MASTER IN NUTRITION

Concentrations:
Human Nutrition
Sports Nutrition and Physiology

Main Language of Instruction:
French ☑ English ○ Arabic ○

Campus Where the Program Is Offered: CSM

OBJECTIVES

The Master in Nutrition (concentrations: Human Nutrition or Sports Nutrition and Physiology) is a higher education program dedicated to an in-depth exploration of the relationship between nutrition, the physiological functioning of the human body, and sports performance. This program aims to provide students with a comprehensive understanding of dietary principles, obesity, metabolism, and physiology in the context of physical exercise and sports.
Research is a key component of this program, enabling students to develop research skills in human nutrition, sports nutrition, or applied physiology in sports. This approach paves the way for successful academic or research careers.
In summary, this program equips students with extensive expertise in human nutrition, sports nutrition, and exercise physiology, along with the practical skills necessary to thrive in these dynamic fields.

PROGRAM LEARNING OUTCOMES (COMPETENCIES)

Master in Nutrition (concentrations: Human Nutrition, Sports Nutrition and Physiology)
- Master medical nutrition therapy in hospital and private clinic settings.
- Apply community nutrition principles and good hygiene practices in primary, secondary, or tertiary prevention efforts.
- Develop a multidisciplinary background to broaden career opportunities in various professional fields.

Master in Nutrition (concentration: Sports Nutrition and Physiology)
- Differentiate all aspects of physical activity (movement anatomy, joint biomechanics, and sports physiology) to better advise athletes on their training, performance, and nutritional needs.

ADMISSION REQUIREMENTS

Students must hold a Bachelor in Nutrition and Dietetics. If the student holds a Bachelor in Biology or Biochemistry, they should complete prerequisite courses from the Bachelor's program to be eligible to pursue the Master's degree.

PROGRAM REQUIREMENTS

120 credits: Required courses (73 credits for the common core and 47 credits for each concentration).

Required Courses - Common Core (73 Cr.)
Dietary Antioxidants (1 Cr.). Clinical Biochemistry (2 Cr.). Communication and Leadership (2 Cr.). Healthy Diets (Mediterranean Diet and French Paradox) + Tutorial (3 Cr.). Food Packaging (2 Cr.). Epidemiology in Nutrition (1 Cr.). Advanced Macrominerals (1 Cr.). Advanced Microminerals (1 Cr.). Applied Management (2 Cr.). Marketing in the Food Sector + Practical Work (3 Cr.). Advanced Research Methodology (3 Cr.). Advanced Sports Nutrition (3 Cr.). Advanced Obesity and Metabolic Syndrome (3 Cr.). Pharmacology and Nutrient-Medication Interactions (3 Cr.). Phytotherapy (2 Cr.). Research Seminar (1 Cr.). Applied Statistics in Nutrition (2 Cr.). Special Topics in Sports Nutrition (2 Cr.). Advanced Obesity and Metabolic Syndrome Tutorial (1 Cr.). Advanced Food Technology (3 Cr.). Food Toxicology (3 Cr.). Eating Disorders and Physical Activity (3 Cr.). Advanced Water-Soluble Vitamins (1 Cr.). Advanced Fat-Soluble Vitamins (1 Cr.). Professional Internship (24 Cr.).

Required Courses – concentration: Human Nutrition (47 Cr.)
Congress/Symposia/Seminars I (Attendance) (2 Cr.). Congress/Symposia/Seminars II (Attendance) (2 Cr.). Nutrition in Emergencies (2 Cr.). Food Security (2 Cr.). Nutrition in Emergencies Tutorial (1 Cr.). Human Nutrition Seminar (3 Cr.). Clinical Dietetics Simulation (1 Cr.). Specialization Internship (7 Cr.). Molecular Biology of Nutrition (2 Cr.). Advanced Medical Nutrition Therapy (2 Cr.). Human Nutrition Seminar II (2 Cr.). End-of-Study Thesis in Human Nutrition (21 Cr.).

Required Courses - concentration: Sports Nutrition and Physiology (47 Cr.)
Muscle Anatomy & Biomechanics (3 Cr.). Sports Pathologies and Injuries (2 Cr.). Applied Sports Physiology (3 Cr.). Advanced Sports Physiology (3 Cr.). Sports Nutrition Seminar (3 Cr.). Professional Internship in Sports Nutrition and Physiology (6 Cr.). Special Topics in Sports Physiology (2 Cr.). Practical Work in Sports Nutrition (2 Cr.). Sports Nutrition Seminar II (2 Cr.). End-of-Study Thesis in Sports Nutrition (21 Cr.).

SUGGESTED STUDY PLAN

Semester 1

Code	Course Name	Credits
Required Courses - Common Core		
004SPNTM1	Professional Internship	24
004MEREM1	Advanced Research Methodology	3
004LCOMM2	Communication and Leadership	2
004SRNTM1	Research Seminar	1
	Total	**30**

Semester 2

Code	Course Name	Credits
Required Courses - Common Core		
004STANM2	Applied Statistics in Nutrition	2
004EPNUM1	Epidemiology in Nutrition	1
004TOALM2	Food Toxicology	3
004NUSPM1	Advanced Sports Nutrition	3
004SSNSM1	Special Topics in Sports Nutrition	2
004TCAPM1	Eating Disorders and Physical Activity	3
Required Courses - Concentration: Human Nutrition		
004BIMNM2	Molecular Biology of Nutrition	2
004DITAM1	Advanced Medical Nutrition Therapy	2
004SICDM4	Clinical Dietetics Simulation	1
004SEALM4	Food Security	**2**
004SSHNM2	Specialization Internship	7
004S2NHM2	Human Nutrition Seminar II	2
	Total	**30**
Required Courses - Concentration: Sports Nutrition and Physiology		
004PASPM3	Sports Pathologies and Injuries	2
004PHSAM3	Applied Sports Physiology	3
004PNSAM2	Advanced Sports Physiology	3
004SSPSM3	Special Topics in Sports Physiology	2

004TDNSM3	Practical Work in Sports Nutrition	2
004S2NSM2	Sports Nutrition Seminar II	2
	Total	**28**

Summer Trimester

Code	Course Name	Credits
Required Courses - Concentration: Sports Nutrition and Physiology		
004SPNSM2	Professional Internship in Sports Nutrition and Physiology	6
	Total	**6**

Semester 3

Code	Course Name	Credits
Required Courses - Common Core		
004BICLM1	Clinical Biochemistry	2
004OAMRM1	Advanced Obesity and Metabolic Syndrome	3
004TDOBM1	Advanced Obesity and Metabolic Syndrome Tutorial	1
004DIMEM1	Healthy Diets (Mediterranean Diet and French Paradox) + Tutorial	3
004PIMNM1	Pharmacology and Nutrient-Medication Interactions	3
004PHYTM1	Phytotherapy	2
004ANALM1	Dietary Antioxidants	1
004MAAVM1	Advanced Macrominerals	1
004MIAVM1	Advanced Microminerals	1
004MARKM2	Marketing in the Food Sector + Practical Work	3
004VHAVM2	Advanced Water-Soluble Vitamins	1
004VILAM2	Advanced Fat-Soluble Vitamins	1
Required Courses - Concentration: Human Nutrition		
004SEMIM3	Human Nutrition Seminar	3
004CCS1M3	(Congress/Symposia/Seminars I (Attendance	2
004NTCRM4	Nutrition in Emergencies	2
004TDNUM4	Nutrition in Emergencies Tutorial	1
	Total	**30**
Required Courses - Concentration: Sports Nutrition and Physiology		
004ANMBM3	Muscle Anatomy & Biomechanics	3
004SMINM3	Sports Nutrition Seminar	3
	Total	**28**

Semester 4

Code	Course Name	Credits
Required Courses - Common Core		
004MGORM2	Applied Management	2
004TEAAM2	Advanced Food Technology	3
004EMBAM1	Food Packaging	2
Required Courses - Concentration: Human Nutrition		
004CCS2M4	Congress/Symposia/Seminars II (Attendance)	2
004MFNHM4	End-of-Study Thesis in Human Nutrition	21
	Total	**30**
Required Courses - Concentration: Sports Nutrition and Physiology		
004MFNSM4	End-of-Study Thesis in Sports Nutrition	21
	Total	**28**

COURSE DESCRIPTION

004ANMBM3 Muscle Anatomy & Biomechanics 3 Cr.

This course reviews the concepts of functional anatomy and the fundamentals of mechanics involved in the analysis (biomechanics) of movement and the quantification of motion.

004ANALM1 Dietary Antioxidants 1 Cr.

This course reinforces the concepts of antioxidants (AOs) acquired during the Bachelor's program, and enhances students' analytical and synthesis skills. It is entirely based on and designed from recently published scientific studies. The various topics covered in this course include epidemiological, interventional, and animal studies on different types of dietary AOs, contributing to a deeper understanding of these compounds.

004BICLM1 Clinical Biochemistry 2 Cr.

This course enables students to:

- Recognize the normal composition of biological media and assess biochemical parameters related to homeostasis, including renal metabolism and electrolyte, calcium, protein, blood gas, and uric acid balances.
- Diagnose pathologies by identifying abnormal concentrations of regular constituents or the presence of abnormal substances.
- Select and apply biochemical assay methods, identify interferences, evaluate tumor and cardiac markers, interpret results, and recognize associated disorders.
- Understand major pathologies, their risk factors, and relevant biochemical, biological, and molecular diagnostic methods.

004BIMNM2 Molecular Biology of Nutrition 2 Cr.

This course introduces the fundamentals of molecular biology, including genetic information transmission, DNA structure, replication, transcription, and translation. It covers gene regulation, particularly by nutrients, as well as mutation variations and mechanisms and their implications in diseases, alongside their applications in nutrition. Students will also explore the relationship between genes and food, focusing on how genes influence nutrient metabolism and how nutrients affect gene expression. Understanding the interactions between the genome and diet may provide insights into diseases such as diabetes and obesity.

004LCOMM2 Communication and Leadership 2 Cr.

This course equips students with communication skills essential for working effectively in professional settings, with a focus on team management and interprofessional communication. It prepares students to become proficient communicators capable of engaging with all stakeholders.

004COSEM3 Congress/Symposia/Seminars I (Attendance) 2 Cr.

Students are required to attend a congress, seminar, or symposium related to nutrition in the first semester of M1 to earn the credit. This experience motivates them to engage in conferences throughout their professional careers, ensuring their knowledge remains up to date.

004COSEM4 Congress/Symposia/Seminars II (Attendance) 2 Cr.

Students are required to attend a congress, seminar, or symposium related to nutrition in the second semester of M2 to earn the credit. This experience motivates them to engage in conferences throughout their professional careers, ensuring their knowledge remains up to date.

004DIMEM1 Healthy Diets (Mediterranean Diet and French Paradox) + Tutorial 3 Cr.

This course examines the established links between diets and health, highlighting the protective effects of various traditional diets against common non-communicable diseases, such as cardiovascular diseases, dyslipidemias, and certain cancers. This course focuses on notable diets, including the Mediterranean diet and the French diet, often referred to as the "French Paradox," which is characterized by its high fat content yet offers protective benefits against cardiovascular diseases. Students will gain insights into how these dietary patterns contribute to health and disease prevention.

004DITAM1 Advanced Medical Nutrition Therapy 2 Cr.

This course facilitates the practical application of dietary principles tailored to the management of specific diseases and rare medical conditions. Students will gain a comprehensive understanding of the nutritional strategies required to address the unique needs of patients facing distinct health challenges, such as Down syndrome, autism, Prader-Willi syndrome, asthma, depression, and epilepsy.

004EMBAM1 Food Packaging 2 Cr.

This course covers the characteristics of packaging materials, selection criteria, and their effects on the preservation, protection, and marketing of food products. It also addresses regulatory aspects, environmental considerations, and the latest innovations in the field.

004EPNUM1 Epidemiology in Nutrition 1 Cr.

This course equips students with the skills to apply epidemiological methods in nutrition, using real-life examples from current research literature. It enables students to understand and interpret issues in nutritional epidemiology while fostering their ability to critically analyze studies within this field.

004MAAVM1 Advanced Macrominerals 1 Cr.

This course builds on the knowledge of macrominerals acquired during the Bachelor's program and enhances students' analytical and synthetic thinking skills, as it is based entirely on recent scientific studies published in peer-reviewed journals. It covers various concepts, including epidemiological, interventional, and animal studies related to different types of macrominerals, thereby deepening students' understanding of these essential nutrients.

004MGORM2 Applied Management 2 Cr.

This course equips students with essential skills in entrepreneurship and project management. It covers strategic analysis of the business and its environment, focusing on operations that create value for the end consumer. It aims to enhance performance, optimize allocated resources, and implement a comprehensive quality management approach.

004MARKM2 Marketing in the Food Sector + Practical Work 3 Cr.

This course provides a foundational understanding of key marketing concepts and examines how businesses cultivate and manage their relationships with customers. Students will learn to understand customer behaviors and design their offerings to optimize competitive positioning in the market. This course focuses on developing a marketing plan, enabling students to master the components of the marketing mix and make informed operational decisions. Ultimately, it seeks to analyze and apply strategies and marketing plans in the fields of nutrition and agri-food.

004MFNHM4	**End-of-Study Thesis in Human Nutrition**	**21 Cr.**
004MFNSM4	**End-of-Study Thesis in Sports Nutrition**	**21 Cr.**

The End-of-Study Thesis is a personal research project completed by Master students in their chosen concentration (either Human or Sports Nutrition). It marks the culmination of their studies and reflects their academic achievements. The thesis is written, presented, and defended orally before a jury. The manuscript will be archived in the CSM library and may be available on the USJ website, making it accessible to the public and future students.

004MEREM1	**Advanced Research Methodology**	**3 Cr.**

This course introduces nutritionists to the principles of research design and methods used in both qualitative and quantitative research. Students will learn how to plan and implement the various stages of the research process, including study protocol development.

004MIAVM1	**Advanced Microminerals**	**1 Cr.**

This course provides students with in-depth knowledge of microminerals and their role in health, based on current research.

004NTCRM4	**Nutrition in Emergencies**	**2 Cr.**
004TDNUM4	**Nutrition in Emergencies Tutorial**	**1 Cr.**
004SEALM4	**Food Security**	**2 Cr.**

This module composed of three courses defines food insecurity, identifies its indicators, and explores the global vision set by international agencies and the Ministry of Health to achieve zero hunger. It also reviews the mechanisms and policies established by FAO and the World Food Programme to address this issue. Additionally, it focuses on understanding the key roles of international and national agencies, such as FAO, WFP, UNDP, and WHO, in eradicating food insecurity and implementing assistance programs.

004NUSPM1	**Advanced Sports Nutrition**	**3 Cr.**

This course reinforces the concepts of sports nutrition and physiology acquired in the third year of Bachelor in Nutrition and Dietetics. It is essential for dietitians specializing in Sports Nutrition. This course strengthens the broad range of dietary management skills developed during the Bachelor program, further enhancing the multidisciplinary competencies of dietitians.

004OAMRM1	**Advanced Obesity and Metabolic Syndrome**	**3 Cr.**

This course builds on the concepts of obesity and metabolic syndrome introduced during the Bachelor in Nutrition and Dietetics. It enhances students' analytical and critical thinking skills using recent scientific studies published in academic journals. This course covers the causes and consequences of obesity, its metabolic and molecular aspects, its links to components of metabolic syndrome, and the paradoxes it presents in certain medical conditions.

004PASPM3	**Sports Pathologies and Injuries**	**2 Cr.**

This course addresses various medical conditions commonly encountered in sports practice that require preliminary knowledge for proper management. It focuses on musculoskeletal pathologies (bones, muscles, tendons, etc.), including fractures, inflammation, and tears. This course also covers respiratory issues, anemia, athlete fatigue, sports for specific population groups, overtraining, high-risk sports, and other related conditions.

004PIMNM1	**Pharmacology and Nutrient-Medication Interactions**	**3 Cr.**

This course enables students to understand the pharmacological foundations of drug therapy, including mechanisms of action and the resulting therapeutic and adverse effects related to the central nervous system, diabetes, hypertension, obesity, dyslipidemia, thyroid disorders, ulcers, and doping. Additionally, it highlights potential interactions between medications and nutrients.

004PHSAM3 Applied Sports Physiology 3 Cr.

This course explores the key aspects of athletic performance, focusing on endurance and strength. It covers various methods for assessing aerobic and anaerobic performance (lactate and alactic) and discusses training techniques designed to improve muscular capabilities.

004PNSAM2 Advanced Sports Physiology 3 Cr.

This course explains the differences in energy expenditure and the unique characteristics of various sports, such as type and intensity. It enables students to apply this knowledge to effectively prescribe exercise and personalize care for athletes. By understanding the biological and physiological systems involved during physical activity—including the heart, lungs, muscles, hormones, and energy pathways—students can provide tailored advice. This course equips them to adjust the type, nature, and training methods according to the specific needs and goals of each athlete.

004PHYTM1 Phytotherapy 2 Cr.

This course introduces students to various plants and their parts—such as leaves, roots, and bark—that are rich in active principles. Students will explore the therapeutic effects of these plants.

004SRNTM1 Research Seminar 1 Cr.

This seminar requires students to conduct personal bibliographic research and synthesis, culminating in a public oral presentation for all master's students at the end of the first semester. The seminar aims to enhance research and bibliographic synthesis skills, drawing on recently published scientific studies, while also developing effective oral communication abilities.

004S2NSM2 Seminar II in Sports Nutrition 2 Cr.

004S2NHM2 Seminar II in Human Nutrition 2 Cr.

The second seminar requires students to conduct personal bibliographic research and synthesis in human or sports nutrition, culminating in a public oral presentation at the end of the second semester. The seminar aims to strengthen research and bibliographic synthesis skills, drawing on recently published scientific studies, while also developing effective oral communication abilities. Expectations for students, particularly regarding oral communication, are significantly higher in this seminar.

004SEMIM3 Human Nutrition Seminar 3 Cr.

This third seminar requires students to conduct personal bibliographic research and synthesis, culminating in a public oral presentation at the end of the third semester. The topic focuses on human nutrition for students continuing their M2 in Human Nutrition. This seminar aims to enhance research and bibliographic synthesis skills (drawing from recently published scientific studies) and develop effective oral communication abilities. Expectations for students, particularly regarding oral communication, are significantly higher, with a critical perspective on the content.

004SMINM3 Sports Nutrition Seminar 3 Cr.

This third seminar requires students to conduct personal bibliographic research and synthesis, culminating in a public oral presentation at the end of the third semester. The topic focuses on sports nutrition and/or physiology for students continuing their M2 in Sports Nutrition and Physiology. This seminar aims to enhance research and bibliographic synthesis skills (drawing from recently published scientific studies) and develop effective oral communication abilities. Expectations for students, particularly regarding oral communication, are significantly higher, with a critical perspective on the content.

004SICDM4 Clinical Dietetics Simulation 1 Cr.

This course enables students to manage cases in real clinical settings.

004SPNTM1 Professional Internship 24 Cr.

This required six-month internship in dietetics takes place in a hospital setting and is required by the Lebanese Ministry of Public Health and the Order of Dietitians of Lebanon. Completing this internship is essential for obtaining a work permit or license to practice as a dietitian in Lebanon. Students holding a Bachelor in Nutrition and Dietetics will apply their knowledge gained during their studies and develop skills in providing nutritional care to patients with various medical conditions. They rotate through all hospital departments and the kitchen to gain experience with hospital food services. The six-month hospital internship is reinforced by a three-month period of in-depth study in a field of the student's choice: sports physiology, human nutrition or food technology.

004SSHNM2 Specialization Internship 7 Cr.

This dietetics internship occurs in a hospital or clinical setting, depending on the student's chosen specialization, with a maximum duration of three months. Successful completion allows the student to specialize in a specific field of dietetics. Students who have already completed their professional hospital internship further strengthen their skills in the nutritional and dietetic management of patients with specific pathologies.

004SPNSM2 Professional Internship in Sports Nutrition and Physiology 6 Cr.

This internship enhances practical skills by applying theoretical concepts. Interns will engage directly with various therapeutic cases related to nutrition and sports rehabilitation. They will conduct multiple nutritional consultations and work with different types of athletes. This program helps them develop communication skills and foster connections with patients and athletes. Part I begins during the summer semester and extends into semester 3.

004STANM2 Applied Statistics in Nutrition 2 Cr.

This course provides students with essential information about the SPSS software (Statistical Program for Social Sciences), enabling them to describe and analyze the database collected during research projects and their final thesis. Students will learn to analyze data, interpret results, and understand the statistical tests used in scientific articles.

004SSNSM1 Special Topics in Sports Nutrition 2 Cr.

This course examines the dietary requirements and needs for macronutrients and micronutrients specific to various sports disciplines. It enables students to assess the nutritional status of athletes and develop dietary plans tailored to training and competition schedules. This course also covers different nutritional and ergogenic supplements utilized by athletes in each sport.

004SSPSM3 Special Topics in Sports Physiology 2 Cr.

This course familiarizes students with the various factors that have influenced athletic performance over time, including genetic, physiological, technological, and environmental factors. It also explores mathematical and epidemiological models that have analyzed and modeled the evolution of sports performance throughout the Olympic era.

004TDNSM3 Practical Work in Sports Nutrition 2 Cr.

This supervised work reinforces concepts related to nutrition for sports and athletic activities acquired in the associated sports nutrition course. It enhances students' analytical and synthesis skills, drawing from scientific studies published in academic journals and recommendations from specialized sports nutrition researchers. This course covers practical and intervention-based nutritional recommendations for athletes, including their needs for macronutrients and micronutrients, as well as dietary preparation before, during, and after sports. This contributes to strengthening the knowledge gained.

004TDOBM1 Advanced Obesity and Metabolic Syndrome Tutorial 1 Cr.

Students will conduct personal research and synthesis based on recently published scientific studies in academic journals focusing on obesity and metabolic syndrome, which they will present orally.

004TEAAM2 Advanced Food Technology 3 Cr.

This course highlights advanced concepts and principles related to food processing and preservation. It covers both thermal and non-thermal treatments of food, along with traditional and alternative approaches to food processing and preservation.

004TOALM2 Food Toxicology 3 Cr.

This course examines the risks associated with potentially harmful substances present in food matrices or formed as a result of processing methods. It focuses on studying contaminants, their effects on human health, and risk assessment methods to ensure food safety and consumer protection. The regulatory aspects are also addressed, along with prevention strategies to minimize exposure to these toxins. Students will gain a comprehensive understanding of the risks and protocols for assessing and managing these risks in the food industry.

004TCAPM1 Eating Disorders and Physical Activity 3 Cr.

This course introduces eating disorders (ED) and exercise dependence. It covers the various types of ED, their treatment, and the problematic relationship with physical activity.

004VHAVM2 Advanced Water-Soluble Vitamins 1 Cr.

This course enables students to gain a deeper understanding of water-soluble vitamins and their roles in health, drawing on recent research findings.

004VILAM2 Advanced Fat-Soluble Vitamins 1 Cr.

This course enables students to gain a deeper understanding of the properties of fat-soluble vitamins (functions, metabolism, sources, needs, recommendations, deficiencies, etc.) and their connections to various pathologies through recent research. It also familiarizes students with new research directions related to fat-soluble vitamins and the associated controversies.