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.
- Have in-depth knowledge of food composition and nutritional benefits.
- Identify individuals at nutritional risk based on validated screening tools.
- Diagnose nutritional pathologies and disorders based on a global evaluation.
- Design individualized, well-balanced preventive diets based on the rules of nutrition, and set up a nutritional follow-up plan after dietary treatment according to the patient's history, medical records, laboratory tests and other diagnostic tests.
- Describe the main stages in the food manufacturing process.
- Design 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.
- Participate 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 (138 credits), Open elective courses (6 credits), USJ General Education Program (36 credits).

USJ General Education Program (36 Cr.)
English (4 Cr.)
English (4 Cr.)

Arabic (4 Cr.)
Arabic Culture and Language (2 Cr.):
Arabic Language and Media (2 Cr.)

Courses Taught in Arabic (2 Cr.):
SW Community Nutrition I (1 Cr)
SW Community Nutrition II (1 Cr)

Humanities (10 Cr.)
Ethics (4 Cr.)
Nutrition and Public Health (2 Cr.)
Ethics, Professional Orientation and Legislation (2 Cr.)
Volunteering and Active Citizenship (1 Cr.)
SW Environment and Sustainable Development (1 Cr.)
Other (5 Cr.)
Psychology of Nutrition and Eating Disorders + SW (3 Cr.)
USJ Values (2 Cr.)

Social Sciences (6 Cr.)
Professional Integration and Entrepreneurship (2 Cr.)
Personal and Professional Development (2 Cr.)
Other (4 Cr.)
Economic and Financial Culture (2 Cr.)
Marketing: Tools and Application (2 Cr.)

Communication Techniques (5 Cr.)
Oral and Written Communication Techniques (2 Cr.)
Communication and Human Relations (3 Cr)

Quantitative Research Techniques (7 Cr.)
Statistics and Biostatistics (3 Cr.)
Office Automation (2 Cr.)
Mathematics 2 (2 Cr.)

Fundamental Courses (138 Credits)
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 I + 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.) Research Methodology (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.) Food Innovations Project (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 (1 Cr.) Professional Integration Internship (1 Cr.) SW Therapeutic Cuisine (1 Cr.) SW Diabetes (1 Cr.) SW Food Exchanges (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 Products (1 Cr)

Open Elective Courses (6 Cr.)

SUGGESTED STUDY PLAN

Semester 1

Code	Course Name	Credits
004BICLL1	Cell Biology	2
004BIOCL2	Structural Biochemistry	3
004BIMAL2	Office Automation	2
004CHIIL1	Analytical Chemistry I + PW	3
004CHGEL1	General Chemistry + PW	3
004CHIOL1	Inorganic Chemistry	1
004CUGEL1	Communication and Human Relations – closed elective course	3
004CEFIL1	Economic and Financial Culture	2
004DPPRL2	Personal and Professional Development	2
004MATTL1	Mathematics	2
004TPACL1	PW Culinary Arts	3
	Arabic Language and Media	2
	Open Electives offered by the Sports Office at USJ	2
	Total	**30**

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
004LOPRL2	Ethics, Professional Orientation and Legislation	2
004GÉNTL1	Genetics	3
004INNUL2	Introduction to Nutrition	4
004NSPUL2	Nutrition and Public Health	2
004SWNUL2	SW Fundamental Nutrition	2
004TCOEL2	Oral and Written Communication Techniques	2
	Open Electives offered by the Sports Office at USJ	2
	Total	**29**

Summer Term 1

Code	Course Name	Credits
004STIPL2	Professional Integration Internship	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 1	2
004BACAL3	Food Microbiology I	2
004MICGL3	Food Microbiology II	2
064VALEL1	USJ Values	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
004MARKL4	Marketing: Tools and Application	2
004METHL4	Research Methodology	2
004INMTL4	Micronutrients + SW	4
004NUTAL4	Nutrition in the Life Cycle	2
004RSSAL4	Food Rules, Standards and Safety	3
004BIOQL4	Statistics and Biostatistics II	3
004SWECL4	SW Food Exchanges	2
004SECOS3	First Aid	2
	Total	**27**

Summer Term 2

Code	Course Name	Credits
004STPRL4	Professional Integration Internship	1
004SWCTL4	SW Therapeutic Cuisine	1
004TPPLL4	PW Lebanese Products	1
004REBLL4	SW Bibliographical Research	2
	Total	**5**

Semester 5

Code	Course Name	Credits
004DIABL5	Diabetes	1
004SAPDL5	Environment and Sustainable Development	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	Food Innovations Project	2
004SEMPL6	Pathological Semiology	2
004PROJL6	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
004ENDOL6	Endocrinology	1
004GASTL6	Gastroenterology + SW	2
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 Electives	2
	Total	**24**

COURSE DESCRIPTION

004ANPHL2 Human Anatomy and Physiology I 4 Cr.

- 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.

- 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. Upper 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. Muscles of the upper 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.

- Oncological diseases: definition, neoplasms, metastases, carcinogenesis, phases of carcinogenesis. Nutrition, an important factor in cancer etiology. Nutritional effects of cancer. Nutritional effects of cancer therapy. Nutritional care of cancer patients.
- Anemias: iron-related blood disorders, megaloblastic anemias, other nutrition-related anemias, non-nutrition-related anemias.

004ANGLL3 English 4 Cr.

Foreign Language.

004BIOML6 Metabolic Biochemistry 3 Cr.

- 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, glycogenogenesis, regulation of glucose metabolism.
- Pentose phosphate pathway.
- Lipids lipogenesis 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.

- 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, proteins.
- Nucleic acids: purine and pyrimidine bases, nucleosides, nucleotides, polynucleotides. Hydrolysis of polynucleotides. Other nucleotides.

004BICLL1 Cell Biology 2 Cr.

- 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. Conclusion.

004BIOGL1 General Biology 2 Cr.

- 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.

- 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.

- 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.
- Application at the level of food matrixes.

004CHIIL1 Analytical Chemistry I + PW 3 Cr.

- Provide practical knowledge on qualitative and quantitative analytical techniques.
- Acquire the competencies covering the entire chemical analysis chain.
- Recall common laboratory techniques (solution preparation, dilution, etc.).
- Master the basic manipulations in a chemistry laboratory (acid alkalinity, acid-base reactions, equilibrium constant, salt titrations, oxide-reductimetry, precipitation, complexometry, electrochemistry).

004CHAIL3 Instrumental Analytical Chemistry 3 Cr.

- Provide practical knowledge on instrumental analytical techniques.
- Acquire the competencies needed to cover the complete chain of instrumental chemical analyses.
- Master the operating principle of different analytical instruments as well as their potential applications.
- Development of food characterization methods.
- Study of the different chromatographic and spectrophotometric analytical techniques used in food quality control within food technology.

004CHGEL1 General Chemistry + PW 3 Cr.

- 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.

- Introduction to inorganic chemistry: organometallic and bio-inorganic compounds, covalent, coordination, ionic and metallic bonds, transition elements (properties, D.O., reactivity).
- Rules of nomenclature for inorganic compounds: simple pure bodies, ions, polyatomic cations, anions, oxanions, polyatomic anions, complex ionic compounds, ionic binary compounds, oxoacids.
- Transition metal complexes: formula, nomenclature, types of ligands, chelate complexes, isomerism of complexes.
- Transition metal complex formation theories: valence theory and crystal field theory, electronic configuration, spectrochemical series, biomedical applications: cis-platinum, hemoglobin, gadolinium as contrast agents.

004CQUEL1 Organic Chemistry 3 Cr.

- 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 stereoisomerism impact 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.

- 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, teachers, etc.
- Be able to express one's own personality without arousing the hostility of those around them, while earning respect.
- Arouse the students' motivation and the desire to learn.

004CONTL2 Controversies in Nutrition I 3 Cr.

- Acquire basic notions, as well as the beneficial effects or drawbacks on the body of certain food components or following 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.

- Specify the roles, sources, needs and nutritional value of certain food components, or the following of 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.
- Argument 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.

Fundamental notions in general economics.

004DPPRL2 Personal and Professional Development 2 Cr.

This course is designed to help students develop their competencies and deploy their potential to solve professional difficulties. This course is aimed at anyone wishing to 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.

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.

Regulation of hormone secretion, metabolism and hormonal dysfunction (adrenal cortex, adrenal medulla, sex glands, thyroid, hypothalamic-pituitary system).

004SAPDL5 Environment and Sustainable Development 1 Cr.

- Introducing the notion of food security, its components, and the nutritional challenges facing our planet.
- 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.

- 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.

- 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.

- Have knowledge of the different current food systems.
- Have knowledge of the different food service operational functions (menu preparation, purchasing, warehousing, production, distribution and service).
- Evaluate standard and periodic menus while respecting different variety factors.
- Estimate the cost of recipes and dishes.
- Have knowledge in food service management (human resources, financial management, marketing, leadership).
- Apply the principles of food safety, hygiene, cleaning, and security in food services.
- Design food production systems, including premises, equipment and utensils.

004HYPEL5 Hyperlipidemia 1 Cr.

The pathophysiology of dyslipidemia, cardiovascular diseases, its etiologies, its nutritional and behavioral aspects, as a chronic disease, its links with metabolic diseases and other components of the metabolic syndrome.

004INNUL2 Introduction to Nutrition 4 Cr.

- 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, HCO digestion and metabolism, medical problems and conditions related to HCO consumption, HCO requirements, sugar and health problems, artificial sweeteners.
- Lipids, fats, phospholipids and sterols: introduction, fatty acids, triglycerides, other lipids, digestion and absorption of lipids, 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, protein digestion, body proteins, dietary proteins, protein deficiency and excess, where to find proteins in food.

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

- 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 + PW 3 Cr.

- Have an in-depth knowledge of food composition, the specific properties of their constituents, and their nutritional benefits.
- Describe the main stages of the food manufacturing process.
- Define food groups, the concept of nutritional balance, food guides and nutritional recommendations.
- Analyze the different types of food claims, low-fat and fortified foods, functional foods and organically grown foods.

004MACRL3 Macronutrients I 2 Cr.

- 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: lecithins, 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.

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.

Dietary management of the main inborn metabolic diseases such as phenylketonuria, tyrosinemia, lactose, fructose, sucrose and galactose intolerance, Wilson's, Gaucher's, Fabry's and Pompe's diseases, leukodystrophy and cystinosis.

004MALRL6 Renal Diseases I + II 2 Cr.

- Revision of kidney physiology, function and disease.
- Dietary management of different kidney diseases.

004MARKL4 Marketing: Tools and Application 2 Cr.

- Identify the different basic notions of marketing.
- Analyze the market and consumer behavior.
- Apply the marketing mix.

004MATTL1 Mathematics 2 Cr.

- Numerical functions: Weiss' law. Hemoglobin saturation curve. Enzymatic reaction rate. Limited developments.
- Simple and generalized integrals: application. Respiratory loop work. Cardiac output. Generalized integrals of 1st and2nd kind.
- Transcendental functions: logarithm, exponential, hyperbolic and power functions. Basics of logarithms. Renal elimination: hemikrese.

004METHL4 Research Methodology 2 Cr.

- Understand what university research is and the purpose of any university study.
- Know the different types of study: experimental study, synthesis study, objective study, qualitative or quantitative study.
- Understand the different stages in the scientific research process.
- Know and be able to introduce the database to the CSM computer lab.
- Establish the conceptual, analytical and empirical framework of a scientific study.
- Know the different types of studies that govern scientific research.
- Know the different measurement instruments that govern scientific studies.
- Be able to understand a scientific article, a review, and know 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 the three styles: Vancouver, Harvard and digital-illiterate within the corpus and at the end of the manuscript.
- Know the dangers of plagiarism.
- Know 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.

- 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 in order to analyze food quality and safety.

004MICGL3 Food Microbiology II 2 Cr.

- 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.

- Introduce micronutrients and explain their respective roles in different metabolisms.
- Study the risks of toxicity and deficiencies and mention their dietary sources.
- Minerals: calcium, phosphorus, sodium, chloride, potassium, magnesium.
- Metabolism, function, needs, deficiencies, recommended intakes, food sources.

- Trace elements: iron, zinc, iodine, copper, selenium, chromium, fluorine, manganese.
- Vitamins: fat-soluble vitamins (ADEK) and water-soluble vitamins (C, B1 - B12). Structure, metabolism, function, needs, deficiency, recommended intake, dietary sources, and foods enriched with vitamins.

004LOPRL2 Open Elective course: Ethics, Professional Orientation and Legislation 2 Cr.

- 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, fields of food technology, marketing, and food safety and quality control.

004NUTAL4 Nutrition in the Life Cycle 2 Cr.

- 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, is it possible to have a pregnancy without weight gain, the caloric cost of having a baby, needs of a pregnant woman, what to do about digestive disorders.
- Nutrition for the elderly: aging, what, when, and how: aging of the senses, appetite, digestive and metabolic functions. Special situations.

004NUCOL5 Community Nutrition 3 Cr.

- 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, in order to better intervene and communicate.
- Use statistics to better target populations, different methods for evaluating needs, eating habits and dietary intakes.

004NEPAL5 Enteral and Parenteral Nutrition 2 Cr.

- Develop competencies 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 contributes to the following competencies:

- Read in-depth and critique a coherent set of selected texts that can serve as an introductory basis for what public health is.
- Enable learners to find their own solutions to public health problems more easily by applying an interactive approach (class exchanges, student presentations, etc.).
- Learn how to transpose the concepts of public health reasoning into the framework of more specific health promotion and prevention interventions such as awareness campaigns for nutritional security and sustainable development, major trials in the regulation of media health messages, national nutrition policies, etc.
- Be able to understand and evaluate a disease prevention and/or health promotion program aimed at changing lifestyle habits based on solid conceptual foundations.

004NUGEL6 Geriatric Nutrition + SW 2 Cr.

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.

- 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.

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.

Pathologies of bone loss, factors involved, screening methods and therapeutic management.

004PEDIL6 Pediatrics + SW 2 Cr.

Provide nutritional care for newborns, infants, children, and adolescents and propose a diet adapted to their health condition.

004PHYNL5 Sports Physiology and Nutrition 3 Cr.

This is a course that 3rd-year nutrition and dietetics students must take as part of their university curriculum.
This course is an essential part of a dietician's basic educational program. It is an opportunity for specialization in sports nutrition.
This course is a mandatory prerequisite for the Master in Sports Nutrition and Physiology at FP, USJ.
This course contributes to broadening the range of dietary management competencies, and complements the courses on dietary management of obesity and various pathologies (therapeutics).
This course therefore contributes to developing the multidisciplinary competencies of a dietitian that they will have acquired upon completion of the educational program.

004PROJL6 Bachelor Project 4 Cr.

- Design a scientific research protocol.
- Prepare a literature review.
- Develop a 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 Food Innovations Project 2 Cr.

Research and development of a food product according to defined dietary criteria. Application of the different required organoleptic tests. Creation of suitable packaging, following the guidelines regarding labeling, the nutrition facts table for nutrients and calories, in addition to permitted dietary claims.

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

- Understand the basics of family, cultural, and psychological interactions, and their impacts on eating behavior in order to better implement changes in dietary habits.
- Familiarize oneself with psychological concepts such as body image and narcissism in order to better understand the roots of emotional and self-esteem difficulties in patients.
- Be sensitized to clinical interviewing and to 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, manage and work with a multidisciplinary team in the framework of eating disorders.
- 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 3Cr.

- 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.

004SECOS3 First Aid 2 Cr.

- History of the Red Cross and its organization.
- Study of emergency care and procedures to follow in various scenarios.

004SEMPL6 Pathological Semiology 2 Cr.

Pathological Semiology.

004SOINL5 Nutritional Care + SW 4 Cr.

- 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 (1 Cr.) + 004STPRL4 Professional Integration Internship (1 Cr.)

- 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 and their 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 engaging with potential employers.

004BIOQL4 Statistics and Biostatistics II 3 Cr.

- 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.

- "Cooking workshops" sessions for dietetic dishes, 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.

- 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 Food Exchanges 2 Cr.

- Acquire fundamental notions of the application of the Exchange System for Meal Planning.
- Formulate of diets in specific life situations for healthy people.
- Formulate of 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 Community Nutrition I 1 Cr.

- 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 Community Nutrition II 1 Cr.

- Apply one's theoretical knowledge in therapeutic dietetics to a large non-academic public, outside of an academic setting.
- Disseminate one's knowledge to a population eager to learn, while adopting an active and professional approach.
- Experiment with one's 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.

SW Fundamental Nutrition

004TDOSL5 SW Obesity and Metabolic Syndrome 2 Cr.

- 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 write about the DASH and TLC diets.

004REBLL4 SW Bibliographical Research I 2 Cr.

- 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.
- Argument one's acquired knowledge based on the reading and analysis of recent articles on the subjects discussed.
- Write a document.
- Know how to interpret the methodology and results of the presented studies.

004TCOEL2 Oral and Written Communication Techniques Cr.

During this course, students acquire ease and efficiency in oral and written communication. Work sessions allow for the exploration of different communication techniques in order to present oneself before a jury, succeed in an oral presentation, a PowerPoint presentation, and a methodical demonstration. The writing of emails, CVs, cover letters, reports, and minutes will also be covered, after which students will be introduced to citing resources in research articles.

004TECAL5 Food Technology + SW 4 Cr.

- Master the scientific elements governing food transformations.
- Distinguish between the different stages of a manufacturing diagram and the objective of each of these stages.
- Identify the scientific, technical, economic, and commercial constraints associated with different food transformations.
- Identify the specific characteristics of each food matrix and processing method.
- Recognize the industry dilemma between technological restrictions, consumer demands and quality and safety regulations.

Company visits carried out as part of the practical work in this course allow for the evaluation of Lebanese AFI in real-life situations, the exchange with agri-food industrialists in Lebanon, a confrontation with their daily work, and the visualization of the various technical and process elements discussed in class.

004TPACL1 PW Culinary Arts 3 Cr.

- Introduce 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 Products 1 Cr.

- 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