BACHELOR IN NUTRITION AND DIETETICS

Main Language of Instruction:
French ☑ English ○ Arabic ○

Campus Where the Program Is Offered: CSM

OBJECTIVES

The Bachelor in Nutrition and Dietetics aims to:
- Develop students' professional careers in different sectors at the local, regional and international levels.
- Provide in-depth knowledge of food composition and nutritional benefits.
- Enable identification of individuals at nutritional risk based on validated screening tools.
- Equip students to diagnose nutritional pathologies and disorders based on a global evaluation.
- Equip students to design individualized, well-balanced preventive diets based on the dietary needs, and set up a nutritional follow-up plan according to the patient's history, medical records, laboratory tests, anthropometric assessment and other diagnostic tests.
- Describe the main stages in the food manufacturing process.
- Guide the design of food production systems including premises, equipment, and utensils.
- Apply HACCP and ISO quality assurance standards, including systems for cleaning and maintaining food safety on the premises.
- Involve students in community-based nutrition education and intervention programs for collectives.
- Adapt fundamental nutrition principles for athletes.

PROGRAM LEARNING OUTCOMES (COMPETENCIES)

- Establish the basics of nutritional and dietary management of a patient in private practice or in a hospital setting.
- Participate in the management of ready-to-eat food production units (collective kitchens, catering, industry, pastry shops, etc.).
- Establish the foundations of a food quality control system.
- Educate people or target groups about good eating habits based on nutritional recommendations and a better lifestyle.
- Collaborate in collective work within a group.
- Participate in scientific research in the field of nutrition.

PROGRAM REQUIREMENTS

180 credits: Required courses (134 credits), Institutions' elective courses (12 credits), Open elective courses (6 credits), and USJ General Education Program (36 credits - may be part of the above categories).

Required Courses (134 Cr.)
Human Anatomy and Physiology I (4 Cr.). Human Anatomy and Physiology II (4 Cr.). Anemias and Oncology + SW (3 Cr.). Metabolic Biochemistry (3 Cr.). Structural Biochemistry (3 Cr.). Cell Biology (2 Cr.). General Biology (2 Cr.). Food Chemistry + PW (4 Cr.). Analytical Chemistry + PW (3 Cr.). Instrumental Analytical Chemistry (3 Cr.). General Chemistry + PW (3 Cr.). Inorganic Chemistry (1 Cr.). Organic Chemistry (3 Cr.). Controversies in Nutrition I (3 Cr.). Controversies in Nutrition II (3 Cr.). Diabetes (1 Cr.). Endocrinology (1 Cr.). Gastroenterology + SW (2 Cr.). Genetics (3 Cr.). Food Systems Management + SW (2 Cr.). Hyperlipidemia (1 Cr.). Introduction to Nutrition (4 Cr.). Introduction to the Food Industry + SW (4 Cr.). Introduction to Foods (3 Cr.). Macronutrients I (2 Cr.). Macronutrients II (1 Cr.). Inborn Metabolic Diseases + SW (1 Cr.). Renal Diseases I + II (2 Cr.). Food Microbiology I (2 Cr.). Food Microbiology II (2 Cr.). Micronutrients + SW (4 Cr.). Nutrition in the Life Cycle (2 Cr.). Community Nutrition (3 Cr.). Enteral and Parenteral Nutrition (2 Cr.). Geriatric Nutrition + SW (2 Cr.). Hepatological Nutrition + SW (2 Cr.). Obesity and Metabolic Syndrome (3 Cr.). Osteoporosis (1 Cr.). Pediatrics + SW (2 Cr.). Sports Physiology and Nutrition (3 Cr.). Bachelor Project (4 Cr.). Project in Food Innovation (2 Cr.). Food Rules, Standards and Safety (3 Cr.). First Aid (2 Cr.). Pathological Semiology (2 Cr.). Nutritional Care + SW (4 Cr.). Professional Integration

Internship I (1 Cr.). Professional Integration Internship II (1 Cr.). SW Therapeutic Cuisine (1 Cr.). SW Diabetes (1 Cr.). SW Exchange System for Meal Planning (2 Cr.). SW Fundamental Nutrition (2 Cr.). SW Obesity and Metabolic Syndrome (2 Cr.). SW Bibliographical Research (2 Cr.). Food Technology + SW (4 Cr.). PW Culinary Arts (3 Cr.). PW Lebanese Terroir (1 Cr).

Institution's Elective Courses (12 Cr.), to be chosen from the list below:
Hygiene (2 Cr.). Article Reading and Analysis I (2 Cr.). Sales Techniques (2 Cr.). Health Sociology (2 Cr.). Research Methodology (2 Cr.). First Aid (2 Cr.). Nutrition and Public Health (2 Cr.). Marketing: Tools and Application (2 Cr.). Economic and Financial Culture (2 Cr.). Personal and Professional Development (2 Cr.).

Open Elective Courses (6 Cr.)

USJ General Education Program (36 Cr.), from which 8 credits are from Institution's Elective Courses.

Code	Course Name	Credits
	ENGLISH OR OTHER LANGUAGE	**4**
004ANGLL3	English	4
	ARABIC	**4**
	Arabic Language and Culture	**2**
435LALML2	Arabic Language and Media	2
	Other Courses Taught in Arabic	**2**
004NCEDL5 004TDCEL5	SW Community Nutrition I SW Community Nutrition II	1 1
	HUMANITIES	**10**
064VALEL1	USJ Values in Daily Life	2
	Ethics	**4**
004NSPUL2 004EOPLL2	Nutrition and Public Health Ethics, Professional Orientation and Legislation	2 2
	Civic Engagement and Citizenship	**1**
004SAPDL5	SW Environment and Sustainable Development	1
	Other Humanities Course	**3**
004PHSYL6	Psychology of Nutrition and Eating Disorders + SW	3
	SOCIAL SCIENCES	**6**
	Professional Integration and/or Entrepreneurship	**2**
004DPPRL2	Personal and Professional Development	2
	Other Social Sciences Courses	**4**
004CEFIL1 004MARKL4	Economic and Financial Culture Marketing: Tools and Application	2 2
	COMMUNICATION TECHNIQUES	**5**
004TCOEL2 004CUGEL1	Oral and Written Communication Techniques Communication and Human Relations	2 3
	QUANTITATIVE TECHNIQUES	**7**
004BIOQL4 004BIMAL2 004MATTL1	Statistics and Biostatistics Office Automation Mathematics	3 2 2

SUGGESTED STUDY PLAN

Semester 1

Code	Course Name	Credits
004BICLL1	Cell Biology	2
004GENTL1	Genetics	3
004BIMAL2	Office Automation	2
004CHIIL1	Analytical Chemistry + PW	3
004CHGEL1	General Chemistry + PW	3
004CHIOL1	Inorganic Chemistry	1
004EOPLL2	Ethics, Professional Orientation and Legislation	2
004MATTL1	Mathematics	2
004TPACL1	PW Culinary Art	3
435LALML2	Arabic Language and Media	2
004CEFIL1 004DPPRL2 004SOLOI2	**Institution's Elective Courses: to choose 2 courses out of 3** Economic and Financial Culture Personal and Professional Development Health Sociology	4
	Open Elective Course	2
	Total	**29**

Semester 2

Code	Course Name	Credits
004ANPHL2	Human Anatomy and Physiology I	4
004BIOGL1	General Biology	2
004CQUEL1	Organic Chemistry	3
004CONTL2	Controversies in Nutrition I	3
004CUGEL1	Communication and Human Relations	3
004BIOCL2	Structural Biochemistry	3
004INNUL2	Introduction to Nutrition	4
004SWNUL2	SW Fundamental Nutrition	2
004TCOEL2	Oral and Written Communication Techniques	2
004NSPUL2 **or** 004SANEI2	**Institution's Elective Courses: to choose 1 course** Nutrition and Public Health **or** Hygiene	2
	Open Elective Course	2
	Total	**30**

Summer Trimester 1

Code	Course Name	Credits
004STIPL2	Professional Integration Internship I	1
	Total	**1**

Semester 3

Code	Course Name	Credits
004ANAPL3	Human Anatomy and Physiology II	4
004ANGLL3	English	4
004CHIAL3	Food Chemistry + PW	4
004CHAIL3	Instrumental Analytical Chemistry	3
004CONTL3	Controversies in Nutrition II	3
004INTAL3	Introduction to Foods	3
004MACRL3	Macronutrients I	2
004BACAL3	Food Microbiology I	2
004MICGL3	Food Microbiology II	2
064VALEL1	USJ Values in Daily Life	2
	Total	**29**

Semester 4

Code	Course Name	Credits
004GESTL4	Food Systems Management + SW	2
004INTCL4	Introduction to the Food Industry + SW	4
004MCARL4	Macronutrients II	1
004INMTL4	Micronutrients + SW	4
004NUTAL4	Nutrition in the Life Cycle	2
004RSSAL4	Food Rules, Standards and Safety	3
004BIOQL4	Statistics and Biostatistics	3
004TDECL4	SW Exchange System for Meal Planning	2
004SECNL4 004METHL4 004LADAI2 004TEVEI4 004MARKL4	**Institution's Elective Courses: to choose 3 courses out of 5** First Aid Research Methodology Article Reading and Analysis I Sales Techniques Marketing: Tools and Application	6
	Total	**27**

Summer Trimester 2

Code	Course Name	Credits
004STPRL4	Professional Integration Internship II	1
004TDCTL4	SW Therapeutic Cuisine	1
004TPPLL4	PW Lebanese Terroir	1
004REBLL4	SW Bibliographical Research	2
	Total	**5**

Semester 5

Code	Course Name	Credits
004DIABL5	Diabetes	1
004ENDOL6	Endocrinology	1
004HYPEL5	Hyperlipidemia	1
004NUCOL5	Community Nutrition	3
004NEPAL5	Enteral and Parenteral Nutrition	2
004NUTPL5	Obesity and Metabolic Syndrome	3
004PHYNL5	Sports Physiology and Nutrition	3
004PIALL5	Project in Food Innovation	2
004SEMPL6	Pathological Semiology	2
004PRLIL5	Bachelor Project	4
004SOINL5	Nutritional Care + SW	4
004TDDIL5	SW Diabetes	1
004NCEDL5	SW Community Nutrition I	1
004TDCEL5	SW Community Nutrition II	1
004TDOSL5	SW Obesity and Metabolic Syndrome	2
004TECAL5	Food Technology + SW	4
	Total	**35**

Semester 6

Code	Course Name	Credits
004ANEML6	Anemias and Oncology + SW	3
004BIOML6	Metabolic Biochemistry	3
004GASTL6	Gastroenterology + SW	2
004SAPDL5	SW Environment and Sustainable Development	1
004MIINL6	Inborn Metabolic Diseases + SW	1
004MALRL6	Renal Diseases I + II	2
004NUGEL6	Geriatric Nutrition + SW	2
004NHEPL6	Hepatological Nutrition + SW	2
004OSTEL6	Osteoporosis	1
004PEDIL6	Pediatrics + SW	2
004PHSYL6	Psychology of Nutrition and Eating Disorders + SW	3
	Open Elective Course	2
	Total	**24**

COURSE DESCRIPTION

004ANPHL2 Human Anatomy and Physiology I 4 Cr.

This course covers the following:

- Capillary, venous and lymphatic, regulation of circulation, specific regional circulations: coronary, cerebral, renal and pulmonary.
- The respiratory system: anatomy, ventilation, diffusion, transport of gases to the periphery, acid-base balance, respiratory mechanics, control and regulation of ventilation.
- The urinary tract: anatomy, renal physiology, hydro-electrolyte balance, acid-base balance.
- The digestive tract: anatomy: mouth, pharynx, esophagus, stomach, duodenum, jejunum, ileum, colon, rectum, accessory digestive glands.
- Physiology: the gastrointestinal system, mouth and esophagus, stomach, small intestine, colon and rectum, liver and biliary tracts, digestion and absorption.

004ANAPL3 Human Anatomy and Physiology II 4 Cr.

This course covers the following:

- Endocrine glands: Hormones and their mechanism of action. Pituitary gland. Thyroid gland. Phosphocalcic balance. Endocrine pancreas. Male reproductive system.
- Female reproductive system. Adrenal glands.
- Vascular anatomy: head and neck. Trunk. Upper limbs. Lower limbs.
- Osteoarticular anatomy: Bones of the head. Spine. Thorax. Shoulder girdle and upper limbs. Pelvis and lower limbs. Joints. Joint Pathology.
- Muscular anatomy: Definition. Muscles of the head. Muscles of the neck. Muscles of the trunk. Muscles of the abdomen. Diaphragm. Muscles of the upper limb. Muscles of the lower limb.
- The nervous system: neurophysiological bases. The peripheral nervous system. The central nervous system. The vegetative nervous system.

004ANEML6 Anemias and Oncology + SW 3 Cr.

This course consists of two parts:
Anemia
By the end of this part, students will be ale to:

- Explain the pathophysiological mechanisms of the main types of anemia (nutritional deficiencies, hemolytic, inflammatory, etc.).
- Differentiate between the various types of anemia based on their causes, clinical manifestations, and basic biological indicators.
- Identify both nutritional and non-nutritional causes of anemia.
- Recognize the main dietary sources of iron, vitamin B9, vitamin B12, and other relevant micronutrients, as well as the factors that influence their absorption and bioavailability.
- Identify appropriate nutritional supplements available on the Lebanese market and discuss their use.
- Develop a tailored nutritional plan for anemic patients, taking into account the type of anemia, clinical context, and dietary habits.
- Oncology

By the end of this part, students will be able to:

- Explain the basic mechanisms linking nutrition and cancer, including carcinogenesis and the role of diet in cancer prevention.
- Identify the nutritional challenges commonly encountered in oncology patients (e.g., malnutrition, cachexia, treatment-related side effects).
- Recognize the importance of maintaining nutritional status during cancer treatment and recovery.
- Identify nutrition interventions and supportive strategies adapted to oncology patients.

004LADAI2 Article Reading and Analysis I 2 Cr.

By the end of this course, students will be able to:

- Recognize the key steps required for setting up a research project and/or publication.
- Use primary search engines for bibliographic data (Pubmed, Embase, Scopus).

- Understand the methodology of epidemiological studies and identify their various types.
- Analyze figures in original scientific articles and review papers.

004SANEI2 Hygiene 2 Cr.

By the end of this course, students will be able to:
- Identify the principles, practices, and hygiene rules essential for preserving and improving health.
- Implement hygiene measures according to specific protocols across various applications, including the hygiene of premises, equipment, individual hygiene, and food hygiene, to prevent transmissible diseases in communities and combat contamination sources.

004SOLOI2 Health Sociology 2 Cr.

This course provides a sociological exploration of the connections between health, illness, and society. It aims to understand how social, cultural, economic, and institutional factors affect health practices, disease-related inequalities, care behaviors, and patients' lived experiences. For future pharmacists, this course provides a broader understanding of their role in the healthcare system beyond a strictly biomedical approach.

004TEVEI4 Sales Techniques 2 Cr.

This course prepares students for their first professional experience, often in a sales-related role. It provides hands-on field skills and practical techniques used in the business world. The course trains students in the latest sales methods and develops their sense of professionalism, making the transition into sales within a company both productive and enjoyable. Students will acquire essential skills that will be valuable throughout their careers.

004ANGLL3 English 4 Cr.

This course develops students' competencies in written and spoken English, aiming for language proficiency and the ability to communicate effectively with diverse audiences. Students will convey information clearly in writing, using appropriate language and style for the content and audience, and communicate orally using verbal and nonverbal techniques, supported by suitable aids and materials.

004BIOML6 Metabolic Biochemistry 3 Cr.

This course covers the following:
- Enzymology: Definition and general information, nomenclature, classification, structure, catalytic mechanisms. Cofactors.
- Enzymatic kinetics: Michaelis model, influence of chemical agents on enzymatic reactions (activators, inhibitors). Effect of pH and temperature. Covalently regulated enzymes, allosteric enzymes. Isoenzymes. Enzyme dosage. Medical and pharmaceutical applications of enzymes.
- Cellular bioenergetics and ATP: Revision of the principles of thermodynamics, thermodynamics of phosphorylated compounds.
- Carbohydrate catabolism: Anaerobic and aerobic glycolysis, galactose, fructose and glycogen catabolism. Citric acid cycle. Respiratory chain and oxidative phosphorylation.
- Lipid catabolism: lipolysis and beta oxidation of fatty acids. Ketone bodies. PPAR. Fasting and regulation.
- Amino acid catabolism: Urea cycle, main inborn metabolic diseases, proteolysis mechanisms.
- Carbohydrate anabolism: Gluconeogenesis, glycogenesis, regulation of glucose metabolism.
- Pentose phosphate pathway.
- Lipids lipogenesis and anabolism. Biosynthesis of fatty acids and cholesterol. Lipoprotein regulation and metabolism. Transport and endocytosis.
- Amino acids anabolism
- Nucleic acids metabolism and associated diseases.

004BIOCL2 Structural Biochemistry 3 Cr.

This course covers the following:
- Constituents of living matter: Elementary components. Mutual adaptation of elements. Hierarchy of molecular organization of cells.

- Water in biology: Structure, hydrogen bonding. Solvent properties. Hydrophobic interactions. Ionization of water.
- Carbohydrates: Linear structure of monosaccharides, cyclic structure of monosaccharides, spatial conformation of monosaccharides, chemical properties. Descriptive study of monosaccharides of biological interest and their derivatives. Oligosaccharides. Homogeneous polysaccharides. Heterogeneous polysaccharides.
- Lipids: Fatty acids. Neutral lipids. Phosphoglycerides. Sphingolipids. Waxes. Sterols. Lipoproteins. Micelles.
- Proteins: Amino acids, peptides.
- Nucleic acids: Purine and pyrimidine bases, nucleosides, nucleotides, polynucleotides. Hydrolysis of polynucleotides. Other nucleotides.

004BICLL1 Cell Biology 2 Cr.

This course consists of the following:
- Introduction and cytological techniques: microscopes, techniques for studying the cell.
- Introduction to proteins and polysaccharides and the extracellular environment: the composition of proteins and polysaccharides, the extracellular environment: cell-coat, basal membrane, fibers and fundamental substance, cell junctions.
- Plasma membrane: lipid bilayer, membrane proteins, surface receptors, molecular traffic across the membrane.
- Endocytosis: receptor-mediated endocytosis, phagocytosis, pinocytosis, roles of endocytosis.
- Lysosome: the structure and contents of the lysosome, heterophagy, autophagy.
- Export industry: endoplasmic reticulum and Golgi apparatus.
- Plasts: chloroplast, amyloplast and chromoplast.
- Mitochondria: structure, location of various enzyme chains, functions: ATP production, Krebs cycle, synthesis of certain lipids...
- Peroxisome and other microbodies: structure and function, glyoxysome, hydrogenosome, glycosome.
- Cytoskeleton: cytoskeletal proteins and how they are assembled into filaments or tubes, keratin systems, actin-myosin and tubulin-dynein.
- Centriole: structure and function.
- Ribosome: structure, function: protein synthesis.
- Nucleus: structure, functions, DNA, different types of DNA.
- Microbiology
- Ultra-structural cytological study: bacteria, viruses, plasmode-prion, bacteriophage, thallophyte, morphology in TEM (Transmission) and/or SEM. Organelle, periphery, membrane structures and binding sites. Energy source. Mode of replication, virulence. Identification criteria and global classification.
- Use of microorganisms: enzyme production, cortisone production, chemotherapy, cosmetology. In Genetics: gene substitution, gene correction. In food industries: fermentation, dairy products, pasta, gelled products. In the balance of nature: nitrogen cycle and fertilizer, carbon cycle and depollution, sulfur cycle and depollution, water synthesis and depollution, biological insecticide production.
- Origin of life: formation of organic matter (Muller). From molecule to protoplasm: reverse evolution and viruses. Necessary conditions for multicellular beings. Prelude to multicellular beings.
- Directed evolutionary trends: chronology of the appearance of living beings. Notion of the subdivision of living beings. Additive adaptations and evolution: of the heart, the brain, the mode of reproduction.

004BIOGL1 General Biology 2 Cr.

This course consists of the following:
- Introduction to the living world: protozoa and metazoa.
- Protozoa: different phyla, structure and classification of certain protozoa.
- Arthropods: structure and anatomy, systematics.
- Vertebrates: development
- Reproduction: asexual reproduction: gemmiparity, scissiparity and regeneration.
- Gametes and gametogenesis: spermatogenesis, structure of the spermatozoon, oogenesis, structure of the different types of ovarian follicles, egg membranes.
- Fertilization: sexual dimorphism, different stages of fertilization in animals, different types of eggs, parthenogenesis in animals.
- Introduction to descriptive embryology: different types of morulae, blastula and gastrula, neurulation, derivatives of ectoblast, mesoblast and endoblast.

004BIMAL2 Office Automation 2 Cr.

By the end of this course, students will be able to:
- Master Excel table construction, recognize data types, manipulate data, find appropriate functions, solve a logical problem.
- Master the writing of a large text in Word (research paper, dissertation) by learning how to use styles, add a table of contents, indexes, footnotes, etc.
- Create a PPT presentation, animate it, and present it while being aware of the basic rules to follow from the design of the slideshow to the preparation of the presentation.

004CHIAL3 Food Chemistry + PW 4 Cr.

By the end of this course, students will be able to:
- Recognize the functional properties of nutrients.
- Define the main sources of carbohydrates, lipids, proteins, vitamins and minerals.
- Identify food quality criteria.
- Master quality evaluation methods.
- Master all the unit operations of food processing.
- Master the fundamental concepts of food additives.
- Introduce the methods of treatment, preservation, and conservation of food.
- Study food packaging.
- Identify the various contaminants in the food chain and their risks to consumer health.
- Study the toxicology and pollution of food.
- Analyze food matrixes.

004CHIIL1 Analytical Chemistry + PW 3 Cr.

This course provides practical knowledge of qualitative and quantitative analytical techniques. It covers the entire chemical analysis process and reviews common laboratory practices such as solution preparation and dilution. Students will master essential laboratory procedures, including acid-base reactions, equilibrium constants, salt titrations, oxidation-reduction, precipitation, complexometric titration, and electrochemistry.

004CHAIL3 Instrumental Analytical Chemistry 3 Cr.

This course provides practical knowledge of instrumental analytical techniques and develops competencies needed to manage the full process of instrumental chemical analyses. It covers the operating principles and applications of various analytical instruments. Students will study chromatographic and spectrophotometric techniques used in food quality control and will develop methods for food characterization.

004CHGEL1 General Chemistry + PW 3 Cr.

By the end of this course, students will be able to:
- Determine the structure of an atom and count its constituent particles.
- Determine the electronic configuration of atoms.
- Understand the construction of the periodic table of elements and evaluate the properties of atoms.
- Count, based on the number of valence electrons, the number of bonds and their spatial orientation using the hybridization theory and the VSEPR theory.
- Determine the order of the reaction rate for a slow reaction and understand the effect of temperature on the evolution of the reaction rate.
- Distinguish an acid from a base and write the expression of an acidity constant Ka or a basicity constant Kb as a function of concentrations at chemical equilibrium. Classify acid-base pairs on a pKa scale to identify the strongest acid or the strongest base introduced into the medium.
- Draw a diagram showing the predominance of AH and A- species as a function of pH. Generalize this type of graph to polyacids and polybases.
- Apply the predominant reaction method. Quickly predict the existence of a favorable acid-base reaction, starting from an acidity scale. Calculate the equilibrium constant of an acid-base reaction from given data.

- Determine the final equilibrium state of simple systems and the pH expression.
- Understand the principle of a buffer solution and its applications in the medical field.
- Write the balance equation for the dissociation of a solid into its ions.
- Determine the solubility product and calculate it.
- Draw a diagram showing the existence or absence of a precipitate.
- Calculate the solubility of a solid and study the common ion effect on solubility.
- Distinguish between an oxidizing agent and a reducing agent. Balance a redox or reduction half-equation and a redox equation. Classify oxidizing/reducing couples on a standard potential scale to identify the strongest oxidizing and reducing agents introduced into the medium.
- Calculate the oxidation number of an atom in a polyatomic structure or a simple structure.
- Write the redox potential associated with an oxidizing-reducing couple using the Nernst equation.
- Calculate the equilibrium constant K of a redox reaction given certain values.
- Establish the redox reactions occurring in a battery and understand its functioning.

004CHIOL1 Inorganic Chemistry 1 Cr.

This course introduces inorganic chemistry, covering organometallic and bioinorganic compounds, covalent, coordination, ionic, and metallic bonds, and the properties, oxidation states, and reactivity of transition elements. It presents rules of nomenclature for inorganic compounds, including simple substances, ions, polyatomic cations and anions, oxanions, complex ionic compounds, ionic binary compounds, and oxoacids. Students will study transition metal complexes, including formulas, nomenclature, ligand types, chelate complexes, and complex isomerism, as well as theories of complex formation such as valence and crystal field theory, electronic configurations, the spectrochemical series, and biomedical applications like cisplatin, hemoglobin, and gadolinium as contrast agents.

004CQUEL1 Organic Chemistry 3 Cr.

By the end of this course, students will be able to:
- Apply nomenclature rules to simple and mixed-function organic compounds.
- Represent the three-dimensional structure of organic compounds from their planar developed formula.
- Distinguish between the different types of isomerism: structural, geometric, and optical.
- Apply the rules of stereoisomerism to organic compounds.
- Become aware of the impact of stereoisomerism on the pharmacological activity of enantiomers.
- Identify and characterize the electronic effects in an organic molecule.
- Recognize the different types of reagents: nucleophiles, electrophiles and radicals.
- Know the basic notions related to reaction mechanisms.
- Predict the reactivity of organic molecules.
- Determine the reactivity of simple functions such as alkanes, alkenes, alkynes, organomagnesiums, halogenated derivatives and alcohols, using the main types of reaction mechanisms: SN_1, SN_2, E_1, E_2.

004CUGEL1 Communication and Human Relations 3 Cr.

By the end of this course, students will be able to:
- Recognize and demonstrate better self-awareness.
- Develop existing interpersonal relationships.
- Manage more meaningful interpersonal relationships.
- Develop a context conducive to effective communication and better relationships with colleagues, supervisors, instructors, etc.
- Express their personality without provoking hostility while earning respect.
- Develop motivation and a desire to learn.

004CONTL2 Controversies in Nutrition I 3 Cr.

By the end of this course, students will be able to:
- Acquire basic notions, as well as the beneficial effects or drawbacks on the body of certain food components or certain diets during the different stages of life.
- Study the major characteristics, associated controversies, advantages and disadvantages, and the impact

in certain physiological cases or certain diseases of the Mediterranean diet, vegetarian diet, probiotics and prebiotics, sugar and artificial sweeteners, dietary lipids, phytochemicals, obesity, and popular diets.

004CONTL3 Controversies in Nutrition II 3 Cr.

By the end of this course, students will be able to:
- Specify the roles, sources, needs and nutritional value of certain food components, or certain diets in order to preserve health and prevent or treat certain diseases.
- Describe the effects of certain ingredients or diets during the life cycle on human health and during certain life situations.
- Argue what has been learned after reading and analyzing recent articles on the topics covered.
- Identify major controversies related to the topics covered.

004CEFIL1 Economic and Financial Culture 2 Cr.

This course covers fundamental notions in general economics.

004DPPRL2 Personal and Professional Development 2 Cr.

This course is designed to help students develop their competencies, deploy their potential to solve professional difficulties, and reflect on their professional future and advance in their career. It aims to mobilize the knowledge, know-how and interpersonal skills of academics by defining achievable short- and long-term objectives, in harmony with their expectations. The ultimate objective is to become proactive in identifying learning opportunities as well as engaging in a process of continuous learning and professional development.
In practice, this involves developing specific communication skills to successfully carry out the duties of a nutritionist:
- Develop oral and written communication skills, with professionals and the public, as well as in interdisciplinary teamwork.
- Identify different user profiles to better meet their needs in complex health, social and environmental situations, while respecting their differences and influences on their eating habits, lifestyles and expectations.
- Design materials (posters / scientific posters / PowerPoint presentations) to contribute to the nutritional education of specific audiences.

004DIABL5 Diabetes 1 Cr.

This course covers the following: pathophysiology and classification of glucose intolerance, diabetes diagnosis and screening, acute and long-term complications of diabetes, surgery and diabetes, diabetes prevention, diabetes and life stages, implementation of dietary self-management.

004ENDOL6 Endocrinology 1 Cr.

This course covers the following: regulation of hormone secretion, metabolism and hormonal dysfunction (adrenal cortex, adrenal medulla, sex glands, thyroid, hypothalamic-pituitary system).

004SAPDL5 SW Environment and Sustainable Development 1 Cr.

This course introduces food security, its components, and the nutritional challenges facing our planet.
Students will understand and analyze the concept of food security and the food policies applied in developed and developing countries, as well as their integration into global economic policies.

004GASTL6 Gastroenterology + SW 2 Cr.

This course covers the following:
- Dietetic therapy for disorders of the upper gastrointestinal tract: esophageal disorders, mouth and esophageal surgery, gastric disorders, gastric surgery.
- Dietetic therapy for disorders of the lower gastrointestinal tract: introduction, principles of nutritional care, common symptomatology of intestinal disorders, diseases of the small intestine, inflammatory bowel diseases, diseases of the large intestine, intestinal surgery.

004GENTL1 Genetics 3 Cr.

This course consists of the following:
- Introduction.
- Formal genetics: definitions
- Revision: probabilities, X test. Mendell's laws. Autosomal and X-linked heredity. Recombination and factorial map.
- Population genetics: Hardy and Weinberg's law. Inbreeding. Selection and equilibrium. Mutations and mutation rates.
- Chromosomal genetics: the human karyotype. Mitosis. Meiosis.
- Fertilization. Sexual differentiation. Zygote. Malformations.
- Evolution: Darwinism. Neo-Darwinism.
- Genetic fingerprinting.
- Pharmacogenetics.
- Genetic manipulation.

004GESTL4 Food Systems Management + SW 2 Cr.

This course provides students with knowledge of current food systems and the operational functions of food services, including menu planning, purchasing, warehousing, production, distribution, and service. Students will evaluate standard and periodic menus considering variety factors, estimate recipe and dish costs, and gain knowledge in food service management, including human resources, financial management, marketing, and leadership. They will apply principles of food safety, hygiene, cleaning, and security, and design food production systems, including premises, equipment, and utensils.

004HYPEL5 Hyperlipidemia 1 Cr.

This course covers the pathophysiology of dyslipidemia and cardiovascular diseases, including their etiologies, nutritional and behavioral aspects, their chronic nature, and their links with metabolic diseases and other components of metabolic syndrome.

004INNUL2 Introduction to Nutrition 4 Cr.

This course covers the following:
- Food choice and human health: introduction, disease prevention, the human body and food, the science of nutrition.
- Standards of a good diet: having a good diet, recommended intakes of essential nutrients, food groups, the Mediterranean diet, the controversial food pyramid, descriptive terms used on packaged food labels.
- Carbohydrates: sugar, starch, glycogen and fiber, introduction: photosynthesis and energy, sugars, polysaccharides, digestion and metabolism, medical problems and conditions related to CHO consumption, nutritional requirements, sugar and health problems, artificial sweeteners.
- Lipids, fats, phospholipids and sterols: introduction, fatty acids, triglycerides, other lipids, digestion and absorption, transport of lipids in the body (lipoproteins), links between dietary fats, cholesterol and health, revision of recommendations concerning fats, essential fatty acids, effect of agri-food industrial processes on unsaturated fats, fats in foods, fat substitutes.
- Proteins and amino acids: introduction, protein structure, digestion, body proteins, dietary sources, deficiency and excess, and malnutrition.

004INTCL4 Introduction to the Food Industry + SW 4 Cr.

By the end of this course, students will be able to:
- Recognize the concept of an agri-food supply chain.
- Distinguish the impact of the evolution of each link in the agri-food supply chain on the agri-food industry (AFI).
- Identify the agricultural and industrial realities in Lebanon, their constraints, and future prospects.
- Identify the principles, characteristics and constraints of an AFI.
- Diagram the different processes and flows within an AFI and their impact.
- Examine the differences between the major categories of food matrixes and their constraints in the AFI.
- Associate different industrial processes with desirable and undesirable modifications observed in food matrixes.
- Identify career opportunities in the agri-food world.

004INTAL3 Introduction to Foods 3 Cr.

This course provides in-depth knowledge of food composition, the specific properties of its constituents, and their nutritional benefits. Students will describe the main stages of the food manufacturing process, define food groups, understand nutritional balance, food guides, and dietary recommendations, and analyze various types of food claims, including low-fat, fortified, functional, and organic foods.

004MACRL3 Macronutrients I 2 Cr.

This course covers the following:

- Digestion, absorption, transport and excretion of macronutrients.
- Anatomy of the digestive tract: general mechanism of digestive tract physiology: digestion in the mouth, stomach and small intestine, regulators of digestion: autonomic nervous system and neurotransmitters, hormonal regulators. Mechanisms of absorption in the different parts of the digestive tract: absorption in the small intestine, passive transport or simple diffusion, active transport, pinocytosis. Digestion and absorption of nutrients: carbohydrates, proteins, lipids, movement of water and electrolytes. Factors influencing digestion: psychological factors, bacterial activity, effects of food preparation.
- Carbohydrates: definition and classification of carbohydrates; photosynthesis; biochemical classification; monosaccharides, disaccharides, sugar alcohols, oligosaccharides, polysaccharides; carbohydrate metabolism. Regulation of blood glucose: hormonal regulation, glycogenolysis, neoglucogenesis, lactic acid cycle (Cori cycle). Functions of carbohydrates in the body, dietary fiber: definition, nutritional classification (soluble and insoluble fiber), physiological characteristics of fiber: colon disease, cardiovascular disease, diabetes, obesity, kidney diseases, fiber in foods, recommended intakes – Dietary sources of carbohydrates: general tables, carbohydrates in the Lebanese diet.
- Lipids, fats, and oils: classification, functions and composition. Fatty acids: definition and structure, saturated, monounsaturated, polyunsaturated, essential fatty acids, metabolism of omega-3 fatty acids (EPA & DHA), omega-6 fatty acids (prostaglandins), trans fatty acid isomers.
- Triglycerides: physical and chemical properties (rancidity, hydrogenation, saponification), triglyceride synthesis (hormone regulation), triglyceride function. Phospholipids: lecithin, other phospholipids. Sterols: classification and structures, dietary and body cholesterol, functions of biliary cholesterol, bile acids. Synthetic lipids: MCT, structured lipids, lipid substitutes. Lipoprotein metabolism. Ketone bodies. Recommended intakes. Dietary sources of various fats and lipids.
- Proteins: definition and composition. Amino acids: definition and structure, classification, essential amino acids, amino acid metabolism. Protein structure and metabolism: synthesis, catabolism or proteolysis, regulation, protein metabolism in the postprandial phase, in the post-absorptive phase, during fasting, regulation of protein metabolism, protein renewal: balance between synthesis and degradation. Irreversible amino acid degradation or oxidative catabolism (urea cycle) - Means of exploring protein metabolism in vivo. Nitrogen and amino acid requirements. Dietary protein sources: contributions of animal and plant proteins, biological value of proteins, and chemical index.

004MCARL4 Macronutrients II 1 Cr.

This course covers the following:

Energy: definition. Components of energy expenditure: basal metabolic rate, measurement of basal metabolic rate, factors influencing basal metabolic rate. Resting energy expenditure (REE), physical activity, thermic effect of food. Measurement of body energy expenditure: direct and indirect calorimetry, measurement of food energy (calorimeter bomb). Calculation of energy expenditure in humans: REE, physical activity, thermal effect of food, total energy expenditure, energy from different nutrients, recommended energy intake. Energy balance regulation.

004MIINL6 Inborn Metabolic Diseases + SW 1 Cr.

This course enables students to:

- Explain the pathophysiology of major metabolic diseases and their implications for nutritional care.
- Plan and adapt specific dietary interventions tailored to patients with different metabolic diseases.
- Establish an appropriate nutritional follow-up plan after initial dietary management.

004MALRL6 Renal Diseases I + II 2 Cr.

This course consists of the folwoing:
- Revision of kidney physiology, function and diseases.
- Dietary management of different kidney diseases.

004MARKL4 Marketing: Tools and Application 2 Cr.

This course enables students to:
- Identify the different basic notions of marketing.
- Analyze the market and consumer behavior.
- Apply the marketing mix.

004MATTL1 Mathematics 2 Cr.

This course provides a foundational introduction to essential mathematical tools and techniques used in the biological sciences. The curriculum focuses on the application of mathematical concepts to model, analyze, and interpret biological phenomena.
- Numerical Functions: Exploration of functions and their properties, including limits, continuity, and differentiation, with applications to growth models and medical rates of change.
- Simple Integrals: Introduction to integration techniques and their applications, such as computing areas under curves and modeling accumulation processes like nutrient intake or population growth.
- Numerical Series: Study of series and convergence, including applications in approximating data and understanding long-term behavior in iterative models.
- Matrix Calculus: Application of matrix algebra to biological systems, including modeling age-structured populations, genetic inheritance, and life expectancy calculations using matrix population models.

004METHL4 Research Methodology 2 Cr.

By the end of this course, students will be able to:
- Understand the importance and purpose of scientific research.
- Differentiate types of study: experimental study, synthesis study, objective study, qualitative or quantitative study.
- Understand the different stages in the scientific research process.
- Use the database in the CSM computer lab.
- Establish the conceptual, analytical and empirical framework of a scientific study.
- Explore the different types of studies that govern scientific research.
- Manipulate the different measurement instruments that govern scientific studies.
- Be able to understand a scientific article, a review, and define the main steps of a scientific study.
- Know how to select the scientific articles that best correspond to the objectives and problem of a study.
- Know how to synthesize and write a synthetic study.
- Write bibliographic references in various styles: Vancouver, Harvard and digital formats, both within the text and at the end of the manuscript.
- Identify the dangers of plagiarism.
- Understand the ethical considerations that govern all scientific research.
- Communicate and write the results obtained during the research through an oral presentation and the writing of a synthetic research paper.

004BACAL3 Food Microbiology I 2 Cr.

This course enables students to:
- Study the fundamental principles of food microbiology to include its history, classifications, spores and their importance, and the most common pathogenic food microorganisms.
- Study the effects of microorganisms on food, foodborne illnesses and intoxication, as well as microbiological control techniques in the agri-food industry and in the environment.
- Discuss the contribution of viruses, bacteria and fungi to foodborne illness.
- Design experiments to identify and understand the behavior of microorganisms, interpret data and communicate results.

- Identify the various microbiological contaminants of the food chain.
- Categorize microbial detection and identification methods to analyze food quality and safety.

004MICGL3 Food Microbiology II 2 Cr.

By the end of this course, students will be able to:
- Diagnose food alterations of microbiological origin (toxicity, reduced technological aptitude, compromised organoleptic quality).
- Determine the agents that caused the alterations in consumer health (bacteria, viruses, fungi, parasites).
- Identify the different microbiological contaminants of the food chain and their associated health risks for consumers.
- Identify the factors that have led to microbiological alterations (raw materials, storage and preservation conditions, handling).
- Prevent these alterations by controlling the contributing factors.
- Implement measures to manage the risk of foodborne illness.

004INMTL4 Micronutrients + SW 4 Cr.

This course introduces micronutrients and explains their roles in various metabolic processes. Students will study the risks of toxicity and deficiencies and identify dietary sources. The course covers minerals—including calcium, phosphorus, sodium, chloride, potassium, and magnesium—focusing on their metabolism, function, requirements, deficiencies, recommended intakes, and food sources. It also addresses trace elements such as iron, zinc, iodine, copper, selenium, chromium, fluorine, and manganese, as well as vitamins: fat-soluble (A, D, E, K) and water-soluble (C, B1–B12), including their structure, metabolism, function, needs, deficiencies, recommended intakes, dietary sources, and enriched foods.

004EOPLL2 Ethics, Professional Orientation and Legislation 2 Cr.

This course covers the following:
- Introduction to the Lebanese legislative system: the 3 branches of government, laws, decrees, ministerial orders and circulars.
- The law governing the practice of dietetics.
- The decrees that organize the colloquium exams for dietitians.
- The decrees regulating the commerce, manufacturing, storage, and sale of dietary supplements and food complements.
- Career orientation: food and health engineering, professions in human nutrition, sports nutritionist, and the fields of food technology, marketing, and food safety and quality control.

004NUTAL4 Nutrition in the Life Cycle 2 Cr.

This course covers the following:
- Life: revision about the nutritional needs of the body.
- Nutrition for newborns and infants: some data on growth, nutritional needs of newborns, role of breast milk in newborn nutrition, different infant formulas.
- Nutrition for adolescents: increased nutritional needs, the “fast food” phenomenon, body image and weight loss diets, acne and its dietary causes.
- Adult nutrition.
- Nutrition for pregnant and breastfeeding women: nutritional challenges during pregnancy, possibility of pregnancy without weight gain, the caloric cost of having a baby, needs of a pregnant woman, digestive disorders.
- Nutrition for the elderly: aging, what, when, and how: aging of the senses, appetite, digestive and metabolic functions. Special situations.
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004NUCOL5 Community Nutrition 3 Cr.

By the end of this course, students will be able to:
- Define the role of community nutrition in the workplace within society.
- Identify health problems related to the nutrition of specific groups.
- Evaluate the nutritional needs of target populations.

- Recognize the particularities of each population category, to better intervene, communicate and implement nutritional strategies and recommendations.
- Use statistics to better target populations, different methods for evaluating needs, eating habits and dietary intakes.

004NEPAL5 Enteral and Parenteral Nutrition 2 Cr.

By the end of this course, students will be able to:
- Plan, prescribe, and evaluate an artificial nutritional support plan, enteral and parenteral, for different pathological cases, including intensive care patients.
- Describe the mechanisms of metabolic stress and its consequences.
- Identify and manage advanced surgical cases requiring an artificial nutrition plan.
- Discuss and evaluate the role of therapeutic nutrition in a multidisciplinary framework.
- Describe the international protocols and recommendations concerning artificial, enteral, and parenteral nutrition.

004NSPUL2 Nutrition and Public Health 2 Cr.

This course develops students' competencies in public health by enabling them to analyze selected texts as an introduction to the field. Students will apply an interactive approach, including class discussions and presentations, to find solutions to public health problems. They will learn to transpose public health concepts into specific health promotion and prevention interventions, such as nutritional security campaigns, media health regulation, and national nutrition policies. Students will also be able to understand and evaluate disease prevention and health promotion programs aimed at changing lifestyle habits based on solid conceptual foundations.

004NUGEL6 Geriatric Nutrition + SW 2 Cr.

This course enables students to provide nutritional care for an elderly person and propose a diet adapted to their living situation and health condition in order to increase the chances of successful aging.

004NHEPL6 Hepatological Nutrition + SW 2 Cr.

By the end of this course, students will be able to:
- Understand the notion of hepatic metabolic syndrome in relation to the general metabolic syndrome.
- Determine the different characteristics of certain hepatic diseases, their diagnosis, and the associated metabolic and clinical complications.
- Know the appropriate dietary and clinical treatment.

004NUTPL5 Obesity and Metabolic Syndrome 3 Cr.

This course covers the pathophysiology of obesity, its etiology, its nutritional and behavioral aspects as a chronic disease, its links with metabolic diseases and other components of the metabolic syndrome.

004OSTEL6 Osteoporosis 1 Cr.

By the end of this course, students will be able to:
- Explain bone metabolism and its evolution with age.
- Identify pathologies associated with bone mass loss, including osteoporosis, and their nutritional and non-nutritional risk factors.
- Understand the diagnostic methods of osteoporosis, particularly bone densitometry.
- Discuss nutritional recommendations for the prevention and treatment of osteoporosis.
- Describe the main pharmacological treatments and their interactions with diet.
- Propose an appropriate nutritional plan for individuals at risk of or affected by osteoporosis.

004PEDIL6 Pediatrics + SW 2 Cr.

By the end of this course, students will be able to:
- Describe the nutritional needs of newborns, infants, children, and adolescents, and propose an appropriate diet for each stage.
- Explain the principles of breastfeeding, weaning, and complementary feeding.

- Identify children at nutritional risk using validated tools (growth charts, anthropometric measures).
- Diagnose major nutritional disorders and pathologies in pediatrics and propose appropriate management.
- Recognize the pediatric manifestations of food allergies and describe the principles of their nutritional treatment.
- Describe the causes, prevention, and nutritional management of acute and chronic diarrhea in children.
- Raise awareness among parents and target groups about the links between diet and child health, and promote a healthy lifestyle.

004PHYNL5 Sports Physiology and Nutrition 3 Cr.

By the end of this course, the student should be able to:
- Understand the basics of sports physiology.
- Explain the role and importance of nutrition in the development of performance in high-level athletes.
- Compare the dynamics and contribution of each macronutrient during different types of physical exercise.
- Describe the composition and timing of meal administration for high-level athletes.
- Identify the different methods for estimating energy expenditure.

004PRLIL5 Bachelor Project 4 Cr.

This course enables students to:
- Design a scientific research protocol.
- Prepare a literature review.
- Develop a research problematic.
- Formulate a scientific hypothesis.
- Select appropriate tools for data collection (questionnaires, anthropometric measurements, animal studies).
- Recruit participants and collect data.
- Analyze data (statistical software).
- Interpret data and results.
- Write a manuscript.
- Design a PowerPoint presentation to communicate results.
- Orally defend the results of the Bachelor Project.

004PIALL5 Project in Food Innovation 2 Cr.

This course guides students in the research and development of a food product according to defined dietary criteria. Students will apply required organoleptic tests and create appropriate packaging, following guidelines for labeling, nutrition facts for nutrients and calories, and permitted dietary claims.

004PHSYL6 Psychology of Nutrition and Eating Disorders + SW 3 Cr.

By the end of this course, students will be able to:
- Understand the basics of family, cultural, and psychological interactions, and their impacts on eating behavior in order to better implement changes in dietary habits.
- Understand psychological concepts such as body image and narcissism in order to better understand the roots of emotional and self-esteem difficulties in patients.
- Master clinical interviewing and gather information related to the patient's personal history as well as the current context of their disorder in order to better create an individualized therapeutic approach.
- Build a strong trusting relationship and therapeutic alliance with the patient based on empathy and containment in order to increase adherence to nutritional advice.
- Detect EDs, and manage cases while working with a multidisciplinary team.
- Learn how to combine knowledge of nutrition and psychology to tackle different research topics.
- Provide nutritional care for individuals with an ED (anorexia nervosa and bulimia).

004RSSAL4 Food Rules, Standards and Safety 3 Cr.

By the end of this course, students will be able to:
- Master good manufacturing practices for food production systems.
- Apply the food safety management system throughout all the food production chain.

- Identify the different chemical, physical and microbiological contaminants in the food chain and their risks to human health.
- Implement food risk management measures.
- Maintain a management, prevention and control system to guarantee food safety.
- Study food regulations.
- Apply HACCP and ISO quality assurance standards.
- Master food standards.
- Take a legislative approach to food.

004SECNL4 First Aid 2 Cr.

This course covers the following:
- History of the Red Cross and its organization.
- Emergency care and procedures to follow in various scenarios.

004SEMPL6 Pathological Semiology 2 Cr.

This course focuses on the study and interpretation of clinical signs and symptoms of common diseases and their treatments. It includes discussion of major medical syndromes, with emphasis on their clinical manifestations, detailed complications, and available therapeutic approaches. Special attention is given to medical semiology, physical examination, and the practical pharmacology of diseases. The course is delivered with a synthetic approach, helping students connect various clinical aspects in a coherent manner.

004SOINL5 Nutritional Care + SW 4 Cr.

By the end of this course, students will be able to:
- Identify hospitalized patients at risk of malnutrition or who are malnourished.
- Evaluate the nutritional status of hospitalized patients.
- Complete a dietary care file.
- Conduct a dietary survey in order to establish diets tailored to the patients' needs.
- Establish a dietary care plan tailored to the patient's clinical condition.
- Provide dietary follow-up.
- Exchange information with different caregivers (healthcare team).
- Evaluate the effectiveness and tolerance of nutritional care.

004STIPL2 Professional Integration Internship I + 1 Cr.
004STPRL4 Professional Integration Internship II 1 Cr.

By the end of this course, students will be able to:
- Identify the various job duties of a dietitian in different departments of the dietetic service in a hospital setting and in catering.
- Define the role of a food science technician in the work field of a food industry.
- Describe nutritional products and supplements, including their marketing and sales.
- Describe the sales and marketing work of nutritional products.
- Visualize the work of a dietitian and quality controller in the field of collective catering and meal production.
- Describe the work in a fitness center and sports center.
- Manage communication with potential employers.
- Practice professional engagement with potential employers.

004BIOQL4 Statistics and Biostatistics 3 Cr.

This course covers the following:
- Utility and areas of application of biostatistics in pharmaceutical sciences.
- Sample and population.
- Types of variables.
- Forms of distribution and normal distribution.
- Sampling fluctuations.
- Confidence interval.

- Null hypothesis and alternative hypothesis.
- Alpha and beta risk of error, statistical power and p-value.
- Parametric and non-parametric statistical tests.
- Phases of drug development in the pharmaceutical industry, methodological principles in clinical research, ethical and regulatory considerations in clinical research, and the role of biostatistics in clinical research.
- Methodological principles in clinical research (cohort, case-control, prospective, retrospective, etc.).
- Risk indicators (prevalence, incidence, mortality, etc.).
- Association indicators (odds ratio, relative risk, etc.).

004TDCTL4 SW Therapeutic Cuisine 1 Cr.

This course covers the following:
- "Cooking workshops" sessions for dietetic dishes that are low in calories or with better nutritional quality, under the guidance of a chef and a dietitian.
- Application of the acquired notions in food safety during the preparation of dishes.
- Selection of suitable ingredients according to the dishes decided by the team.
- Setting up a purchase order based on the quantity of ingredients needed in a menu.
- Calculation of the nutrient and calorie content of the initial and reduced-fat dishes.
- Preparation of brochures with recipes and nutritional advice according to the theme being worked on (chronic diseases, cancer, etc.).

004TDDIL5 SW Diabetes 1 Cr.

By the end of this course, students will be able to:
- Describe the different therapeutic approaches in the treatment of diabetes: oral and injectable medication.
- Recognize the impacts of nutrition in the treatment of diabetes.
- Adapt ideal weight formulas, energy requirements and other anthropometric measurements to the diabetic diet.
- Apply the exchange system for the formulation of diets in a diabetic diet.
- Prepare suitable menus for diabetic patients.

004TDECL4 SW Exchange System for Meal Planning 2 Cr.

By the end of this course, students will be able to:
- Acquire fundamental notions of the application of the Exchange System for Meal Planning.
- Formulate diets in specific life situations for healthy people.
- Formulate preventive diets against certain diseases.
- Calculate basic energy requirements and macronutrient distribution for an individual diet and for the various case studies presented and corrected in class.
- Learn the food exchange table for all food groups.
- Know the weight and portions of foods in the exchange groups.
- Prepare a file for various Lebanese and other dishes, according to the exchange system.
- Prepare lists of healthy snacks according to the exchange system.
- Apply basic notions acquired in therapeutic diets according to case studies.
- Estimate the quantity of calories, macronutrients and fiber in the different diets worked on in class.
- Determine the micronutrient needs for certain categories of people in specific life situations.

004NCEDL5 SW Community Nutrition I 1 Cr.

By the end of this course, students will be able to:
- Develop and structure a nutritional intervention.
- Develop educational tools and means of intervention tailored to the target groups.
- Develop communication skills.
- Evaluate the performed interventions.
- Manage the different aspects of the intervention.

004TDCEL5 SW Community Nutrition II 1 Cr.

By the end of this course, students will be able to:
- Apply theoretical knowledge in therapeutic dietetics to a large non-academic public, outside of an academic setting.
- Disseminate knowledge to a population eager to learn, while adopting an active and professional approach.
- Experiment with communication skills.
- Convey a message using appropriate media.
- Manage an audience.
- Answer specific and sometimes unexpected questions using appropriate vocabulary.
- Implement dietary recommendations specific to certain diseases, in a familiar language (in Arabic), while maintaining a scientific approach.

004TDNUL2 SW Fundamental Nutrition 2 Cr.

By the end of this course, students will be able to:
- Gain a better understanding of foods, their physical, chemical, and organoleptic properties, and their classification according to their nutritional profiles.
- Understand the transformation of nutrients during different culinary manipulations in order to better handle ingredients in culinary preparations to optimize health outcomes.
- Estimate portion sizes for each food group, using the "Food Equivalents" system.
- Estimate the dietary and nutritional intake for different categories of individuals according to "MyPlate."
- Estimate the composition of commonly consumed dishes in terms of food groups.
- Classify foods according to international standards: "light/reduced, rich or poor in nutrients" and understand their impact on health.

004TDOSL5 SW Obesity and Metabolic Syndrome 2 Cr.

By the end of this course, students will be able to:
- Transform basic notions acquired in theory into individualized therapeutic diets in the management of obesity and poly-metabolic syndrome (MCV, HTA).
- Master the formulas for calculating ideal weight, corrected weight, energy requirements and other anthropometric measurements using different formulas and other techniques.
- Apply the exchange system for diet formulation.
- Prepare guides and adapted menus for obese, hypertensive and cardiac patients.
- Identify suitable supplements and the role of pharmacological therapy in the management of these diseases.
- Learn about the different types of morbid obesity surgery and their dietary management.
- Know the effects of different food ingredients on lipid parameters.
- Master and apply the principles of the DASH and TLC diets.

004REBLL4 SW Bibliographical Research 2 Cr.

This course enables students to:
- Conduct bibliographic research on the web using acceptable scientific references.
- Select the scientific articles that best correspond to the research objectives.
- Correctly write references according to standards.
- Strengthen the means of communication with the public.
- Interpret the methodology and results of the studies presented.
- Argue acquired knowledge based on the reading and analysis of recent articles on the subjects discussed.
- Write an introductory document for the literature review of the Bachelor's project.
- Know how to interpret the methodology and results of the presented studies.

004TCOEL2 Oral and Written Communication Techniques 2 Cr.

This course helps students develop ease and efficiency in oral and written communication. Work sessions explore techniques for presenting oneself before a jury, delivering oral presentations, creating PowerPoint presentations, and performing methodical demonstrations. Students will also practice writing emails, CVs, cover letters, reports, and minutes, and learn how to cite sources in research articles.

004TECAL5 Food Technology + SW 4 Cr.

This course teaches students the scientific principles governing food transformations. Students will distinguish the stages of a manufacturing process and their objectives, identify scientific, technical, economic, and commercial constraints, and recognize the specific characteristics of different food matrices and processing methods. The course also addresses the industry challenge of balancing technological limitations, consumer demands, and quality and safety regulations. Company visits provide practical experience, allowing students to evaluate Lebanese agri-food industries, interact with industrialists, observe daily operations, and visualize the technical and process elements discussed in class.

004TPACL1 PW Culinary Art 3 Cr.

This course enables students to:

- Understand culinary basics by trying out suggested recipes by the chef in charge.
- Prepare menus by incorporating balanced dishes.
- Identify the quantities of ingredients and the distribution of portions according to recipes.

004TPPLL4 PW Lebanese Terroir 1 Cr.

This course enables students to:

- Recognize local products on an international level.
- Identify the criteria defining a local product.
- Identify the geoeconomic and cultural impact of a local product.
- Recognize the different labels, their criteria, and their impacts.
- List the potential Lebanese local products eligible for labeling.
- Select a local product and design a labeling strategy while confronting the real-life difficulties associated with such an approach.
- Present and defend one's strategy in front of a jury.
- Provide an overview of local products while adopting a conceptual, theoretical, and practical field-based approach

435LALML2 Arabic Language and Media 2 Cr.

This course provides students with an engaging and flexible way to explore the Arabic language and its rich culture. It offers insights into the use of Arabic in various forms of media, including visual, audio, and written journalism, as well as in advertisements across these formats. Through this course, students will develop practical linguistic skills in both oral and written communication, enhancing their proficiency and appreciation of the language.

064VALEL1 USJ Values in Daily Life 2 Cr.

This course aims to raise students' awareness of the fundamental values of the Saint Joseph University of Beirut.