

# MASTER OF SCIENCE IN NUTRITION SCIENCE

<https://www.pacific.edu/academics/schools-and-colleges/school-of-health-sciences/programs/clinical-nutrition.html>

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Long Wang, Department Chair

## Programs Offered

**Master of Science in Nutrition Science (MSNS)**

## Program Overview

As of January 1, 2024, the entry level degree requirement to become a registered dietitian/nutritionist has been elevated from a Bachelor's degree to a graduate degree. Pacific's Master of Science in Nutrition Science (MSNS) program is intended for practicing dietitians who do not have a graduate degree, as well as dietetic interns and graduates from Didactic Programs in Dietetics (DPD) who need to earn a graduate degree in order to be eligible to sit for the Registration Examination for Dietitians. This fully online program is designed to be completed in three consecutive trimesters (12 months in total).

## Program Mission Statement

The mission of the MSNS program is to expand the depth and breadth of knowledge and skills of nutrition and dietetics professionals and facilitate the advancement of their career. The program is delivered in a fully online (asynchronous) format.

## Admission Requirements

For the most current information regarding the application process and requirements, including policy on transfer credits (up to 9 units in total), please visit the website (<https://healthsciences.pacific.edu/healthsciences/programs/nutrition> (<https://healthsciences.pacific.edu/healthsciences/programs/nutrition/>)).

## Full-Time and Part-Time Status

SHS Graduate students enrolled in 6 credits or more per term will be considered full-time, meaning students will be eligible to apply for the full amount of federal financial aid. SHS Graduate students enrolled in 3-5 credits per term will be considered part-time, meaning students will be eligible to apply for partial amount of federal financial aid. Per financial aid rules, a graduate student who is enrolled for fewer units than 3 credits per term would not be eligible for any federal loan funds.

- **Full Time:** 6 or more units per semester/trimester
- **Half Time:** 3 to 5 units per semester/trimester
- **Less than Half Time:** Less than 3 units per semester

## Master of Science in Nutrition Science Faculty

### Faculty

Long Wang, Department Chair, Program Director, Clinical Professor, PhD, Purdue University, [lwang3@pacific.edu](mailto:lwang3@pacific.edu), 916.325.4666

Jessica Beaudoin, Clinical Assistant Professor, MS, CSU Long Beach, [jbeaudoin@pacific.edu](mailto:jbeaudoin@pacific.edu), 916.325.4690

Vicky Flaig, Clinical Assistant Professor, MEd, University of Cincinnati, [vflaig@pacific.edu](mailto:vflaig@pacific.edu)

Linda Gray, Clinical Coordinator, Assistant Clinical Professor, MPH Benedictine University; BS UC Davis, [lgray@pacific.edu](mailto:lgray@pacific.edu), 916-325-4658

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Lynne LoPresto, Clinical Assistant Professor, PhD, UC Davis, [llopresto@pacific.edu](mailto:llopresto@pacific.edu), 916.520.7472

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## Program Outcomes

The MSNS program is designed to prepare students to:

1. Respond to complex ideas or situations utilizing evidence, reflection, and ethically sound reasoning.
2. Lead and promote changes in the field of nutrition and dietetics.
3. Contribute to the body of knowledge in the field of nutrition through scholarly endeavors.
4. Demonstrate effective oral and written communication through a variety of methods.

## Master of Science in Nutrition Science

The MSNS is a full-time program with a cohort-based plan of study. Students are required to enroll full-time and must advance through a pre-determined curriculum in sequence with their cohort. Students are required to successfully pass each course in a given trimester in order to advance to the subsequent trimester with their cohort and progress in the program. Students who do not pass a course, or who withdraw from a course, will not be able to progress with their cohort in the program. Students may be able to rejoin the program at a later date if allowed by program policy and approved by the Department Chair/Program Director.

Students must complete 30 trimester units with a Pacific cumulative grade point average of 3.0 to earn the MSNS degree. Completion requirements include successful completion of all prescribed academic requirements with a cumulative weighted grade point average of 3.0 or higher in the Program, with no incomplete or unsatisfactory grades.

A student will be recommended for the MSNS degree provided they have fulfilled the following:

1. Completion of all prescribed academic requirements with a cumulative weighted grade point average of 3.0 or higher in the Program with no incomplete or unsatisfactory grades. Demonstration of no deficiencies in ethical, professional, or personal conduct.
2. Compliance with all legal and financial requirements of University of the Pacific.

The MSNS program is structured such that three, 9-unit certificates could be taken independently or stacked towards the completion of the MSNS degree. These certificates are as follows:

- Certificate in Functional Nutrition: Completion of any three courses among NUTR 202, NUTR 225, NUTR 226, and NUTR 228.
- Certificate in Nutrition Leadership and Innovation: Completion of any three courses among NUTR 202, NUTR 224, NUTR 225, and NUTR 227.
- Certificate in Nutrition Research: Completion of NUTR 202, NUTR 231A, and NUTR 231B.

Trimester 1		Units
NUTR 202	Scientific Inquiry in Nutrition and Dietetics	3
NUTR 204A	Advanced Macronutrient Metabolism	3
NUTR 204B	Advanced Micronutrient Metabolism	3
NUTR 224	Leadership in Nutrition and Dietetics	3
<b>Term Units</b>		<b>12</b>

**Total Unit: 12**

Trimester 2		Units
NUTR 225	Advanced Topics in Medical Nutrition Therapy	3
NUTR 226	Nutrigenetics and Nutrigenomics	3
NUTR 231A	Nutrition Scholarly Project I	3
<b>Term Units</b>		<b>9</b>

**Total Unit: 9**

Trimester 3		Units
NUTR 227	Contemporary Topics in Nutrition and Dietetics	3
NUTR 228	Gut Microbiome and Gastrointestinal Nutrition	3
NUTR 231B	Nutrition Scholarly Project II	3
<b>Term Units</b>		<b>9</b>

**Total Unit: 9**

## Nutrition Courses

### **NUTR 201. Evidence Based Practice & Scientific Inquiry. 3 Units.**

This course provides a foundation of scientific inquiry and research literacy for accessing and evaluating on-line and electronic databases and reading and interpreting research. Course readings provide a foundation for understanding the lecture material. Using published research, students will learn how to analyze levels of evidence, apply critical appraisal techniques and apply findings to clinical case scenarios. Prerequisites: Matriculated status in the Master of Science Clinical Nutrition program or permission by instructor.

### **NUTR 202. Scientific Inquiry in Nutrition and Dietetics. 3 Units.**

This course provides a foundation of scientific inquiry and research literacy for retrieving, accessing, and evaluating nutrition literature. Focus will be on interpreting research, analyzing levels of evidence, applying critical appraisal techniques, and applying findings to clinical case scenarios. Prerequisite: Matriculated status in the Master of Science in Nutrition Science program or permission by the instructor.

### **NUTR 203. Advanced Nutrition Assessment, Physical Exam & Diagnosis. 3 Units.**

This course explores the scientific evidence underlying comprehensive nutrition assessment of individuals and groups of all ages in a variety of practice settings within the context of the Nutrition Care Process (NCP). Students will develop clinical decision-making skills and use NCP terminology to identify nutrition diagnoses and develop, monitor, and evaluate the efficacy of nutrition interventions. The course includes an introduction to nutrition-focused physical exam and other clinical assessment skills to be attained at the novice level. Students will demonstrate clinical decision-making skills and reasoning through an introduction to Medical Nutrition Therapy topics. Prerequisite: Matriculated status in the Master of Science in Clinical Nutrition program or permission by the instructor.

### **NUTR 204A. Advanced Macronutrient Metabolism. 3 Units.**

This course covers sources, digestion, absorption, and transport of macronutrients, metabolic pathways of macronutrients (carbohydrates, proteins and lipids) and their regulation, tissue-specific utilization of macronutrients within the human body, and the integrated nature of physiological and biochemical aspects of metabolism in health and disease. Prerequisite: Matriculated status in the Master of Science in Nutrition Science program or permission by the instructor.

### **NUTR 204B. Advanced Micronutrient Metabolism. 3 Units.**

This course explores the significant role micronutrients (vitamins and minerals) play as regulatory agents in the metabolic pathways as well as the interaction between nutrients within these pathways, the variability in micronutrient requirements between individuals, signs and symptoms associated with both nutrient deficiency and excess, and food sources and supplement forms and dosages for micronutrients and the various uses with respect to disease prevention and therapy. Prerequisite: Matriculated status in the Master of Science in Nutrition Science program or permission by the instructor.

### **NUTR 205. Advanced Nutrition Counseling and Education. 3 Units.**

This course provides instruction and experiential learning in nutrition counseling and education to promote health behavior change among individuals and groups. Using the biopsychosocial framework, students examine factors impacting behavior change, including cultural considerations, health literacy, psychological and social determinants of health. Students apply interviewing, counseling and education theories and strategies, with an emphasis on motivational interviewing. Topics also include telenutrition and clinical perspectives for special populations. Prerequisites: Matriculated status in the Master of Science in Clinical Nutrition program or permission by the instructor.

### **NUTR 212. Advanced Medical Nutrition Therapy I. 3 Units.**

This course is the first of two medical nutrition therapy classes. It builds on scientific foundations of nutrient metabolism (macronutrients and micronutrients), biochemistry, anatomy, physiology for the application of nutrition and diet to the health and disease and individuals and populations. Pathophysiology of cardiovascular, endocrine, liver, gastrointestinal tract, oncology pulmonary, renal diseases, lifestyle cycles, among others are covered along with appropriate medical nutrition therapies to prevent and manage these conditions. Using the Nutrition Care Process (NCP) the principles of nutrition assessment, diagnosis, intervention and monitoring for the diseases are covered. This course prepares students for their supervised practice experiences. Prerequisite: Matriculated status in the Master of Science in Clinical Nutrition program or permission by the instructor.

### **NUTR 213. Health Care and Food Systems Management. 3 Units.**

This course will integrate fundamental knowledge from the behavioral and social sciences and organizational dynamics to provide a set of strategies and techniques to navigate human resources, food, equipment and facilities, to deliver quality products and services to customers and ultimately influence meaningful, sustainable change within the nutrition organization and beyond. Simulated cases and case presentations requiring managerial and strategic planning skills will provide student application experience. Prerequisite: Matriculated status in the Master of Science Clinical Nutrition program or permission by the instructor.

**NUTR 214. Advanced Medical Nutrition Therapy II. 6 Units.**

This course is the second of two medical nutrition therapy classes. It builds on scientific foundations of nutrient metabolism (macronutrients and micronutrients), biochemistry, anatomy, physiology for the application of nutrition and diet to the health and disease and individuals and populations. Pathophysiology of cardiovascular, endocrine, liver, gastrointestinal tract, oncology pulmonary, renal diseases, lifestyle cycles, among others are covered along with appropriate medical nutrition therapies to prevent and manage these conditions. Using the Nutrition Care Process (NCP) the principles of nutrition assessment, diagnosis, intervention and monitoring for the diseases are covered. This course prepares students for their supervised practice experiences. Prerequisite: Matriculated status in the Master of Science in Clinical Nutrition program or permission by the instructor.

**NUTR 215. Community and Public Health Nutrition. 3 Units.**

The course provides an understanding of community and public health nutrition as the promotion of health through nutrition and the prevention of nutrition related disease in populations through epidemiology of nutritional disease, environmental scans and development of interventions and policies. Food insecurity and the impact of various nutrient inadequacies and excesses at different stages of the life cycle and their functional outcomes in terms of morbidity, psychological well-being, reproduction and growth will be highlighted. Local, national, and global food production, access, and supply in relation to nutrition, health, and sustainable food systems will be covered in the context of socioeconomic development and current political/economic policies. Prerequisite: Matriculated status in the Master of Science in Clinical Nutrition program or permission by the instructor.

**NUTR 217. Capstone I. 3 Units.**

The course provides the research foundation and principles for designing and developing a research project or study. Students will gain knowledge, skills and practice in the pre-planning stages of research including how to write research proposals and protocols. Prerequisites: Matriculated status in the Master of Science Clinical Nutrition program or permission by the instructor.

**NUTR 219. Nutrition Leadership and Innovation. 3 Units.**

This course provides instruction and experiential learning in leadership and innovation, with an emphasis in clinical nutrition management. Students gain self-awareness of their behavioral style and apply strategies for effective communication and influence. The VUCA framework and emerging trends and innovations in clinical nutrition and healthcare are explored. Students conceptualize the movement from current state to future state through the strategic planning process, organization management, and quality/performance improvement. Critical dimensions of leadership are explored, including leadership ethics and diversity equity and inclusion. Prerequisite: Matriculated status in the Master of Science Clinical Nutrition program or permission by the instructor.

**NUTR 221. Capstone II Project. 2 Units.**

The course is a continuation of Capstone I and provides the research foundation and principles for designing and developing a research project or study. The course provides an understanding of the tools used to implement, execute and analyze the results of a research project or study. Prerequisite: Matriculated status in the Master of Science Clinical Nutrition program or permission by the instructor.

**NUTR 222. Capstone III Project. 1 Unit.**

The course is a continuation of Capstone I & II. Students will complete writing their capstone report, identify conference for presenting their capstone project, write conference-style abstract, create conference-style poster, writing a draft of manuscript for a peer-reviewed journal, and develop a proposal for a follow-up research study/project that includes a mini-grant application. Prerequisites: Matriculated status in the Master of Science Clinical Nutrition program or permission by the instructor.

**NUTR 224. Leadership in Nutrition and Dietetics. 3 Units.**

This course focuses on leadership and innovation in nutrition and dietetics, with an emphasis in clinical nutrition management. Students gain self-awareness of their behavioral style, apply strategies for effective communication and advocacy, and influence the field of nutrition and dietetics. Strategic planning, organization management, and quality/performance improvement will be covered. Critical dimensions of leadership including leadership ethics, inclusion, diversity, equity, and access will be explored. Prerequisite: Matriculated status in the Master of Science in Nutrition Science program or permission by the instructor.

**NUTR 225. Advanced Topics in Medical Nutrition Therapy. 3 Units.**

This course provides instruction and experiential learning in the assessment and management of advanced medical nutrition therapy topics such as inflammation, neurological health, oncology nutrition, food as medicine, and plant-forward nutrition. The course curriculum will expand student's knowledge on a variety of pathophysiological conditions and integrate this knowledge with medical nutrition therapy. Prerequisite: Matriculated status in the Master of Science in Nutrition Science program or permission by the instructor.

**NUTR 226. Nutrigenetics and Nutrigenomics. 3 Units.**

This course focuses on the role of nutrigenetics and nutrigenomics in healthcare and the impact that nutrition and modifiable risk factors can have on genetic expression. This course is designed to provide students with the knowledge needed to: interpret the results of genomic testing, correlate genomic data with client presentation, and recommend personalized diet and lifestyle modifications that could impact genetic expression or mitigate the impact of presenting polymorphisms. Prerequisite: Matriculated status in the Master of Science in Nutrition Science program or permission by the instructor.

**NUTR 227. Contemporary Topics in Nutrition and Dietetics. 3 Units.**

The course explores trendy topics in nutrition and dietetics that are not typically addressed in other courses. Examples include, but are not limited to, trauma informed practice, nutrition and climate change, nutrition and artificial intelligence, nutrition informatics, nutrition and media, and nutrition policy advocacy. Prerequisite: Matriculated status in the Master of Science in Nutrition Science program or permission by the instructor.

**NUTR 228. Gut Microbiome and Gastrointestinal Nutrition. 3 Units.**

This course provides instruction and experiential learning in the assessment and management of patients with gastrointestinal conditions. The course curriculum will explore various gastrointestinal disorders and the tools available for their diagnosis and treatment allowing the student to design an appropriate nutrition care plan. Students will learn how bacteria from food and the environment may affect the digestive process and how diet patterns can minimize some illnesses and chronic diseases. Prerequisite: Matriculated status in the Master of Science in Nutrition Science program or permission by the instructor.

**NUTR 231A. Nutrition Scholarly Project I. 3 Units.**

The course provides the foundation of research methodology and principles for designing and developing a clinical scholarly project. Methods for statistical analysis will be addressed. Students will gain knowledge, skills, and practice in the pre-planning stages of research including how to write research proposals and protocols. Prerequisite: Matriculated status in the Master of Science in Nutrition Science program or permission by the instructor.

**NUTR 231B. Nutrition Scholarly Project II. 3 Units.**

The course is a continuation of the Nutrition Scholarly Project I course. Students will apply tools to implement their clinical scholarly project, analyze the results, and be ready to disseminate their findings in a professional setting. Prerequisite: Matriculated status in the Master of Science in Nutrition Science program or permission by the instructor.

**NUTR 234. Preparation for the Registration Examination. 1 Unit.**

This course prepares students for the Commission on Dietetic Registration (CDR) credentialing examination for Registered Dietitian Nutritionists (Registration Examination for Dietitians). The course provides a structured review of the key domains of the exam, focusing on high-yield concepts and effective test-taking strategies. Prerequisite: Matriculated status in the Master of Science in Clinical Nutrition program or permission by instructor.

**NUTR 287A. Supervised Clinical Practice Experience I. 13 Units.**

NUTR 287A is the first of two Supervised Clinical Practice Experience (SCPE) courses in the MSCN program. SCPE comprises supervised experiential learning in clinical nutrition and food service/systems management settings across the continuum of care. Students apply the Nutrition Care Process Model in diverse professional work settings to demonstrate competence in the Accreditation Council for Education in Nutrition and Dietetics (ACEND®) Future Education Model (FEM) Graduate Degree Competencies. Regular interaction occurs between students and instructors via Friday Seminars (Zoom), which comprise rotation debriefing, didactic and experiential learning activities led by faculty and guest instructors. Prerequisite: Matriculated status in the Master of Science in Clinical Nutrition program or permission by the instructor.

**NUTR 287B. Supervised Clinical Practice Experience II. 13 Units.**

NUTR 287B is the second of two Supervised Clinical Practice Experience (SCPE) courses in the MSCN program. SCPE comprises supervised experiential learning in clinical nutrition and food service/systems management settings across the continuum of care. Students apply the Nutrition Care Process Model in diverse professional work settings to demonstrate competence in the Accreditation Council for Education in Nutrition and Dietetics (ACEND®) Future Education Model (FEM) Graduate Degree Competencies. Regular interaction occurs between students and instructors via Friday Seminars (Zoom), which comprise rotation debriefing, didactic and experiential learning activities led by faculty and guest instructors. Prerequisite: Matriculated status in the Master of Science Clinical Nutrition program or permission by the instructor.

**NUTR 291. Independent Study. 1-4 Units.****NUTR 293. Graduate Special Topics. 1 or 4 Unit.**

This course covers emerging issues or specialization contents in nutrition. Pre-req: Permission by instructor.