Undergraduate Catalogue 2017

Faculty of

HEALTH SCIENCES

Faculty Administration

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

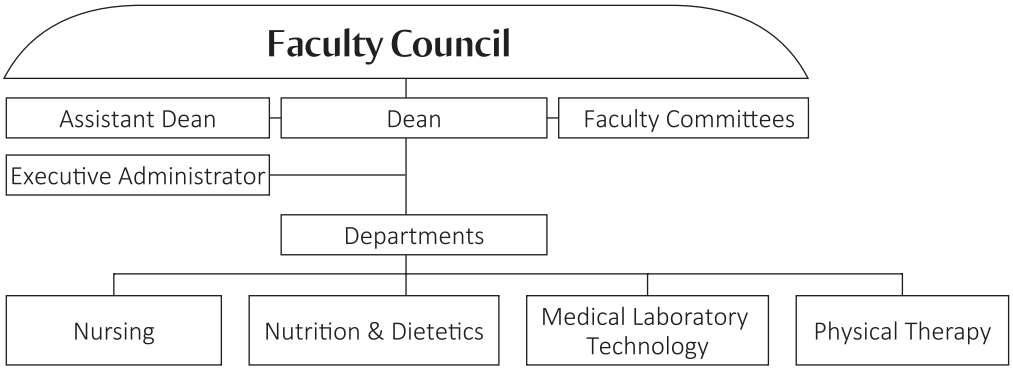
History

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 & Dietetics, Medical Laboratory Technology & Physical Therapy. The strategic vision of the Faculty of Health Sciences is to contribute to the development & upgrading of health services in Lebanon & the region by providing excellent undergraduate & postgraduate education of the highest quality.

Graduates of this program will be able to function in changing & diversifying health care settings. The Faculty has two branches: The first is in Beirut & was established in 2005/2006. The second is in Tripoli & was established in 2010/2011. It only offers 2 majors: Nutrition & Dietetics & Medical Laboratory Technology.

Organizational Structure

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



Vision

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

Mission

The mission of the Faculty of Health Sciences is to promote & maintain the highest level of education through continuous improvement in education, research quality & community services in the fields

of Nursing, Nutrition & Dietetics, Medical Laboratory Technology, & Physical Therapy. The Faculty offers comprehensive educational programs through varieties of teaching methodology, laboratory, clinical experience & field training, which are culturally & ethically sensitive. Graduates of these programs will be able to function in changing & 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 & dedicated staff members.

Academic Programs

The Faculty of Health Sciences admits students to the following undergraduate degree programs:
- BSc. in Nursing
- BSc. in Nutrition & 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 & 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 & 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
Assistant Professors	Dr. Sawsan Moustafa, Dr. Nesrine Abdel Karim, Dr. Mirna Fawaz Dr. Ahmad Tassi
Part-time Lecturers	Dr. Ali Samaha, Dr Hiba Deek, Mrs. Rona Nsouli

Mission

The mission of the Nursing Department is to promote & maintain the highest level of education through improvement in education, research quality, & community services in the fields of Nursing. The Department offers a comprehensive educational program through varieties of teaching/learning methodology, laboratory, clinical experiences & field training, which are culturally & ethically sensitive. Graduates of the Department will be able to function in changing & 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 & dedicated staff members.

Objectives

Enhancement of the academic experience, growth & 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 & ethical standards.
- Promoting & maintaining continuous cooperation & interaction with local, regional & international health care organizations.

Developing research & knowledge transfer activities through:

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

Providing Community Services:

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

- Providing health education & services to various community sectors.

Organizational development & strategic investment of resources:

- Developing the existing nursing labs to provide high quality learning, teaching & research environment.
- Selecting & retaining of high quality staff & investing in staff development according to the university employment policies.
- Developing an information infrastructure to support excellence in learning, teaching & research.

Intended Learning Outcomes

Knowledge & understanding

K.1. Identify principles underlying the interaction between humans & their environment that affect health.
K.2. Recognize basic & health-related sciences underpinning nursing practices.
K.3. List physiological, psychosocial, & educational needs of the health care consumers.
K.4. Explain the role of the nurse in improving health, health promoting activities, & palliative care.
K.5. Define the role variation of health care teams & service providers according to individual's/ groups needs & health care settings.
K.6. Recognize professional scope of practice.
K.7. Identify principles of communication skills utilized for the development of effective personal interaction.
K.8. Enumerate the principles & concepts of leadership/ management in health care.
K.9. Explain policies, procedures & guidelines concerning ethical issues & the rights of consumers.
K.10. Describe evidence based practice & research processes to be utilized in the delivery of health care.
K.11. Discover new advancements in nursing that have an impact on the individual's capacity to practice nursing.

Intellectual Skills

I.1. Synthesize knowledge derived from the basic/health & nursing sciences for the development of professional skills & decision making in nursing practice.
I.2. Evaluate the collected information using logical judgment based on systematic approaches.
I.3. Formulate specific plans for meeting needs/problems taking into account time scale, workload & resources available within the context of holistic health care.
I.4. Use reasoning skills in prioritizing actions.
I.5. Set health educational goals according to identified needs/problems.
I.6. Analyze current & emerging health needs & problems within the surrounding society.
I.7. Conduct a research/research proposal/independent project based on the best research evidence .

Practical & Professional Skills

P.1. Gather relevant information from a wide range of sources including electronic data.
P.2. Conduct nursing assessments in different health care settings according to guidelines & standards.
P.3. Deliver holistic, individualized & centered care.
P.4.Apply health care promotion measures considering social, cultural, educational, technological, environmental, legal, ethical, economic & spiritual issues.
P.5. Use teaching / learning principles in implementing educational activities to patient/ client & subordinates
P.6. Practice in accordance to evidence-based guidelines & standards applicable to health care settings.
P.7. Record professionally the collected data, nursing diagnosis, actions to be taken & their outcomes.
P.8. Examine anatomical structure & features of specific human body organs.

General & Transferable Skills

G.1. Appreciate the vision, mission, objectives & values of the organization.
G.2. Use best available evidence- based standards & guidelines for conducting & evaluating nursing performance.
G.3. Assume responsibility for safe, competent & ethical health care accountable to the profession.
G.4. Communicate effectively with individuals and/or groups & communities through interpersonal, written & technological strategies.
G.5. Act as a role model & mentor, sharing knowledge & experience with peers & experienced health providers.
G.6. Demonstrate on-going commitment to personal & professional growth.
G.7. Assume leadership skills through formal & informal roles.
G.8.Consider culture diversity of individual groups, & 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 & 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 (2 cr.), & another 9 credits are selected from the University Elective courses list + ICDL.

Major Core Courses

Course	Title	Credits	Prerequisite
NURS 207	Nursing Fundamentals & Professional Ethics	3	
NURS 209	Nursing Fundamentals: Practice	2	Co/Pre: NURS207
NURS 215	Anatomy & 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	Pre: NURS 215
NURS 222	Emergency Care Nursing: Theory	3	Co/Pre: NURS207
NURS224	Pharmacology for Nurses	3	Pre: NURS 215, 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 & Gynecological Health Nursing: Theory	2	Pre: NURS310
NURS 406	Community & Gerontological Health Nursing: Theory	3	Pre: NURS310, NURS318, NURS405
NURS 407	Obstetric & Gynecological Health Nursing: Practice	2	Co/Pre:NURS405
NURS 408	Community & Gerontological Health Nursing: Practice	2	Co/Pre: NURS406
NURS409	Mental Health & Illness Across the Lifespan	1	
NURS 410	Leadership & Management in Nursing	3	Pre: NURS310
NURS 416	Practicum II & Independent Project	4	Co/Pre: NURS322
NURS 419	Psychiatric & Mental Health Nursing	3	
COMM201	Epidemiology & Biostatistics	3	
PATH 203	Pathophysiology	3	Co:NURS215
BCHM 215	Biochemistry	3	
BIOL 226	Microbiology	3	
HESC301	Psychosocial Aspects of Health & Illness	2	
HESC302	Research & Evidence Based Practice	2	
IPEH512	Interprofessional Education for Health Care	1	

Description of Major Core Courses

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

This course is designed to introduce undergraduate nursing students to the concepts of; nursing as a profession, health & illness, therapeutic safe hospital environment, basic human needs, comfort, rest & sleep, nutritional needs, urinary elimination, medical & surgical asepsis, hygienic care, vital signs, medication, heat & cold applications, as well as first aid. The theoretical base required for providing the skills of assessing & 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 & rights, legal & 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 & providing basic nursing care to adult patients, based on the identified needs & in a safe, legal, & ethical manner. It provides students with a non-threatening environment in which they apply basic nursing skills accurately & safely through practice & return demonstration in a skill nursing laboratory. Co/Pre: NURS 207.

NURS 215 ANATOMY & PHYSIOLOGY FOR NURSES (3Crs.:2Lec; 2Lab; 0Tut)
This course provides a comprehensive study of the anatomy & physiology of the human body. It introduces the physiology of homeostasis & the structure & functions of body systems including: blood, central & peripheral nervous system, renal system, respiratory system, lymphatic/immune, endocrine system, cardiovascular system, digestive & reproductive system. Common human disease processes are emphasized. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy & physiology & their interrelationships. Laboratory practice includes studies of the human skeleton, human heart & its big blood vessels, human lungs & their pleurae, & abdominal & 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 & long-term care of patients with cardiovascular, GIT, hepatic & biliary disorders, diabetes mellitus & thyroid gland, rehabilitation, common diagnostic procedures & fluids & electrolytes balance & imbalance. Pre: 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 & provide nursing care. Emphasis is placed on developing skills needed to assess, implement & monitor nursing interventions provided to patients with cardiovascular, GIT, hepatic & biliary disorders, diabetes mellitus & thyroid gland disorders, & fluids & electrolytes balance & imbalance. Nursing role in rehabilitation & while obtaining common diagnostic procedures are focused. The role of the nurse as a member of the healthcare team is emphasized. Co/Pre: NURS216

NURS 220 HEALTH ASSESSMENT ACROSS THE LIFESPAN (2Crs.:1Lec; 3Cln;0Tut):
The course focuses on assessment of health across the life span & provides the student with the knowledge & 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, & behavioral), cultural, & spiritual dimensions of the individual and/or families. The course facilitates opportunities to integrate the knowledge & skills necessary for history taking, physical & psychosocial examination, & documentation. Pre: NURS 215

NURS 222 EMERGENCY CARE NURSING: Theory (3Crs.:3Lec; 0Cln;0Tut)
This course provides students with knowledge underlying the care of patients presenting with medical & traumatic emergencies with a review on the underlying patho-physiological processes. Emphasis is on triage, disaster management, basic & advanced life support, primary & secondary assessments, & immediate interventions of common various medical & traumatic emergencies. Poisoning, drug overdose, collection & preservation of evidence, legal & forensic considerations are addressed. Critical thinking & problem solving are both focused in each topic. Co/Pre: NURS207.

NURS224 PHARMACOLOGY FOR NURSES (3Crs.:3Lec; 0Lab;0Tut)
This course introduces the fundamental principles of pharmacology & toxicology. It addresses the principles of pharmacodynamics & mechanisms of drug actions, & the utilization of their properties in the diagnosis & 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 & their modification by chemical, environmental & biological factors. Pre-req: NURS 215, PATH 203

NURS 226 EMERGENCY CARE NURSING: Practice (2Crs.: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 & degree of technological intervention used are variable. Students are encouraged to anticipate & prioritize patient care, provide accurate assessment, intervention, & effective ongoing management with an evaluation of patient's responses. Co/Pre: NURS222.

NURS 307 ADULT HEALTH NURSING II: Theory (3Crs.: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 & cancer. Theoretical concepts & knowledge related to basic health sciences are incorporated in the didactic information. Pre: NURS216.

NURS 309 ADULT HEALTH NURSING II: Practice (2Crs.: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 & 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 & cancer. Co/Pre: NURS307.

NURS 310 ADULT HEALTH NURSING III: Theory (3Crs.: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 & decision making skills as well as nursing therapeutics in special medical & surgical settings. It focuses on adult patients/families

with orthopedic, urology, neurology & neurosurgery, ophthalmology, & ear disorders. Pre-requisite: NURS307.

NURS 318 PEDIATRIC HEALTH NURSING: Theory (3Crs.:3Lec; 0Cln;0Tut)
This course covers scientific knowledge enabling students to develop their own approach to care of pediatrics & their families. Growth & development theories will be explored as a basis of understanding health care needs of well & sick children. This course addresses the prevention of illnesses & accidents, common pediatric health problems, & communicable diseases. This is achieved through utilizing the nursing process, problem solving techniques, critical thinking skills, & family centered approached in the provision of empowered care. Pre-requisite: NURS310.

NURS 319 CRITICAL CARE NURSING: Theory (3Crs.: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 & understanding of nursing & medical management of patients with acute and/or multi -systems failures as well as the theoretical base of the critical & technical skills required for practice. It also explores the interrelationship of the three dimensions of the critical care nursing practice & examines the theoretical basis & nursing process for alterations in human functioning as consequences of critical illness & care. Co/Pre: 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 & spiritual needs & their families. Emphasis is also placed on therapeutic communication & teaching to children & their families. Co/Pre-requisite: NURS318.

NURS 321 CRITICAL CARE NURSING: Practice (2Crs.:0Lec; 6Cln; 0Tut)
The course provides students with the necessary skills of assessment & provision of comprehensive quality nursing care for patients with life threatening conditions, different body system alterations, attached with different types of supportive devices, & 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 & team work are emphasized in this course. Co/Pre-requisite: 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 & skills gained from previous coursework & 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 & demonstrate competency in

standards of care, application of evidence, professionalism, & safe & legal practice. Pre-req: NURS310, NURS319.

NURS 324 ADULT HEALTH NURSING III: Practice (2Crs.: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 & decision making skills, as well as nursing therapeutics to patients with orthopedic, urology, neurology & neurosurgery, ophthalmology, & ear disorders. Co/ Pre-requisite: NURS310.

NURS 405 OBSTETRIC & GYNECOLOGICAL HEALTH NURSING: Theory (2Crs.:2Lec; 0Cln;0 Tut)
This course introduces the concepts & principles of obstetrical nursing. It presents the maternal cycle & provides students with knowledge related to care of mothers during antenatal, labor, delivery & postnatal periods as well as care of women with different gynecological health problems. Pre-req: NURS310.

NURS 406 COMMUNITY & GERONTOLOGICAL HEALTH NURSING: Theory (3Crs.:3Lec; 0 Cln;0Tut)
The course provides students with knowledge necessary to meet health care needs of the individuals & families in the community within the context of primary healthcare. Tools for community assessment & diagnosis, concepts of health promotion & maintenance, prevention & early detection of diseases & disabilities, & rehabilitation & restoration of the highest possible level of health are covered. Special emphasis will be on the theoretical base of the elderly population care, theories & concepts of aging, the physiologic & psychosocial changes & problems, as well as ethical & legal aspects related to their care. Pre-req: NURS310, NURS318, NURS405.

NURS 407 OBSTETRIC & 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 & postnatal periods & 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 & 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 & gerontological health nursing. Critical thinking skills will be utilized as students participate in clinical prevention & population-focused interventions, with attention to risk assessment, health promotion, disease prevention, & rehabilitation & 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 & legal aspects of their care. Co/Pre-req: NURS406.

NURS 409 MENTAL HEALTH & ILLNESS ACROSS THE LIFESPAN (1Cr.:1Lec; 0Cln;0Tut)
This course examines the constructs of mental health & mental illness, & analyze factors that contribute to the development & course of mental illness. Students will examine factors that modify behavior, cognition, & emotion & promote restoration of health & functioning.

NURS 410 LEADERSHIP & MANAGEMENT IN NURSING (3Crs.:2Lec;3Cln;0Tut)
This course enables students to acquire & utilize scientific inquiry & theory in the management of the health care units & organizations & 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 & organizations, & to utilize knowledge of the law & legislations & health policy in making decisions. In addition, it enables them to apply communication strategies & 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 & INDEPENDENT PROJECT (4Crs.: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 & 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 & MENTAL HEALTH NURSING (3Crs.:2Le;3Cln; 0Tut):
The course provides knowledge & 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 & sick individuals & families, as well as learning the relationship between mind & body & impact of the biopsychosocial state on physical & mental health.

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

PATH 203 PATHOPHYSIOLOGY (3Crs.: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 & neurological systems. Symptoms as pain, ischemia, inflammation, allergy & altered clotting will be emphasized. Co-Req: NURS 215.

BIOL 226 MICROBIOLOGY (3Cr:2Lec,2Lab,0Tut)

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

HESC301 PSYCHOSOCIAL ASPECTS OF HEALTH & ILLNESS (2Crs.:2Lec; 0Cln;0Tut)

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

HESC302 RESEARCH & EVIDENCE BASED PRACTICE (2Crs.:2Lec; 0Cln; 0Tut)

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

COMM201 EPIDEMIOLOGY & BIOSTATISTICS (3Crs.:3Lec;0Cln; 0Tut):

This course introduces the basics in epidemiology & biostatistics. It provides the student with concepts & measures of health, disease, disability & death, & the risk factors which determine these events in human populations. Specific topics are covered including types of different studies, statistical hypothesis testing & its application to group comparisons; issues of power & sample size in study designs; & random sample & other study types, normal distribution, P-Values, regression & correlation.

IPEH512 INTERPROFESSIONAL EDUCATION FOR HEALTH CARE (1Cr.:0Lec; 2 free interactive learning activities; 0Tut):

The course aims to foster the skills, knowledge, attitudes & 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 & responsibilities. The course employs a variety of interactive methods & technologies.

Major Elective Courses

Course	Title	Credits	Prerequisite
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	

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 & 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 & chronic glomerulonephritis, renal failure, fever, constipation & diarrhea.

NURS 212 HEALTH CONCEPTS (2Cr.:2Lec,0Lab,0Tut)

This course examines selected clinical concepts from their scientific & 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 & its related nursing assessment & intervention. Examples will include: homeostais, immobility, pain, inflammation, ischemia, hypoxia, dyspnea, oedema, fatigue, impaired wound healing, allergic reactions, impaired immune competence & 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 & methods for prevention & control of pathogenes transmission. It is designed to ensure nurses' adoption of safe & ethical infection control practices. Important related practice standards, that are evidence –based & outline expectations from nurses, in all settings, will be declared & 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 & resistance to change & methods of measuring & evaluating change. This course is delivered online & gives students the opportunity to participate in different self-directed learning activities; individually & in groups. A number of tutorials are conducted to facilitate course orientation, team work, & 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 & its elements. High access to quality, symptomatic, spiritual & restorative care will be declared, together with regulations that govern this care. Palliative care team & their individual role together with the families members will be stressed. The ethical, moral & 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, & health information management applications. The student progresses along a continuum: from developing knowledge & understanding of basic concepts & methods of health care informatics; to learning about specific information management applications in health care administration, practice, education, & research; & finally to a hands-on experience with a specific application of his/her own choosing.

NURS 415 HEALTH EDUCATION (2Cr.:2Lec,0Lab,0Tut)

The course provides students with the educational principles necessary for provision of health education to patients & public to increase their awareness of appropriate health practices & 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 & knowledge necessary to deal with advanced management practice issues related to quality control & 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 & produce effective results.

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 & Professional Ethics	3	
NURS	209	Nursing Fundamentals: Practice	2	Co/Pre:NURS207
NURS	215	Anatomy & Physiology for Nurses	3	
PATH	203	Pathophysiology	3	Co:NURS215
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: NURS207
NURS	218	Adult Health Nursing I: Practice	2	Co/Pre:NURS216
NURS	220	Health Assessment Across the Life Span	2	Pre: NURS 215
BIOL	226	Microbiology	3	
NURS	222	Emergency Care Nursing: Theory	3	Co/Pre: NURS207
NURS	224	Pharmacology for Nurses	3	Pre: NURS 215,PATH 203

Year-1 Summer I (4 Credits)			Crs.	Pre-co/requisites
NURS	226	Emergency Care Nursing: Practice	2	Co/Pre: NURS222
		Elective (General)[1]	2	

Third Semester (17 Credits)			Crs.	Pre-co/requisites
NURS	307	Adult Health Nursing II: Theory	3	Pre: NURS216
NURS	309	Adult Health Nursing II: Practice	2	Co-Pre: NURS307
NURS	319	Critical Care Nursing: Theory	3	Pre: NURS207
NURS	321	Critical Care Nursing: Practice	2	Co/Pre: NURS319
HESC	301	Psychosocial Aspects of Health & Illness	2	
		Elective (General)[1]	5	

Fourth Semester (17 Credits)			Crs.	Pre-co/requisites
NURS	310	Adult Health Nursing III: Theory	3	Pre: NURS307
NURS	324	Adult Health Nursing III: Practice	2	Co/Pre: NURS310
HESC	302	Research & Evidence Based Practice	2	
NURS	318	Pediatric Health Nursing: Theory	3	Pre: NURS310
NURS	320	Pediatric Health Nursing: Practice	2	Co/Pre: NURS318
		Elective (General)[1]	1	
		Elective[2]	4	

Year-1 Summer I (4 Credits)			Crs.	Pre-co/requisites
NURS	322	Nursing Practicum I	4	Pre: NURS310, NURS319

Fifth Semester (16 Credits)			Crs.	Pre-co/requisites
NURS	405	Obstetric & Gynecological Health Nursing: Theory	2	Pre: NURS310
NURS	407	Obstetric & Gynecological Health Nursing: Practice	2	Co/Pre: NURS405
NURS	409	Mental Health & Illness Across the Life Span	1	
NURS	419	Psychiatric & Mental Health Nursing	3	
COMM	201	Epidemiology & Biostatistics	3	
		Elective (General)[1]	5	

Fifth Semester (16 Credits)			Crs.	Pre-co/requisites
NURS	406	Community & Gerontological Health Nursing: Theory	3	Pre:NURS310 NURS318 NURS405
NURS	408	Community & Gerontological Health Nursing: Practice	2	Co/Pre: NURS406
NURS	410	Leadership & Management in Nursing	3	Pre: NURS310
NURS	416	Practicum II & Independent Project	4	Co/Pre NURS322
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 (2 cr.), ENGL 001 (2 cr.), BLAW 001 (1 cr.), MCOM 003 (2 cr.), & 9 credits are selected from the University Elective Courses list.
-The list of University Requirement courses & 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 NUTRITION & DIETETICS

Academic Staff

Chairperson	Prof. Rajaa Fakhoury
Assistant Professor	Dr. Germine El-Kassas, Dr. Nada El Darra
Full-time Lecturers	Mrs. Leila Itani, Mrs. Dima Kraydeyeh, Miss. Zeina El-Ali

Mission

To contribute to the development & upgrading of health services in Lebanon & the region by providing excellent education & scientific research of high quality, innovation in undergraduate education of qualified nutritionists & dietitians, & promoting public health through assessment, policy development, & delivering programs & 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 & 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 & scientific activities (published papers & attended conferences) are assessed by the university.

The Attributes of a Nutritionist

An ability to apply knowledge of nutrition & dietetics concepts to manage nutritional health problems.
An ability to design & conduct nutrition surveys & to analyze & interpret data
An ability to function within multi-disciplinary teams
An ability to identify & solve nutritional problems
An understanding of professional & ethical responsibilities
An ability to communicate effectively
An ability to consider & avoid the detrimental impact of nutritional & health problems within social or global measures
An ability to use the techniques, skills & modern research findings in nutrition practice.

Program Intended Learning Outcomes (ILOs)

Knowledge & Understanding

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

K1-Recognize the fundamentals of basic & social & behavioral sciences, including chemistry, organic chemistry, biology, anatomy & physiology, biochemistry, microbiology, epidemiology & biostatistics as well as psychology & sociology.

K2-Describe the basic components of foods their chemical & physical characteristics, their nutritive value, functions, metabolism, food sources, their utilization by the body & the consequences of over or under consumption which lead to chronic diseases & deficiency diseases.

K3-Identify the role & responsibilities of a registered dietitian as a member of an interdisciplinary

team in the healthcare system.

K4-Recognize the nutrient standards, nutritional needs & dietary guidelines for different stages of the life cycle including pregnancy, lactation, infancy, childhood, adolescence, adulthood & old age in health & disease.

K5-Identify the components of nutritional assessment & community needs assessment, the types of data to be collected, their resources & data collection methods in order to identify nutritional risks & classify nutritional status

K6-Explain diet disease association, pathophysiology of disease & the rationale for nutrition interventions for the prevention & treatment of disease at the individual & community levels & their public health significance.

K7-Recognize the basic principles of the nutrition care process & medical nutrition therapy for different diseases, life stages & in different settings at the individual & community levels.

K8-Recognize the basic principles of dietary planning & nutrition support including specific modifications, substitutions & feeding routes.

K9-Outline the principles of research & evidence based practice in nutrition & dietetics

K10-Recognize the process of planning, conducting, analyzing & reporting a nutrition research.

K11-Recognize the basic codes of ethics for professional dietetic practice & interdisciplinary relationship in various practice settings.

K12-Describe theories of behavior change & the role of environment, culture, influencing nutrition & lifestyle choices & their role in health promotion & disease prevention.

K13-Recognize the fundamentals of food chemistry, food service management, food technology & food safety used for food procurement & food production.

Intellectual Skills

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

I1-Analyze, synthesize & summarize information critically to solve problems related to nutrition, dietetics & food service in different settings.

I2-Design the most appropriate nutritional assessment & screening tool in clinical & community settings situations

I3-Interpret anthropometric & biochemical measurements, dietary intake data, nutrition focused physical findings, patient history to identify nutritional risks & malnutrition in different population groups in different settings & disease conditions.

I4-Evaluate dietary intake data with reference to nutrient recommendations, food based dietary guidelines & the dietary diversity for various population groups or diseases conditions.

I5-Predict a nutrition diagnosis & the corresponding intervention, monitoring & evaluation plan for individuals with various disease conditions & age groups based on the assessment data.

I6-Determine a suitable method for estimating the energy & nutrient requirements for different population groups in different settings & disease conditions

I7-Analyze a nutritional problem & design a corresponding interventions to treat or prevent malnutrition at the level of community

I8-Distinguish dietary & life style risk factors & preventive measures for nutrition related non communicable diseases & the corresponding health consequences

I9-Determine the appropriate research methodology to plan a nutritional survey, collect data, report results & formulate a conclusion supported by relevant evidence.

I10-Illustrate food safety, food service systems & food technology practices used in food service establishments, hospitals & food industry.
I11-Distinguish risk factors for chemical reactions, food spoilage & bacterial contamination in food service & processing establishments
I12-Evaluate the role of adequate nutrition & food safety in public health, taking into consideration the major nutritional problems & food borne illnesses on the national & international levels.

Professional & Practical Skills

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

P1-Apply laboratory techniques related to basic sciences including biology, chemistry, & biochemistry
P2- Use effectively nutritional assessment & screening techniques to detect malnutrition or nutritional risks in a variety of situations for various individuals or population groups.
P3-Use computerized dietary analysis packages for dietary assessment, nutritional assessment & meal planning to meet the needs of different population groups.
P4-Apply the nutrition care process & model in a variety of settings considering the psychosocial aspects of illness & health behavior as well as ethical issues.
P5-Calculate food energy as well as energy & nutrient needs for individuals & various population groups.
P6-Apply evidence based nutrition guidelines, meal planning principles & dietary planning tools in formulating dietary plans, recipes & menus that accommodate acceptability, affordability, cultural diversity as well as health & nutritional needs of various population groups & in health & disease.
P7-Demonstrate ability to use safely the full scope of therapeutic regimes & nutrition interventions available to the dietitian in the successful management of individuals & groups.
P8-Develop theory based nutrition education & counseling plans & material to disseminate evidence based dietary advice for different population groups for behavior change.
P9-Conduct research projects using appropriate research methods, ethical procedures data analysis & reporting within the context of the research.
P10-Evaluate the good manufacturing practices in various local food industries & food service establishments through onsite observation.
P11-Apply the knowledge & skills acquired to identify & solve food safety & technology related problems in food service establishments.

General Skills

The graduate must have the ability to:

G1-Gather information from a variety of information technology & scientific resources [library, electronic, & online resources] & critically investigate, analyze & formulate solutions to problems, to assess critically new concepts & to promote appropriate change in professional practice.
G2-Work effectively both independently & in a team as leader or member, clarifying tasks & making appropriate use of the capacities of group members
G3-Manage time effectively, prioritizing workloads, to meet demands in a timely fashion.
G4-Effectively use the Microsoft office package, electronic library & IT resources.
G5-Communicate effectively, using appropriate methods, to a range of audiences with different knowledge backgrounds or expertise.

G6-Use self-learning techniques to expand knowledge.
G7-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 & Dietetics, students must successfully complete a total of 101 credits + ICDL. The standard duration of study for attaining a Bachelor Degree in Nutrition & Dietetics is 6 semesters. The six semesters are completed with 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, & schools; also they work as 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 -Common Courses -Departmental Courses	**79** 27 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), & another 9 credits are selected from the University Elective courses list + ICDL.

Major Core Courses

Course	Title	Credits	Prerequisite
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 322
NUTR 318	Nutrition Education	2	Pre: NUTR 212
NUTR 319	Meal & 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 315
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 & Hygiene	3	Senior Standing
NUTR 415	Nutrition & Non-Communicable Diseases	2	Pre: NUTR 310, 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 & Biostatistics	3	Sophomore Standing

HESC 201	Human Anatomy & Physiology	3	Sophomore Standing
HESC 202	Healthcare Profession & Bioethics	1	Sophomore Standing
HESC 302	Research & Evidenced Based Practice	2	Junior Standing
HESC 301	Psychosocial Aspects of Health & 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 & ecology, morphology & physiology of body systems, with emphasis on the different types of cells & cellular structures. Moreover, the course will cover the organization of life, energy transfer through living systems, & diversity of life. This course includes: i) The molecular basis of life; ii) The biology of the cell; iii) Genetic & molecular biology; iv) Evolution; v) The diversity of life; vi) Plant form & function; vii) Animal form & function; & viii) Ecology & behavior.

CHEM 213 GENERAL CHEMISTRY (3Cr:2Lec,2Lab,0Tut)

This course is an introduction to basic concepts of chemistry, chemical reactions & calculations, the three physical states of matter (gases, liquids & solids), solutions, chemical equilibrium, ionic equilibrium. Periodic table & properties of the elements, nomenclature are discussed. Theories of atomic structure, atomic spectra, & chemical bonding are also included.

HESC 201 HUMAN ANATOMY & PHYSIOLOGY (3Cr:2Lec,2Lab,0Tut)

This course studies the structure (brief anatomy) & function (detailed physiology) of the following body systems: muscular, nervous, endocrine, blood, lymphatic, cardiovascular, respiratory, digestive, urinary, & reproductive.

COMM 201 EPIDEMIOLOGY & BIOSTATISTICS (3Cr: 3Lec,0Lab,0Tut)

General introduction to the science of epidemiology, biostatistics & 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 & design, descriptive statistics, performance characteristics of diagnostic tests, graphical methods, probability, estimation, hypothesis testing, p-values, regression & correlation, & clinical trials.

BCHM 215 BIOCHEMISTRY (3Cr:2Lec,2Lab,0Tut)

This course analytically introduces the structure & function of biological macromolecules, especially proteins, lipids & carbohydrates. Important medical concepts include bioenergetics & metabolism, proteins as biological catalysts, &

essential metabolic pathways. In addition, this course covers nucleic acids structure & function, enzyme classification & function, & the role of vitamins & minerals in metabolism.

BIOL 226 MICROBIOLOGY (3Cr:2Lec,2Lab,0Tut)

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

CHEM 215 ORGANIC CHEMISTRY (3Cr:2Lec, 2Lab, 0Tut)

This course introduces basic concepts in organic chemistry, macromolecules, stereoisomerism, & their basic structure & interactions. Organic chemistry applications & biosynthesis of biological compounds are also studied. The course includes the study of alkanes, alkenes, alkynes, & ethers & alcohols. In addition, it covers carboxylic acid derivative reaction mechanisms, with emphasis on biological macromolecules, including carbohydrates, proteins, lipids, & nucleic acids.

NUTR 212 BASIC NUTRITION (3Cr:3Lec,0Lab,0Tut)

This course overview the physiological needs for energy, carbohydrates, lipids, proteins, vitamin & minerals. The mechanisms of action of macronutrients & micronutrients, food sources, & the recommended intakes of carbohydrates, protein, fat, individual vitamins & individual minerals will be covered. The relationships between diet & 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 & specific needs of individuals throughout their life span. It covers the physiological changes & requirements during infancy, childhood & adolescence, adulthood & the elderly with special emphasis, on the needs during periods of physiological stress such as pregnancy & lactation. Pre-req: NUTR 212.

NUTR 313 FOOD CHEMISTRY (3Cr:2Lec,2Lab,0Tut)
The course covers the chemical composition of foods, food composition tables & how the composition can affect the physical & sensory properties of food & 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, & physiological aspects of carbohydrates, lipids, proteins, vitamins & minerals. It focuses on the absorption mechanisms, transportation, storage, mobilization & 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 & diagnosis of the nutrition deficiency diseases prevailing in the community. The course will concentrate on macronutrient deficiencies & 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 & the available economic resources. Pre-req: NUTR 310, NUTR 315, NUTR 322.

NUTR 318 NUTRITION EDUCATION (2Cr:2Lec,0Lab,0Tut)
The course discusses the various methods used in the nutrition education of the individual & 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 & DIET PLANNING (3Cr:2Lec,2Lab,0Tut)
Focuses on the planning of a nutritionally sound meals in such a way to fulfill all the nutritional needs of the individual in view of his physiological & 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,2Lab,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 & 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 at both the community & individual levels. The various nutritional assessment tools including dietary methods, anthropometric measurements, biochemical tests & clinical examination will be discussed. The sensitivity, reliability & 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 315.

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 & how to recommend & 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 & 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 & 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 & development in the field of nutrition & dietetics. The main focus of the course will be management of metabolic disorders & nutrition support. Pre-req: NUTR 320.

NUTR 409 THERAPEUTIC NUTRITION (II) (3Cr:2Lec,2Lab,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 & renal diseases, will be discussed in details.. The etiology, patho-physiology, clinical manifestations & 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 study presentation for various disease condition & further discussion of the corresponding medical nutrition therapy. The students will have experience in assessment, diagnosis & 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 focuses on the nutrition requirements of athletes practicing different types of sports, the nature, composition & timing of the meals appeal before & after competition, supplementation & its impact on physical performance. Pre-req: NUTR 315.

NUTR 413 FOOD SAFETY & 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 & dairy products. The course includes the principles of food toxicology with emphasis on the toxins present in natural food & food products.

NUTR 415 NUTRITION & 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 & obesity. The course emphasizes the increasing prevalence of non communicable diseases in developing & developed countries, the factors enhancing the prevalence & the role of nutrition in the prevention & treatment. Pre-req: NUTR 310, NUTR 315.

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

HESC 202 HEALTHCARE PROFESSION & BIOETHICS (1Cr:1Lec,0Cln,0Tut)
The course centers around understanding the significance of healthcare law & bioethics. The main focus of this course includes: Introduction to medical law, ethics, & bioethics; The legal system & its environment; Importance of the legal system for the physician & the healthcare professional; Professional liability & medical/biomedical malpractice; Public duties of the healthcare professional; Workplace law & ethics; The medical record; Ethical & bioethical issues in healthcare; Ethical issues relating to life.

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

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

IPEH 512 INTER PROFESSIONAL EDUCATION FOR HEALTH CARE (1Cr:0Lec,2Cln,0Tut)
This course covers the skills, knowledge, attitudes & behaviors that facilitate effective inter professional (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 while respecting each other's roles & responsibilities.

Major Departmental Elective Courses

Course	Title	Credits	Prerequisite
NURS 212	Health Concepts	2	
NURS 213	Community Health	2	
NUTR 314	Food Laws & 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 322
NUTR 332	Food Additives	2	

Description of Major Elective Courses

NURS 212 HEALTH CONCEPTS (2Cr.:2Lec,0Lab,0Tut)
This course examines selected clinical concepts from their scientific & 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 & its related nursing assessment & intervention. Examples will include: homeostais, immobility, pain, inflammation, ischemia, hypoxia, dyspnea, oedema, fatigue, impaired wound healing, allergic reactions, impaired immune competence & altered clotting

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

NUTR 314 FOOD LAWS & REGULATIONS (2Cr:2Lec,0Lab,0Tut)
The course explores the history, importance, development & enforcement of local, national & international food laws & regulations that affect the food processing industry & food consumers & how they contribute to a safe, nutritious, & 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 & harmful substances in foods & international trade. Pre-req: NUTR 002 or NUTR 413.

NURS 315 CHILD DEVELOPMENT (2Cr.:2Lec,0Lab,0Tut)
This course examines the development potential of the child from the prenatal period through adolescence & the factors that enhance or constrain this development. Integration of developmental theories & current basic & applied research findings & their clinical application will be stressed. Strategies to promote optimal child health & 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 & not normally used as a typical ingredient of the food, whether or not it has nutritive value. The intentional addition to food for a technological purpose in the manufacturing, processing, preparation, treatment & 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 & relevant to practice. Students will be equipped with knowledge & skills to understand the main interactions, mechanisms & consequences of mixing food & drugs in addition to nutritional management of the interactions. Pre-req: NUTR 315.

NUTR 422 DIETARY ANALYSIS SIMUALTIONS (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, & reporting. Pre-req: NUTR 319, NUTR 322.

NURS 414 HEALTH INFORMATICS (2Cr.:2Lec,0Lab,0Tut)
This course focuses on the history of health care informatics, basic informatics concepts, & health information management applications. The student progresses along a continuum: from developing knowledge & understanding of basic concepts & methods of health care informatics; to learning about specific information management applications in health care administration, practice, education, & research; & 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 & public to increase their awareness of appropriate health practices & symptoms of illness to make them more inclined to seek medical help.

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 & Physiology	3	Sophomore Standing
CHEM	215	Organic Chemistry	3	Sophomore Standing
COMM	201	Epidemiology & 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 & 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 & Metabolism	3	Pre: BCHM 215 NUTR 212
NUTR	322	Assessment of Nutritional Status	3	Pre: NUTR 212
HESC	301	Psychosocial Aspects of Health & Illness	2	Sophomore Standing
NUTR	319	Meal & 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 & Evidenced Based Practice	2	Junior Standing
		Elective[1]	4	

Fifth Semester (17 Credits)			Crs.	Pre-co/requisites
NUTR	317	Malnutrition & 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 & Hygiene	3	Senior Standing
NUTR	415	Nutrition & Non-Communicable Diseases	2	Pre: NUTR 310 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.), & another 9 credits are selected from the University Elective courses list + ICDL.
- The list of University Requirement courses & their descriptions are presented in the introductory pages of this catalog.

[2] Selected from courses offered by the department & the faculty.

DEPARTMENT OF MEDICAL LABORATORY TECHNOLOGY

Academic Staff

Chairperson	Prof. Iman El Ghazzawi
Assistant Professor	Dr. Fatima Saleh, Dr. Said El Shamieh
Part-time Lecturers	Dr. Fatehia Awny

Mission

The mission of the department of Medical Laboratory Technology (MLT) is to prepare competent graduate & ethically oriented clinical laboratory professionals with the knowledge & the skills for career entry & practice. The Department is committed to prepare graduates for leadership roles in the clinical laboratory & professional organizations & to instill an understanding of the need for maintaining continuing competency in a rapidly changing & 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 & clinical sciences.
- The opportunity to practice in different areas of interest such as Hematology & Blood Banking, Bacteriology, Virology, Parasitology, Serology/ Immunology, Clinical Chemistry, & Histopathology.
- Intensive training in problem solving, laboratory skills, & practical skills.
- A well-rounded education that includes communication skills, the ability to function well on a team, an appreciation for ethical behavior, & the ability to engage in lifelong learning.

This education is expected to prepare our students to thrive & 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 & pharmaceutical industries.

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

Learning Outcomes

Knowledge & Understanding

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

- Acquire preliminary knowledge about the fundamentals of basic medical sciences, social & behavioral sciences, including chemistry, organic chemistry, biology, microbiology, biochemistry, anatomy & physiology, epidemiology & biostatistics as well as psychology & sociology.
- Describe the anatomy & physiology of body systems & recall anatomic terminology in order to relate major areas of the clinical laboratory to general pathologic conditions associated with the body systems.
- Identify policies & procedures for maintaining laboratory safety & labelling biohazardous

substances.
- Identify the modes of transmission of various infectious pathogens & their different preventive methods.
- List the general criteria for handling different specimens & reasons for specimen rejection or recollection.
- State the basic principles of various molecular techniques used in medical laboratory sciences & their various clinical applications.
- Describe homeostasis, the stages of coagulation & the properties of arterial, venous & capillary blood.
- Recognize different blood collecting equipment, types of additives used, substances that can interfere in clinical analysis of blood constituents & the special precautions needed.
- Explain the rationale for evidence-based practice & 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, & 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 & platelets).
- Discriminate between normal & abnormal blood picture.
- Compare the gross & 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 & their processing in the lab.
- Recognize & report any lab hazardous situations in a timely manner including hand contamination, needle stick injury & chemical splash.
- Interpret recently published research & its implications for professional practice
- Analyze & 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 & control such as hand hygiene, aseptic techniques, PPE, waste & sharp disposal, sterilization, disinfection of equipment & 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 & follow established quality control protocols for maintenance & calibration of equipment.
- Prepare stains, stock solutions, working solutions & media for use in clinical laboratories.
- Perform routine hematology, microbiology & histology staining procedures.
- Prepare specimens for histology i.e. specimen accessioning & tissue cassette labeling
- Analysis of chemical analytes & microscopic constituents of blood & other body fluids & report results
- Practice culturing, isolating & identifying of bacteria from various clinical specimens
- Prepare & perform analyses of clinical specimens for different pathologic parasites & fungi.
- Perform, read & interpret serologic tests for the presence of antibodies, antigens and/or specific proteins
- Instruct patients in the proper collection & preservation of urine & semen samples.
- Collect acceptable specimens for laboratory evaluation according to best practice & applicable regulation & maintain patient safety & specimen integrity during collection.
- Practice safe work procedures at all times to ensure the safety of patients & co-workers & protection of the workplace.

General Skills

The medical laboratory technologist must have the ability to:

- Demonstrate respect for diversity in the workplace & 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 & respect time.
- Interacts in a professional & competent matter using effective listening, verbal & written communication in dealing with laboratory colleagues, patients & other health professionals.
- Demonstrate the ability to work effectively as a part of a team.
- Respect patient dignity & privacy & maintain confidentiality of information at all times.
- List the causes of stress in the work environment & discuss the coping skills used to deal with stress at the workplace.
- Implement continuous knowledge & educational activities & 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 & 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 Requirement 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.), & MCOM 003 (2 cr.), & 9 credits are selected from University Electives Courses list + ICDL.

Major Core Courses

Course	Title	Credits	Prerequisite
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 & Biostatistics	3	
HESC 201	Human Anatomy & Physiology	3	
HESC 202	Healthcare Profession & 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 & 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 & 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 & Laboratory Management	3	
MELS 401	Genetics & 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 & ecology, morphology & physiology of body systems, with emphasis on the different types of cells & cellular structures. Moreover, the course will cover the organization of life, energy transfer through living systems, & diversity of life. This course includes: i) The molecular basis of life; ii) The biology of the cell; iii) Genetic & molecular biology; iv) Evolution; v) The diversity of life; vi) Plant form & function; vii) Animal form & function; & viii) Ecology & behavior.

BIOL 226 MICROBIOLOGY (3Cr:2Lec,2Lab,0Tut)

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

BCHM 215 BIOCHEMISTRY (3Cr:2Lec,2Lab,0Tut)

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

CHEM 213 GENERAL CHEMISTRY (3Cr:2Lec,2Lab,0Tut)

This course is an introduction to basic concepts of chemistry, chemical reactions & calculations, the three physical states of matter (gases, liquids & solids), solutions, chemical equilibrium, ionic equilibrium. The periodic table & properties of the elements, nomenclature are discussed. Theories of atomic structure, atomic spectra, & chemical bonding are also included.

CHEM 215 ORGANIC CHEMISTRY (3Cr:2Lec,2Lab,0Tut)

This course introduces basic concepts in organic chemistry, macromolecules, stereoisomerism, & their basic structure & interactions. Organic chemistry applications & biosynthesis of biological compounds are also studied. The course includes the study of alkanes, alkenes, alkynes, & ethers & alcohols. In addition, it covers carboxylic acid derivative reaction mechanisms, with emphasis on biological macromolecules, including carbohydrates, proteins, lipids, & nucleic acids.

COMM 201 EPIDEMIOLOGY & BIOSTATISTICS (3Cr:3Lec,0Lab,0Tut)

General introduction to the science of epidemiology, biostatistics & 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 & design, descriptive statistics, performance characteristics of diagnostic tests, graphical methods, probability, estimation, hypothesis testing, p-values, regression & correlation, & clinical trials.

HESC 201 HUMAN ANATOMY & PHYSIOLOGY (3Cr:2Lec,2Lab,0Tut)

This course studies the structure (brief anatomy) & function (detailed physiology) of the following body systems: muscular, nervous, endocrine, blood, lymphatic, cardiovascular, respiratory, digestive, urinary, & reproductive.

HESC 202 HEALTHCARE PROFESSION & BIOETHICS (1Cr:1Lec,0Lab,0Tut)

The course centers around the understanding the significance of healthcare law & bioethics. The main focus of this course includes: Introduction to medical law, ethics, & bioethics; The legal system & its environment; Importance of the legal system for the physician & the healthcare professional; Professional liability & medical/biomedical malpractice; Public duties of the healthcare professional; Workplace law & ethics; The medical record; Ethical & bioethical issues in healthcare; Ethical issues relating to life.

IPEH512 INTERPROFESSIONAL EDUCATION FOR HEALTH CARE (1Cr.:0Lec; 2 free interactive learning activities; 0Tut)

The course aims to foster the skills, knowledge, attitudes & 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 & responsibilities. The course employs a variety of interactive methods & technologies

MELS 202 EVIDENCE-BASED LABORATORY RESEARCH (1Cr:1Lec,0Lab,0Tut)
This course introduces basic concepts in performing research in the clinical laboratory & 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 & role of the clinical laboratory are explored, as well as medical ethics & conduct, employment opportunities, & professional organizations. The course also covers laboratory math, laboratory safety, care & use of basic laboratory equipment, laboratory settings, sample collection, accreditation & certification.

MELS 301 VIROLOGY & 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 & classification. It will also discuss viruses of medical significance, emphasizing on their control & possible prevention, in addition to laboratory techniques used for diagnosis. In addition, the course investigates the general characteristics & classification of various classes of fungi. Their mode of infection, disease spectrum, laboratory diagnosis & 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 & methods in identifying drugs in laboratory specimens, with emphasis on the clinical skills that help to assess & diagnose in the laboratory common disorders with referral to chronic & complicated cases.

MELS 303 MEDICAL PARASITOLOGY (3Cr:2Lec,2Lab,0Tut)
A course primarily designed for understanding human & animal parasitology, including classification, morphology, development & the diseases they cause in man. Laboratory techniques used in the diagnosis of parasitic infections & 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 & procedures of various tests performed in Clinical Chemistry. It presents the biochemical & physiological basis for tests, the principle & procedure for the test, & the clinical significance of the test results, including quality control & normal values. It also includes basic chemical laboratory technique, chemical laboratory safety, electrolytes & acid-base balance, proteins, carbohydrates, lipids, enzymes, metabolites, endocrine function & toxicology. Pre-req: BCHM 215.

MELS 305 CLINICAL LABORATORY HEMATOLOGY (3Cr:2Lec,2Lab,0Tut)
The course will focus on studying the basic & medical aspects of the structure & function of formed elements of blood, bone marrow & plasma, production, release & survival; morphological characteristics of normal & abnormal cells; quantitative &

qualitative abnormalities. The course will also introduce students to different blood disorders with emphasis on coagulation & hemostatic disorders, white blood cell anomalies, anemias, & leukemias.

MELS 306 BLOOD BANKING & TRANSFUSION MEDICINE (3Cr:2Lec,2Lab,0Tut)
The course explores the major blood group systems that affect the practice of transfusion medicine & examines the processing & distribution of blood products supplied by transfusion services. The topics to be covered include donor screening, collection, preparation, & storage of blood products, prevention of transfusion reactions through identification of unsuspected antibodies & compatibility testing, transfusion-associated conditions & 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 & serology. It also undertakes areas of contemporary immunological knowledge & simultaneously provides a historical view of the discoveries that have built the groundwork of modern immunological thought & mechanism of fighting disease. The two functional divisions of the immune system, the innate & the adaptive immune system, antigens, antibodies & lymphocytes are studied, along with the cells & the soluble factors responsible for the immune response. The course also describes principles of immunology applicable to concepts in clinical medicine; introduction to diagnosis & management of human immuno-pathologic disorders. There are two major sections of this course: i) basic immunology; & ii) medical immunology & 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 & classification of microorganisms & bacteria from a medical perspective, emphasizing mechanisms by which they replicate & reproduce, their means of growth & growth requirements, & the general properties of bacterial cultures & their properties. The main topics covered in this course are: Development of diagnostic microbiology; The host's encounter with microbes; Safety & specimen collection; Cultivation of microorganisms; Presumptive identification & final identification; Aerobic gram-positive cocci; Aerobic gram-negative cocci; Aerobic gram-positive rods; Enterobacteriaceae; Anaerobic bacteria; Mycobacterium species; Intracellular microorganisms; Physiological & body system bacteriology; & Opportunistic & nosocomial infections. Pre-req: BIOL 226.

MELS 309 QUALITY CONTROL & LABORATORY MANAGEMENT (3Cr:2Lec,2Lab,0Tut)
The course is designed to introduce MLT students to the importance of quality control & 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 & post-analytical.

MELS 401 GENETICS & MOLECULAR BIOLOGY (3Cr:2Lec,2Lab,0Tut)
The course will give a profound insight into human genetics, comprising the structure & function of genes at a molecular level. Classification & diagnostic screening of genetic disorders will also be covered, as well as biotechniques applied in genetics & 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 student is familiarized with the various departments comprising a medical laboratory setup & the kinds of tests routinely used for specimen's assessment & analysis, in addition to understanding the significance of test results reporting with accuracy & precision.

MELS 403 HISTOPATHOLOGY (3Cr:2Lec,2Lab,0Tut)
This course deals specifically with tissue pathology & abnormalities, study of smears & aspirates. This course will provide further understanding of the relation of cell, tissue, & organ microscopic & submicroscopic structure (mammals primarily) with function, & develop expertise in tissue handling techniques, preparation & 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 & pulmonary fluids for diagnostic purposes in the identification of infection, inflammation & other-related disorders. In addition, students are introduced to measurement of drugs in urine & toxicity assessment & 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, & present the information. This process also involves discussion & debate of the presented and/or published manuscripts.

Major Elective Courses

Course	Title	Credits	Prerequisite
MELS 220	Essential Biotechniques for Medical Laboratory	2	
MELS 222	Food-Borne Diseases	2	
MELS 314	Biotechnology for Medical Laboratory Sciences	3	
MELS 315	Cancer Biology	3	
MELS 316	Environmental Sciences & Biomedicine	3	
MELS 411	Forensic Bioscience or Criminology	3	
MELS 412	Infection Control & Management	3	
MELS 414	Stem Cell Biology	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 & clinical varieties of bio-techniques & their relevant applications performed at the medical laboratory. This course provides an introduction to medical laboratory bio-techniques. Topics include: Basic immunoassays & serologic procedures, genetically-inherited diseases & methods of detection, cytogenetics, molecular diagnostic tests & procedures, DNA-based screening, flow cytometry & its clinical applications, electrophoretic analysis of specimens, & 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, & adopting standards & policies for its prevention. This course covers the wide range of microorganisms occurring in food, both as contaminants & deliberate inoculation, hazards associated with food borne diseases, food safety & food handling practices, methods of investigations, & standards for prevention & control.

MELS 314 BIOTECHNOLOGY FOR MEDICAL LABORATORY SCIENCES (3Cr.:3Lec,0Lab,0Tut)

The applications of the methodologies of cell & molecular biology in the rapidly-evolving biotechnology & biopharmaceutical industries with an emphasis on the major sectors involving human therapeutics, human diagnostics, & genomics. Cell & 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, & commercialization are covered. Students will examine the current programs of the research & development of selected biotechnology & pharmacological corporations. The main topics covered in this course are: The biotechnology century & its workforce; An introduction to genes & genomes; Recombinant DNA technology & genomics; Proteins as products; Microbial biotechnology; Plant biotechnology; Animal biotechnology; DNA fingerprinting & forensic analysis; Bioremediation; Aquatic biotechnology; Medical biotechnology; Biotechnology regulations; & Ethics & biotechnology.

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

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

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

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

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

This course is involved with understanding basic concepts in forensic biology/ biomedicine & 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 & identification of bloodstain patterns; The forensic laboratory; Identification of biological fluids & stains; Techniques of DNA analysis; Microanalysis & examination of trace evidence;

MELS 412 INFECTION CONTROL & MANAGEMENT (3Cr.:3Lec,0Lab,0Tut)
This course studies basic concepts in laboratory infection control, handling of specimens & proper storage. The major causes of contaminations are delineated & 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 & its effect on laboratory analysis.

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

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 & Physiology	3	
COMM	201	Epidemiology & 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 & 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 & 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 & Laboratory Management	3	
		Elective1	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 & 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 (13 Credits)			Crs.	Pre-co/requisites
MELS	401	Genetics & Molecular Biology	3	
MELS	403	Histopathology	3	
MELS	405	Clinical Rotations I	4	
		Elective[2]	3	

Sixth Semester (12 Credits)			Crs.	Pre-co/requisites
MELS	402	Diagnostic Laboratory Procedures	3	
MELS	404	Laboratory Body Fluid Analysis	3	
MELS	406	Clinical Rotations II	4	Pre: MELS 405
MELS	408	Clinical Seminar	1	
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.), & MCOM 003 (2Cr.), & 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 PHYSICAL THERAPY

Academic Staff

Chairperson Dr. Ibtissam Saab
Assistant Professors Dr. Ibtissam Saab, 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 & maintain the highest level of education through improvement in education, research quality, & community services in the field of physical therapy. The Department offers a comprehensive educational program through varieties of teaching methodology, laboratory, clinical experiences & field training which are culturally & ethically sensitive. Graduates of the Department will be able to function in changing & 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 & 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, & practical skills.
- A well-rounded education that includes communication skills, the ability to function well on a team, an appreciation for ethical behaviour, & the ability to engage in lifelong learning.

This education is expected to prepare our students to thrive & 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 & maintain continuous cooperation & interaction with local, regional & 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, & the Order of Physical Therapists of Lebanon.
- Be reflective physiotherapy practitioners with the requisite skills, knowledge & professional attributes consistent with those expected of newly qualified staff.
- Be equipped with the graduate skills & 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 & practical perspective.

- Implement safe & effective assessment, examination & treatment in the scope of physiotherapy practice.
- Understand & implement research-based & evidence-based practice to the field/scope of practice.
- Develop effective & appropriate relationships with service users, colleagues & other agencies.
- Function effectively within an interprofessional team.
- Develop key & transferable skills.
- Develop leadership potential.
- Engage in the analysis of academic discourse.
- Use information & information technology effectively to inform & 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 & wellness centers & 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.), & another 9 credits are selected from the University Elective courses list + ICDL.

Major Core Courses

Course	Title	Credits	Prerequisite
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 & Biostatistics	3	
PATH 203	Pathophysiology	3	
HESC 301	Psychosocial Aspects of Health & Illness	2	
HESC 302	Research & 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 & Professionalism in Physical Therapy	3	
PHTH 212	Physical Therapy Intervention II	3	
PHTH 213	Health Promotion & Wellness	2	
PHTH 214	Musculoskeletal Physical Therapy I	3	Pre: ANAT 203
PHTH 215	Kinesiology & 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 & 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 & fascia, skeletal system, muscular system, cardiovascular system, respiratory system, lymphatic system, & nervous system. This course also covers regional anatomy of upper limb: bones, muscles, blood vessels, brachial plexus, nerves, & joints. Head & neck: bones of the skull, bones of the neck, muscles of the face & scalp, muscles of mastication, muscles of the neck, nerves of head & neck, cranial nerves, vertebral & temporomandibular joint. Thorax: bones of the thoracic cage, intercostal muscles & diaphragm, broncho-pulmonary segment & lungs, & heart.

ANAT 204- ANATOMY II (3Cr.:3Lec,0Cln,0Tut)

This anatomy course covers many topics: Abdomen: anterior & posterior abdominal wall, nerves of the abdomen, lumbar plexus, abdominal viscera. Pelvis: bones, muscles, & joints of the pelvis, sacral plexus, & pelvic viscera. Lower limb: bones, muscles, blood vessels, nerves, & joints.

Also this course discusses the spinal cord: morphology & blood supply; cerebrum: cerebral cortex (main centers & its arterial supply), basal ganglia, internal capsule, diencephalon (thalamus, hypothalamus, geniculate bodies); cerebellum & its blood supply; brain stem: general features & nuclei of cranial nerves; ventricular system: third, fourth, & lateral ventricles, & cerebrospinal fluid; & 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 & exploration of structures studied in the Anatomy I course. Students will also learn surface anatomy & 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 & exploration of structures studied in the Anatomy II course. Students will also learn surface anatomy & 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 & function of biological macromolecules, especially proteins, lipids & carbohydrates. Important medical concepts include bioenergetics & metabolism, proteins as biological catalysts, & essential metabolic pathways. In addition, this course covers nucleic acids structure & function, enzyme classification & function, & the role of vitamins & minerals in metabolism.

COMM 201 EPIDEMIOLOGY & BIOSTATISTICS (3Cr.:3Lec,0Cln,0Tut)

General introduction to the science of epidemiology, biostatistics & 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 & design, descriptive statistics, performance characteristics of diagnostic tests, graphical methods, probability, estimation, hypothesis testing, p-values, regression & correlation, & 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 & neurological systems. Symptoms as pain, ischemia, inflammation, allergy & altered clotting will be emphasized.

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

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

HESC 302 RESEARCH & EVIDENCE BASED PRACTICE (2Cr.:2Lec,0Cln,0Tut)

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

IPEH512 INTERPROFESSIONAL EDUCATION FOR HEALTH CARE (1Cr.:0Lec; 2 free interactive learning activities; 0Tut)

The course aims to foster the skills, knowledge, attitudes & 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 & responsibilities. The course employs a variety of interactive methods & technologies

MICA 210 HISTOLOGY (1Cr.:1Lec,0Cln,0Tut)

The histology course includes the following subjects: cytology, epithelium, connective tissue proper & supporting connective tissue (cartilage & bone), muscle, nervous tissue, blood, & the following systems: Blood vascular system, lymphatic system, skin & its appendages, respiratory system, & central nervous system.

PHTH 208 PHYSICAL THERAPY INTERVENTION I (3Cr.:3Lec,0Cln,0Tut)
This course covers basic principles, physiologic effects, indications & contraindications, application & usage of equipment, & intervention rationale for thermotherapy, hydrotherapy, cryotherapy, massage therapy, assistive/adaptive, prosthetic, orthotic devices & functional taping principles are discussed, in addition to basic patient handling & transfer skills as well as foundations of therapeutic exercises & techniques.

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

PHTH 212 PHYSICAL THERAPY INTERVENTION II (3Cr.:3Lec,0Cln,0Tut)
This course covers basic principles, physiologic effects, indications & contraindications, application & usage of equipment, & intervention rationale regarding mechanical devices, electrotherapy, & electromagnetic radiations equipment used in physical therapy practice.

PHTH 213 HEALTH PROMOTION & WELLNESS (2Cr.:2Lec,0Cln,0Tut)
This course introduces students to important health promotion/disease prevention topics & resources, including health promotion, health education, & models for behavior change. Health & wellness programs presented with emphasis on the role of physical therapist in intervention, prevention, & promotion of health & 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, & surgeries of upper quadrant in addition to related orthotics & prosthetics. Emphasis will be done on pathophysiology, clinical features, medical & surgical interventions, & the corresponding physical therapy management including examination, evaluation/assessment, treatment planning, intervention, & prevention are thus discussed for each of the conditions or surgeries covered. A problem solving approach, to resolve impairments contributing to functional limitations & disabilities, is emphasized.

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

PHTH 216 NEUROMUSCULAR PHYSICAL THERAPY I (3Cr.:3Lec,0Cln,0Tut)
This course will introduce the principles of neuroscience & describe their application as relevant to physical therapists, in addition to the terminology of the nervous system & cover the major functions of the nervous systems. This course will also integrate neurophysiology & neuroanatomy into the clinical presentation of adults with neurologic pathology. The etiology, epidemiology signs, & 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.

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 & evaluation, critical thinking, & decision making regarding selection of appropriate tests & 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 & 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 & physiological actions of various pharmaceuticals in addition to, drug receptors, drug receptor interactions, pharmacokinetics, enzyme induction, drug metabolism, drug safety & effectiveness & 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 & 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 & effectiveness of performance of various techniques are emphasized.

PHTH 224 MUSCULOSKELETAL PHYSICAL THERAPY I LAB (1Cr.:0Lec, 3Lab,0Tut)
This laboratory course allows the student to apply didactic knowledge, gained through the Musculoskeletal Physical Therapy I course, to clinical situations. Safety & 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 & 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 & 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, & surgeries of both cardiovascular & respiratory system. Also this course will cover special knowledge about critical care evaluation & intervention. Emphasis will be done on pathophysiology, clinical features, medical & surgical interventions, & the corresponding physical therapy management including examination, evaluation/assessment, treatment planning, intervention skills, & prevention are thus discussed for each of the conditions or surgeries covered. A problem solving approach, to resolve impairments contributing to functional limitations & disabilities, is emphasized.

PHTH 315 MUSCULOSKELETAL PHYSICAL THERAPY II (3Cr.:3Lec,0Cln,0Tut)
This course covers knowledge related to disorders, sports injuries, & surgeries of spine & lower quadrant in addition to related orthotics & prosthetics. Emphasis will be done on pathophysiology, clinical features, medical & surgical interventions, & the corresponding physical therapy management including examination, evaluation/assessment, treatment planning, intervention, & prevention are thus discussed for each of the conditions or surgeries covered. A problem solving approach, to resolve impairments contributing to functional limitations & disabilities, is emphasized.

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

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 & the learning of motor skills, & develop an understanding of the relationship between the brain & the purposeful movements that make us human. Students will acquire the skills to hypothesize about the relationship of health conditions & body function/structure to limitations in activities & participation in adults with neurologic pathology. A clinical decision making approach will combine contemporary rehabilitation approaches, consideration of psychosocial & cognitive factors, & 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 & develop a comprehensive treatment plan for adults with neurologic pathology.

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

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 & effectiveness of performance of various techniques are emphasized.

PHTH 325 MUSCULOSKELETAL PHYSICAL THERAPY II LAB (1Cr.:0Lec, 3Lab,0Tut)
This laboratory course allows the student to apply didactic knowledge, gained through the Musculoskeletal Physical Therapy II course, to clinical situations. Safety & 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 & 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 & different training sites, students are expected to implement strategies that have been learned & demonstrated in simulated situations in both the classroom & 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 & Musculoskeletal Physical Therapy I Lab courses to the screening, examining, evaluating, & planning of appropriate interventions, as well as to the documenting of care. Students are also expected to participate in management activities & the delivery of service. Emphasis is placed on evidence-based practice.

PHTH 336 MUSCULOSKELETAL PHYSICAL THERAPY PRACTICE II (3Cr.:0Lec,9Cln,0Tut)
Throughout various clinical settings, including Faculty's Out Patient Clinic & different training sites, students are expected to implement strategies that have been learned & demonstrated in simulated situations in both the classroom & 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 & Musculoskeletal Physical Therapy II Lab courses to the screening, examining, evaluating, & planning of appropriate interventions, as well as to the documenting of care. Students are also expected to participate in management activities & the delivery of service. Emphasis is placed on evidence-based practice.

PHTH 337 NEUROMUSCULAR PHYSICAL THERAPY PRACTICE I (3Cr.:0Lec,9Cln,0Tut)
Throughout various clinical settings, including Faculty's Out Patient Clinic & different training sites, students are expected to implement strategies that have been learned & demonstrated in simulated situations in both the classroom & 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 & Neuromuscular Physical Therapy I Lab courses to the screening, examining, & evaluating of neurological patients, as well as to the documenting of findings. Students are also expected to participate in management activities & the delivery of service. Emphasis is placed on evidence-based practice.

PHTH 338 NEUROMUSCULAR PHYSICAL THERAPY PRACTICE II (3Cr.:0Lec,9Cln,0Tut)
Throughout various clinical settings, including Faculty's Out Patient Clinic & different training sites, students are expected to implement strategies that have been learned & demonstrated in simulated situations in both the classroom & 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 & Neuromuscular Physical Therapy II Lab courses to the screening, examining, evaluating, & planning of appropriate interventions, as well as to the documenting of care of neurological patients. Students are also expected to participate in management activities & the delivery of service. Emphasis is placed on evidence-based practice.

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, & strategies based on theories of motor skill development, motor control, & motor learning. Also, this course will discuss knowledge related to selected pediatric conditions, dysfunctions, & surgeries including physical therapy management including examination, evaluation/assessment, treatment planning, intervention, & prevention are thus discussed for each of the conditions or surgeries covered. A problem solving approach, to resolve impairments contributing to functional limitations & disabilities, is emphasized.

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 & social aspects. Physical therapy management including examination, evaluation/assessment, treatment planning, intervention, & prevention are thus discussed for each of the conditions encountered in elderly.

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 & 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 & different training sites, students are expected to implement strategies that have been learned & demonstrated in simulated situations in both the classroom & 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 & Cardiopulmonary Physical Therapy Lab courses to the screening, examining, evaluating, & planning of appropriate interventions, as well as to the documenting of care. Students are also expected to participate in management activities & the delivery of service. Emphasis is placed on evidence-based practice.

PHTH 432 PEDIATRIC PHYSICAL THERAPY PRACTICE (2Cr.:0Lec,6Cln,0Tut)
Throughout various clinical settings, including Faculty's Out Patient Clinic & different training sites, students are expected to implement strategies that have been learned & demonstrated in simulated situations in both the classroom & 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 & Pediatric Physical Therapy Lab courses to the screening, examining, evaluating, & planning of appropriate interventions, as well as to the documenting of care. Students are also expected to participate in management activities & the delivery of service. Emphasis is placed on evidence-based practice.

PHTH 433 MEDICAL SURGICAL PHYSICAL THERAPY PRACTICE (2Cr.:0Lec,6Cln,0Tut)
Throughout various clinical settings, including Faculty's Out Patient Clinic & different training sites, students are expected to implement strategies that have been learned & 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, & planning of appropriate interventions as well as to the documenting of care. Students are also expected to participate in management activities & the delivery of service. Emphasis is placed on evidence-based practice.

PHTH 434 GERIATRIC PHYSICAL THERAPY PRACTICE (2Cr.:0Lec,6Cln,0Tut)
Throughout various clinical settings, including Faculty's Out Patient Clinic & different training sites, students are expected to implement strategies that have been learned & 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, & planning of appropriate interventions as well as to the documenting of care. Students are also expected to participate in management activities & the delivery of service. Emphasis is placed on evidence-based practice.

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 & execution of an activity, analysis of the data or outcomes of the activity, & the generation of a manuscript. This project is an academic experience, in that the student integrates many of the skills acquired through formal coursework & clinical education. All students present their work in an open oral presentation & defense in the last semester of study.

PHYL 205 PHYSIOLOGY (2Cr.:2Lec,0Cln,0Tut)

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

PHYL 206 NEURPOHYSIOLOGY (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 & parasympathetic & 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 & dynamics, thermodynamics & heat transfer, physics related to hydrotherapy & buoyancy, bioelectricity & biomagnetism, mechanical properties of matter, & acoustic & electromagnetic radiations as it relates to physical therapy practice.

Major Elective Courses

Course	Title	Credits	Prerequisite
PHTH 250	Health Promotion & 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 & 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 & WELLNESS PRACTICE (3Cr.:0Lec,9Cln,0Tut)
Throughout various clinical settings, including Faculty's Out Patient Clinic & different training sites, students are expected to implement strategies that have been learned in the health promotion & wellness course to a variety of patients/clients. These strategies will include evaluation, planning, & intervention to promote health & prevent diseases & disorders.

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 & associated structures. The course includes a review of current trends & issues in relation to evidence-based practice & how they have an impact on the practice of physical therapy. Students become familiar with methods of treatment, outcome evaluation & their role in manual therapy practice.

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

PHTH 451 PRACTICE OF PHYSICAL THERAPY IN WOMEN'S HEALTH (3Cr.:0Lec, 9Cln,0Tut)
Throughout various clinical settings, including Faculty's Out Patient Clinic & 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, & intervention to promote health & prevent diseases & disorders. Self-care & preventive strategies are included.

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

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 & 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, & goals. In addition, students are expected to analyze the evidence justifying the use of evaluation & treatment procedures.

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 & Professionalism in Physical Therapy	3	
PHTH	213	Health Promotion & Wellness	2	
HESC	301	Psychosocial Aspect of Health & 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 & 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 & 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 & 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 & 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.) & another 9 credits are selected from the University Elective courses list + ICDL. - The list of University Requirement courses & their descriptions are presented in the introductory pages of this catalog.

[2] Selected from courses offered by the department.