musculoskeletal Physical Therapy Practice I	3	Pre: PHTH 211
PHTH	337	Neuromuscular Physical Therapy Practice I	3	Pre: PHTH 211
		Elective ¹	2	
Sixth Semester (18 Credits)			Crs.	Pre-/co-requisites
PHTH	314	Cardiopulmonary Physical Therapy	3	Pre: ANAT 203, PHYL 205
PHTH	324	Cardiopulmonary Physical Therapy Lab	1	
PHTH	316	Medical Surgical Physical Therapy	3	Pre: ANAT 203, ANAT 204, PHYL 205
PHTH	336	Musculoskeletal Physical Therapy Practice II	3	Pre: PHTH 211
PHTH	338	Neuromuscular Physical Therapy Practice II	3	Pre: PHTH 211
		Elective ¹	5	
Seventh Semester (16 Credits)			Crs.	Pre-/co-requisites
PHTH	413	Pediatric Physical Therapy	3	Pre: ANAT 203, ANAT 204
PHTH	423	Pediatric Physical Therapy Lab	1	
PHTH	415	Geriatric Physical Therapy	3	Pre: ANAT 203, PHYL 205
PHTH	431	Cardiopulmonary Physical Therapy Practice	2	Pre: PHTH 211
PHTH	433	Medical Surgical Physical Therapy Practice	2	Pre: PHTH 211
		Elective ¹	2	
		Elective ²	3	
Eighth Semester (10 Credits)			Crs.	Pre-/co-requisites
PHTH	432	Pediatric Physical Therapy Practice	2	Pre: PHTH 211
PHTH	434	Geriatric Physical Therapy Practice	2	Pre: PHTH 211
PHTH	436	Research Project	2	Pre: PHTH 211
IPEH	512	Interprofessional Education for Health Care	1	
		Elective ²	3	

¹ A total of 16 credits is required as General University Requirement; 7 credits are selected from the University Mandatory courses list including: ARAB 001(2Cr.), ENGL 001 (2Cr.), BLAW 001 (1Cr.), MCOM 003 (2Cr.) and another 9 credits are selected from the University Elective courses list + ICDL.

- The list of University Requirement courses and their descriptions are presented in the introductory pages of this catalog.

² Selected from courses offered by the department.