

NUTRITIONAL SCIENCES (NUTR SCI)

NUTR SCI 100 – FUELING YOUR FUTURE WITH CAREERS IN NUTRITION

1 credit.

Overview of career paths related to human nutrition, a multidisciplinary domain that explores the complex relationship between dietary intake and health, encompassing diverse areas from scientific research, healthcare, education, product development, to policy and intervention.

Requisites: None

Repeatable for Credit: No

Learning Outcomes: 1. Identify and describe various career paths within the field of nutrition

Audience: Undergraduate

2. Explain the educational and professional requirements for different nutrition-related careers

Audience: Undergraduate

3. Discuss nutrition science literature

Audience: Undergraduate

4. Identify professional organizations, resources, and networking opportunities within the field of nutrition

Audience: Undergraduate

5. Locate resources available to students pursuing a degree in Nutritional Sciences at the UW – Madison

Audience: Undergraduate

NUTR SCI 132 – NUTRITION TODAY

3 credits.

Nutrition and its relationship to humans and their biological, social, and physical environment; current issues and concerns that affect the nutritional status of various population groups.

Requisites: Not open to students with credit for NUTR SCI 332

Course Designation: Breadth – Biological Sci. Counts toward the Natural Sci req

Level – Elementary

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Summer 2025

Learning Outcomes: 1. Discuss the development of nutritional sciences knowledge and critically assess research findings.

Audience: Undergraduate

2. Describe the scientific method as it applies to nutritional sciences and analyze research methods in the field.

Audience: Undergraduate

3. Evaluate scientific research reports and apply findings to personal dietary choices, considering equity and inclusion in accessing and acquiring food.

Audience: Undergraduate

4. Investigate changes in human eating patterns over time and their impact on health, sustainability, diversity, and cultural traditions.

Audience: Undergraduate

5. Apply tools for assessing balanced eating patterns to personal food choices, specific populations or case studies while considering traditional and cultural dietary practices.

Audience: Undergraduate

6. Explain the mechanisms of digestive physiology and how they pertain to nutrient absorption and the generation and utilization of energy.

Audience: Undergraduate

7. Demonstrate a comprehensive understanding of basic nutritional concepts, including macronutrients, micronutrients, energy, and their sources, as well as their effects on health, while emphasizing diversity and an “all foods fit” approach.

Audience: Undergraduate

NUTR SCI 200 – PROFESSIONAL SKILLS IN DIETETICS

1 credit.

An overview of the nutrition and dietetics professions: career options; professional development; professional references and resources; credentialing; professional issues.

Requisites: Declared in Nutritional Sciences BS or BS-Nutrition and Dietetics and (NUTR SCI 631 or concurrent enrollment)

Repeatable for Credit: No

Last Taught: Fall 2024

Learning Outcomes: 1. Identify career options available to individuals with a degree in nutrition and dietetics.

Audience: Undergraduate

2. Summarize the requirements and skills for becoming a Registered Dietitian.

Audience: Undergraduate

3. Describe individual skills, strengths, knowledge, and experience relevant to career goals.

Audience: Undergraduate

4. Discuss the importance and expectations of a professional in the workplace.

Audience: Undergraduate

5. Evaluate effective professional oral and written communication pertaining to the field of dietetics.

Audience: Undergraduate

NUTR SCI/ENTOM 203 – INTRODUCTION TO GLOBAL HEALTH

3 credits.

Introduces students to global health concepts through multidisciplinary speakers dedicated to improving health through their unique training. It targets students with an interest in public health and those who wish to learn how their field impacts their global issues.

Requisites: None

Course Designation: Breadth – Social Science

Level – Elementary

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Summer 2025

Learning Outcomes: 1. Define global health and identify major global health trends and metrics

Audience: Undergraduate

2. Recognize the “determinants of health” that contribute to health disparities/inequities

Audience: Undergraduate

3. Examine global health through the lens of agriculture, food, and nutrition

Audience: Undergraduate

4. Describe the role of ecology and the changing environment in global health

Audience: Undergraduate

5. Explain the importance of collaborative and interdisciplinary approaches in global health

Audience: Undergraduate

6. Discuss a variety of global health careers and areas of specialty through guest speakers and connections with their area of interest

Audience: Undergraduate

NUTR SCI 289 – HONORS INDEPENDENT STUDY

1-2 credits.

Research work under direct guidance of a Nutritional Sciences faculty or instructional academic staff member. Students are responsible for arranging the work and credits with the supervising instructor. Intended for students in the CALS Honors Program.

Requisites: Consent of instructor

Course Designation: Honors – Honors Only Courses (H)

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2006

Learning Outcomes: 1. Develop critical, analytical and independent thinking skills through a scientific research project

Audience: Undergraduate

2. Apply the scientific method and engage in constructive problem solving in a scientific research project

Audience: Undergraduate

3. Demonstrate application of research skills and methodologies through a research project

Audience: Undergraduate

4. Effectively communicate scientific findings in an oral and/or written format

Audience: Undergraduate

NUTR SCI 299 – INDEPENDENT STUDY

1-3 credits.

Research work under direct guidance of a Nutritional Sciences faculty or instructional academic staff member. Students are responsible for arranging the work and credits with the supervising instructor.

Requisites: Consent of instructor

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2025

Learning Outcomes: 1. Articulate a clear research question or problem and formulate a hypothesis

Audience: Undergraduate

2. Identify appropriate research methodologies and collect sound scientific data

Audience: Undergraduate

3. Apply critical thinking skills to interpret laboratory data and apply problem solving skills to constructively address research setbacks

Audience: Undergraduate

4. Practice research ethics and responsible conduct in research

Audience: Undergraduate

5. Communicate scientific ideas and results verbally and in written form effectively

Audience: Undergraduate

NUTR SCI/AN SCI/DY SCI 311 – COMPARATIVE ANIMAL NUTRITION

3 credits.

Nutrients and their assimilation, function, and interactions that affect metabolism in mammals. Differences among species will be used to emphasize unique digestive and physiological functions and how these differences affect metabolism of nutrients. Humans will be used in some comparisons. Follows physiological progression of nutrients, starting with an overview of the digestive tract followed by water and builds on specific roles of nutrients and substrates needed to provide basic processes required for maintenance, tissue accretion, and homeostatic regulation of nutrients.

Requisites: CHEM 341, 343, (BIOCHEM 301 or concurrent enrollment), or (BIOCHEM 501 or concurrent enrollment)

Course Designation: Breadth – Biological Sci. Counts toward the Natural Sci req

Level – Intermediate

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Recall and summarize the cellular, tissue, and whole-body metabolism and function of nutrients

Audience: Undergraduate

2. Identify key elements of digestive anatomy that enable digestion and absorption of consumed nutrients

Audience: Undergraduate

3. Explain the physiological processes required for assimilation of consumed macro- and micro-nutrients

Audience: Undergraduate

4. Compare the similarities and differences in nutritional and metabolic strategies across species

Audience: Undergraduate

5. Evaluate the interactions between nutrients, animals, environment, physiological status, and functions and integrate these interactions to understand whole-animal nutrition

Audience: Undergraduate

NUTR SCI 332 – HUMAN NUTRITIONAL NEEDS

3 credits.

Biochemical and physiological basis of the nutritional requirements of humans.

Requisites: (CHEM 103, 109, or 115) and (ZOOLOGY/BIOLOGY/ BOTANY 151, ZOOLOGY/BIOLOGY 101, or BIOCORE 381)

Course Designation: Breadth – Biological Sci. Counts toward the Natural Sci req

Level – Intermediate

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Define and apply major principles and concepts of nutritional sciences.

Audience: Undergraduate

2. Compare and contrast common approaches used in biomedical research.

Audience: Undergraduate

3. Demonstrate knowledge of essential nutrients on their absorption, metabolism, functions/mechanisms of actions, and physiological manifestations of nutritional status.

Audience: Undergraduate

4. Describe key biochemical and physiological pathways that integrate the metabolism of energy-yielding nutrients.

Audience: Undergraduate

5. Demonstrate quantitative literacy relevant to nutritional sciences and dietetics.

Audience: Undergraduate

NUTR SCI/A A E 350 – WORLD HUNGER AND MALNUTRITION

3 credits.

Hunger and poverty in developing countries and the United States. Topics include: nutrition and health, population, food production and availability, and income distribution and employment.

Requisites: None

Course Designation: Breadth – Biological Sci. Counts toward the Natural Sci req

Level – Intermediate

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Summer 2025

Learning Outcomes: 1. Demonstrate a basic understanding of the complex links between nutrition and malnutrition.

Audience: Undergraduate

2. Learn and apply the economic tools of supply and demand to solving/ analyzing issues including income and population growth, income and population policies, and agricultural supply topics.

Audience: Undergraduate

3. Synthesize knowledge about the economics and nutritional aspects of world hunger to better understand solutions.

Audience: Undergraduate

4. Communicate effectively through written reports and online discussions.

Audience: Undergraduate

5. Apply sustainability principles and/or frameworks to addressing the challenge of addressing issues of population growth, hunger and poverty.

Audience: Undergraduate

6. Describe the social, economic, and environmental dimensions of food, hunger and malnutrition. Identify potential tradeoffs and interrelationships among these dimensions at a level appropriate to the course.

Audience: Undergraduate

NUTR SCI 375 – SPECIAL TOPICS

1-4 credits.

Special topics on contemporary issues relevant to undergraduate students studying health and nutrition.

Requisites: None

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2020

NUTR SCI 377 – CULTURAL ASPECTS OF FOOD AND NUTRITION

3 credits.

Exploration of cultural competency and humility as a factor in reducing nutrition-related health disparities, and an opportunity to foster community resilience within the United States. Analysis of how personal cultural perspectives can shape biases and stereotypes that can widen the health disparity gap. Principles of food and culture utilized to compare cultural perspectives of health and well-being, including influences of spirituality and religiosity on food choice and dietary patterns. Includes content collaborators and guest speakers from a variety of communities, and identities.

Requisites: None**Course Designation:** Ethnic St - Counts toward Ethnic Studies requirement

Breadth - Social Science

Level - Elementary

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No**Last Taught:** Summer 2025**Learning Outcomes:** 1. Describe the concept and significance of cultural competency and cultural humility in the context of food, health and well-being.

Audience: Undergraduate

2. Identify worldview and traditional and contemporary foodways common across ethnic communities in the U.S. disproportionately burdened by nutrition-related chronic disease.

Audience: Undergraduate

3. Interpret dietary laws and customs in the context of the U.S. health care delivery system.

Audience: Undergraduate

4. Critically examine how U.S. food policies can influence dietary choices at multiple levels, and how those dietary choices may influence the culture around food.

Audience: Undergraduate

NUTR SCI 379 – INTRODUCTION TO EPIDEMIOLOGY

3 credits.

Provides undergraduate students of all disciplines with an introduction to the field of epidemiology. As the "detectives of public health," epidemiologists investigate the causes of disease, track outbreaks, screen and monitor the health of populations, and design studies to track health over time. Epidemiological research is used to identify groups at-risk for disease, guide public health programs and policies and generate hypotheses about the causes of diseases which can inform further research. Also examines association and causality, study design, and limitations to epidemiological evidence, drawing from real examples, both current and historical.

Requisites: Satisfied Quantitative Reasoning (QR) A requirement**Course Designation:** Breadth - Either Social Science or Natural Science Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No**Last Taught:** Summer 2025**Learning Outcomes:** 1. Describe principles of epidemiology and its tools and methods

Audience: Undergraduate

2. Calculate and interpret basic epidemiological measures

Audience: Undergraduate

3. Understand major exposures, related health outcomes and the burden of disease

Audience: Undergraduate

4. Identify types of epidemiological studies and assess strengths and weaknesses of different study designs

Audience: Undergraduate

5. Interpret epidemiological evidence and identify threats to validity of epidemiology studies

Audience: Undergraduate

6. Connect epidemiology with its use in public and global health

Audience: Undergraduate

7. Explore how epidemiology is related to their field of interest or career path

Audience: Undergraduate

NUTR SCI 399 – COORDINATIVE INTERNSHIP/COOPERATIVE EDUCATION

1-8 credits.

Internship under guidance of a Nutritional Sciences faculty or instructional academic staff member and internship site supervisor. Students are responsible for arranging the work and credits with the Nutritional Sciences faculty or instructional academic staff member and the internship site supervisor.

Requisites: Consent of instructor

Course Designation: Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Summer 2025

Learning Outcomes: 1. Apply concepts learned in coursework to authentic professional situations

Audience: Undergraduate

2. Demonstrate professional skills appropriate for the industry

Audience: Undergraduate

3. Identify and reflect on how concepts learned in coursework apply to specific work settings and situations

Audience: Undergraduate

NUTR SCI 400 – STUDY ABROAD IN NUTRITIONAL SCIENCES

1-6 credits.

Provides an area equivalency for courses taken on Madison Study Abroad Programs that do not equate to existing UW courses. Enrollment in a UW-Madison resident study abroad program.

Requisites: None

Repeatable for Credit: Yes, unlimited number of completions

NUTR SCI/INTER-AG 421 – GLOBAL HEALTH FIELD EXPERIENCE

1-4 credits.

Specialized educational experiences that address a broad range of global health topics through interdisciplinary approaches to health and include participation in applied public health activities or service learning projects with communities and partner organizations.

Requisites: None

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Summer 2025

Learning Outcomes: 1. Collaborate and communicate effectively with diverse colleagues and local partners.

Audience: Undergraduate

2. Respectfully engage with different cultures or populations.

Audience: Undergraduate

3. Articulate the importance of interdisciplinary approaches to global health and/or sustainable development.

Audience: Undergraduate

4. Demonstrate knowledge on a specific global health issue, community, and location.

Audience: Undergraduate

NUTR SCI 431 – NUTRITION IN THE LIFE SPAN

3 credits.

Influence of nutrition on growth and development; physiological basis of nutritional requirements throughout the life span, including the relationship of food habits and nutrition to selected chronic diseases; principles of nutritional intervention in community programs.

Requisites: Junior standing, grade of C in ANAT&PHY 335 and grade of C in NUTR SCI 332

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Summer 2025

Learning Outcomes: 1. Utilize nutrient requirements and dietary standards in dietary assessment and planning

Audience: Undergraduate

2. Describe the physiological basis of nutritional requirements throughout the life cycle

Audience: Undergraduate

3. Describe eating patterns, nutritional problems, and their relationships to health conditions throughout the life cycle

Audience: Undergraduate

4. Apply appropriate nutrient and food recommendations to individuals based on the stage of the life cycle

Audience: Undergraduate

5. Explain the delivery of nutrition care in community programs

Audience: Undergraduate

**NUTR SCI 500 – UNDERGRADUATE CAPSTONE SEMINAR
LABORATORY**

1 credit.

Current topics in Nutritional Sciences and undergraduate research presentations.

Requisites: NUTR SCI 431 or concurrent enrollment and NUTR SCI/ BIOCHEM 510 or concurrent enrollment

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Use database search techniques to identify research articles

Audience: Undergraduate

2. Describe requirements of rigorous and ethical research and publication

Audience: Undergraduate

3. Critically evaluate components of nutritional science research publications

Audience: Undergraduate

4. Prepare and submit an abstract for oral research presentations

Audience: Undergraduate

5. Prepare and present oral research presentations

Audience: Undergraduate

**NUTR SCI/BIOCHEM 510 – NUTRITIONAL BIOCHEMISTRY AND
METABOLISM**

3 credits.

Lectures in nutrition with a substantial background in biochemistry.

Emphasis on biochemical and physiological fundamentals of nutrition.

Discussion of protein, fat, carbohydrate, energy, minerals and vitamins and their roles and interrelationships in nutrition and metabolism.

Requisites: BIOCHEM 301, 501, 507, BMOLCHEM 503, or graduate/ professional standing

Course Designation: Breadth – Biological Sci. Counts toward the Natural Sci req

Level – Advanced

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Grad 50% – Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Understand nutrient metabolism in normal and disease states

Audience: Both Grad & Undergrad

2. Integrate the regulation of metabolism of nutrients under normal and disease state conditions.

Audience: Both Grad & Undergrad

3. Understand the biochemical and molecular functions of nutrients we consume

Audience: Both Grad & Undergrad

4. Apply how nutrients affect pathogenesis and health

Audience: Graduate

5. Think critically about nutrient claims and fads using your knowledge of nutritional biochemistry.

Audience: Both Grad & Undergrad

6. Integrate current research in the area of metabolism and micronutrient function into existing knowledge and formulate new hypotheses to guide future research

Audience: Graduate

NUTR SCI/KINES 525 – NUTRITION IN PHYSICAL ACTIVITY AND HEALTH

3 credits.

Provides both scientific knowledge and application of nutrition related to exercise, health, and sports.

Requisites: ANAT&PHY 335

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Identify how nutritional and hydration demands vary by physical activity frequency, intensity, type, and time

Audience: Undergraduate

2. Outline dietary assessment techniques and common dietary strategies for both the healthy population and populations with additional dietary needs

Audience: Undergraduate

3. Apply the potential benefits of nutrient timing strategies to optimize performance and to promote tissue growth, recovery, and repair

Audience: Undergraduate

4. Synthesize and discuss nutrition research related physical activity and health

Audience: Undergraduate

5. Evaluate the safety and efficacy of common nutritional strategies, supplements, and ergogenic aids

Audience: Undergraduate

NUTR SCI 540 – COMMUNITY NUTRITION AND HEALTH EQUITY

3 credits.

The foundations and practice of community nutrition and health equity. Factors and resources affecting community nutrition programs and delivery of nutrition and education programs to diverse communities and vulnerable populations.

Requisites: NUTR SCI 431 or concurrent enrollment

Course Designation: Breadth – Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Discuss the impact of health care policy and different health care delivery systems on food and nutrition services.

Audience: Undergraduate

2. Demonstrate cultural humility, an awareness of personal bias, social inequities, health disparities and discrimination.

Audience: Undergraduate

3. Describe contributing factors to health equity in nutrition and dietetics including structural bias, social inequities, health disparities and discrimination.

Audience: Undergraduate

4. Develop an education session or program/educational strategy for a target population.

Audience: Undergraduate

5. Demonstrate counseling and education methods to facilitate behavior change and enhance wellness for diverse individuals and groups.

Audience: Undergraduate

NUTR SCI 550 – NUTRITION AND COUNSELING FOR ATHLETIC PERFORMANCE

2 credits.

Presents foundational principles and evidenced based recommendations for fueling active bodies and how proper nutrition relates to weight management, muscle development, recovery and performance. Integrates counseling methods and techniques used for working with active populations through readings, learning activities and expert guest lecturers. Features reading and interpreting scientific studies related to sports nutrition and interdisciplinary guest speakers representing sport performance and wellness programs.

Requisites: NUTR SCI 332**Repeatable for Credit:** No**Last Taught:** Fall 2022**Learning Outcomes:** 1. Discuss what sports nutrition is in the field of nutrition and dietetics.

Audience: Undergraduate

2. Understand nutrient requirements during the various types of exercise and sport, along with rationale for those requirements.

Audience: Undergraduate

3. Develop the ability to communicate information to athletes/active individuals or groups.

Audience: Undergraduate

4. Develop and apply counseling skills when communicating nutrition with athletes/active individuals to promote behavior change.

Audience: Undergraduate

5. Apply learned concepts to actual athletic situations and varied conditions and special populations.

Audience: Undergraduate

NUTR SCI/BIOCHEM 560 – PRINCIPLES OF HUMAN DISEASE AND BIOTECHNOLOGY

2 credits.

Covers basic and applied biochemical principles related to human disease. Topics such as: cancer, including cell cycle regulation, oncogenes and tumor suppressors, and cellular metabolism; metabolic disorders, including cardiovascular disease, metabolic syndrome, and diabetes; biotechnology, including metabolomics, CRISPR-based genetic screens, and experimental models of human disease.

Requisites: BIOCHEM 501, 507, or graduate/professional standing**Course Designation:** Breadth – Biological Sci. Counts toward the Natural Sci req

Level – Advanced

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Grad 50% – Counts toward 50% graduate coursework requirement

Repeatable for Credit: No**Last Taught:** Spring 2025**Learning Outcomes:** 1. Critically evaluate, and accurately describe findings from primary research publications

Audience: Both Grad & Undergrad

2. Analyze how genetic and cell cycle perturbations contribute to cancer progression

Audience: Both Grad & Undergrad

3. Identify how genetic and environmental factors impact altered cellular metabolism in cancer

Audience: Both Grad & Undergrad

4. Describe biochemical mechanisms that contribute to cardiovascular disease, metabolic syndrome, and diabetes

Audience: Both Grad & Undergrad

5. Explain biochemical techniques, engineering strategies, and state-of-the-art technologies used in biomedical research

Audience: Both Grad & Undergrad

6. Collaborate with peers in a small group

Audience: Both Grad & Undergrad

7. Apply knowledge of biochemical principles and biotechnology to solve research and disease treatment related problems

Audience: Both Grad & Undergrad

8. Execute written critical evaluation of primary research literature related to the molecular basis of human diseases and advances in biotechnology.

Audience: Graduate

NUTR SCI 600 – INTRODUCTORY SEMINAR IN NUTRITION

1 credit.

Presentation of reports from current journals of nutritional sciences.

Requisites: Graduate/professional standing**Course Designation:** Breadth – Biological Sci. Counts toward the Natural Sci req

Level – Intermediate

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Grad 50% – Counts toward 50% graduate coursework requirement

Repeatable for Credit: No**Last Taught:** Fall 2024**NUTR SCI 618 – RESEARCH APPROACHES IN THE ERA OF PRECISION NUTRITION**

3 credits.

Exploration of current challenges and research approaches related to the progress of nutritional sciences in the era of precision nutrition. Topics include limitations of population-based approaches to establishing dietary guidelines, hurdles to developing biomarkers for determining individual nutritional status, the impact of genetics, epigenetics, the microbiome, diet interactions, and other factors on nutritional and metabolic variability among people, and the ways in which precision nutrition can revolutionize how nutrition recommendations are devised and delivered to the public.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% – Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2024

Learning Outcomes: 1. Critically evaluate current primary research literature in nutrition and metabolism
Audience: Graduate

2. Identify the limitations of population-based nutrition recommendations and the challenges facing development of biomarkers of individual status
Audience: Graduate

3. Distinguish the multitude of factors that create different nutritional needs among individuals and their metabolic heterogeneity
Audience: Graduate

4. Analyze how nutritional guidance is communicated to the public now and predict how it will be communicated in the future
Audience: Graduate

5. Explain state-of-the-art approaches to nutrition research and devise experiments, in the form of specific aims, for future research
Audience: Graduate

NUTR SCI/BIOCHEM 619 – ADVANCED NUTRITION: INTERMEDIARY METABOLISM OF MACRONUTRIENTS

3 credits.

Principles underlying the control of metabolism as it applies to macronutrients. Discusses advanced aspects of metabolic control. Metabolism of protein and amino acids, fat, and carbohydrate. Discusses fuel sensing and metabolism in disease.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% – Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2025

Learning Outcomes: 1. Describe regulatory mechanisms at the organ, cellular and biochemical level controlling intermediary metabolism of carbohydrates, lipids and proteins
Audience: Graduate

2. Identify regulatory points in metabolic pathways and explain how they may change with metabolic state
Audience: Graduate

3. Detail the changes and mechanisms underlying such changes in protein, carbohydrate and fat metabolism in changing physiological state and also in health vs disease state
Audience: Graduate

4. Evaluate modern experimental approaches for studying metabolism
Audience: Graduate

NUTR SCI/POP HLTH 621 – INTRODUCTION TO NUTRITIONAL EPIDEMIOLOGY

1 credit.

Techniques used to evaluate relationships of diet to health and disease in human populations; integration of knowledge gained with results of animal and clinical studies toward understanding dietary risk or protective factors for disease. Includes advanced diet assessment and basic epidemiologic approaches.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% – Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2025**NUTR SCI 623 – ADVANCED NUTRITION: MINERALS**

1 credit.

Topics discussed in regard to minerals are: metabolic roles; absorption, excretion, transport and cellular metabolism; nutritional and toxicological standards for humans and animal models; bioavailability; genetic interactions; and research methodologies.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% – Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2022

NUTR SCI 625 – ADVANCED NUTRITION: OBESITY AND DIABETES

1 credit.

Physiology, biochemistry and genetics of human obesity and diabetes. Critical review of current research on their etiology and treatment.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2023

NUTR SCI/AN SCI 626 – EXPERIMENTAL DIET DESIGN

1 credit.

Discuss nutrient requirements, composition of ingredients used to meet requirements and the mathematical steps involved in diet formulation with emphasis on research animals and human subjects.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2023

Learning Outcomes: 1. Develop an understanding of nutrient requirements, ingredients used to meet requirements, and the mathematical steps involved in diet formulation, with emphasis on research animals.

Audience: Both Grad & Undergrad

2. Develop skills required to formulate and prepare research diets

Audience: Both Grad & Undergrad

3. Develop an appreciation of nutrient requirements and the nutrient content of foods in development of healthy human diets.

Audience: Graduate

NUTR SCI 627 – ADVANCED NUTRITION: VITAMINS

1 credit.

Scientific knowledge of the metabolic functions, metabolism and nutritional requirements for some of the water soluble vitamins and all of the fat soluble vitamins.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2023

NUTR SCI 631 – CLINICAL NUTRITION I

3 credits.

Introduction to the nutrition care process, including pathology, medical nutrition therapy, and nutrition support in relation to alterations in nutrition and metabolism that accompany disease states. Research related to therapeutic nutrition.

Requisites: NUTR SCI 332, 431, and (BIOCHEM 301 or 501)

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Fall 2024

Learning Outcomes: 1. Recognize aspects of professional practice as a registered dietitian nutritionist

Audience: Undergraduate

2. Demonstrate understanding of the pathophysiology, as it relates to nutrition, for selected disease states/conditions

Audience: Undergraduate

3. Describe the medical nutrition therapy for selected disease states/conditions

Audience: Undergraduate

4. Translate nutrient recommendations into food recommendations

Audience: Undergraduate

5. Utilize the nutrition care process when providing medical nutrition therapy

Audience: Undergraduate

NUTR SCI 632 – CLINICAL NUTRITION II

3 credits.

Advanced topics surrounding pathology, medical nutrition therapy, and nutrition support in relation to alterations in nutrition and metabolism that accompany disease states. Research related to therapeutic nutrition.

Requisites: NUTR SCI 631

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Recognize aspects of professional practice as a registered dietitian nutritionist

Audience: Undergraduate

2. Demonstrate understanding of the pathophysiology, as it relates to nutrition, for selected disease states/conditions

Audience: Undergraduate

3. Describe the medical nutrition therapy for selected disease states/conditions

Audience: Undergraduate

4. Translate nutrient recommendations into food recommendations

Audience: Undergraduate

5. Utilize the nutrition care process when providing medical nutrition therapy

Audience: Undergraduate

NUTR SCI 641 – APPLICATIONS IN CLINICAL NUTRITION I

1 credit.

Clinical problem solving, assessing medical record data, evaluating food intake, planning modified diets, and reviewing medical and research literature related to certain diseases/conditions. Develops critical thinking, teamwork and communication skills needed by the dietetic intern and dietitian.

Requisites: Declared in Nutritional Science BS or BS-Dietetics and Nutrition and NUTR SCI 631 or concurrent enrollment

Repeatable for Credit: No

Last Taught: Fall 2024

Learning Outcomes: 1. Solve clinical case problems and case studies as part of a team using evidenced-based practice

Audience: Undergraduate

2. Summarize clinical cases for medical record using established documentation methods

Audience: Undergraduate

3. Use current information technologies to locate and apply evidence-based guidelines and protocols (KRDN 1.2)

Audience: Undergraduate

4. Demonstrate effective and professional oral and written communication and documentation (KRDN 2.1)

Audience: Undergraduate

5. Describe the regulation system related to billing and coding, what services are reimbursed by third party payers and how reimbursement may be obtained (KRDN 4.3)

Audience: Undergraduate

NUTR SCI 642 – APPLICATIONS IN CLINICAL NUTRITION II

1 credit.

Clinical problem solving, assessing medical record data, evaluating food intake, planning modified diets, and reviewing medical and research literature related to certain disease states/conditions. Develops critical thinking, teamwork and communication skills needed by the dietetic intern and dietitian.

Requisites: Declared in Nutritional Science BS or BS-Dietetics and Nutrition and NUTR SCI 631 or concurrent enrollment

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Solve clinical case problems and case studies as part of a team using evidenced-based practice

Audience: Undergraduate

2. Summarize clinical cases for medical record using established documentation methods

Audience: Undergraduate

3. Develop an educational session or program/educational strategy for a target population (KRDN 3.2)

Audience: Undergraduate

4. Demonstrate counseling and education methods to facilitate behavior change for and enhance wellness for diverse individuals and groups (KRDN 3.3)

Audience: Undergraduate

5. Analyze data for assessment and evaluate data to be used in decision-making for continuous quality improvement (KRDN 4.6)

Audience: Undergraduate

NUTR SCI/BIOCHEM 645 – MOLECULAR CONTROL OF METABOLISM AND METABOLIC DISEASE

3 credits.

Examination of various physiological states and how they affect metabolic pathways. Discussion of a number of special topics related to the unique roles of various tissues and to metabolic pathways in disease states, including adipocyte biology, beta-cell biology, epigenetics, inflammation, and aging related diseases.

Requisites: BIOCHEM 501, 508 or graduate/professional standing

Course Designation: Breadth – Biological Sci. Counts toward the Natural Sci req

Level – Advanced

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Fall 2024

Learning Outcomes: 1. Identify the mechanisms by which tissues maintain metabolic flexibility.

Audience: Undergraduate

2. Differentiate between how lipid metabolism regulates carbohydrate metabolism and vice versa.

Audience: Undergraduate

3. Describe the regulation of lipogenesis.

Audience: Undergraduate

4. Discuss how hormone secreting endocrine cells in the pancreas sense nutrients to regulate blood glucose.

Audience: Undergraduate

5. Explain the importance of intracellular lipid cycling for body temperature regulation.

Audience: Undergraduate

6. Discuss the manner in which mitochondrial metabolism is assessed.

Audience: Undergraduate

7. Examine hormonal regulation of circadian rhythms.

Audience: Undergraduate

8. Describe the basis for thermogenesis.

Audience: Undergraduate

9. Explain the pathways leading to inflammation.

Audience: Undergraduate

NUTR SCI 650 – ADVANCED CLINICAL NUTRITION: CRITICAL CARE AND NUTRITION SUPPORT

3 credits.

Advanced study of the metabolic demands of critical illness and how these alterations influence the nutritional needs of critical care patients in various disease states. Using an evidence-based medical approach, students will assess nutrient requirements and determine best methods of nutrient delivery in various disease states. Anthropometric measures and hematological indices will be incorporated to assess nutritional status and monitor response to nutritional therapies.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2024

NUTR SCI 651 – ADVANCED CLINICAL NUTRITION - PEDIATRICS

3 credits.

Pediatric nutritional requirements with emphasis on issues related to evidence-based medical nutrition therapy.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

NUTR SCI 652 – ADVANCED NUTRITION COUNSELING AND EDUCATION

3 credits.

Application of current theories and techniques of counseling and education to the field of nutrition and dietetics. Practical application of communication techniques, client-centered counseling methods, motivational interviewing, learning theories and behavior change techniques, and factors affecting eating patterns. Nutrition psychology and the psychoanalytic approach to nutrition counseling will be emphasized in the class. Principles of group counseling/facilitation and instructional material/media design.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Summer 2025

NUTR SCI 653 – CLINICAL NUTRITION RESEARCH

3 credits.

Research use and development as it applies to clinical nutrition practice: effective use of the literature in evidence based practice and research development, problem development, methodology, analysis and reporting of results and conclusions.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Summer 2025

NUTR SCI 655 – NUTRITION IN AGING

3 credits.

Interpret research relating to nutrition during the aging process. Gain an understanding of acute and chronic conditions in older persons, both in hospital and the community. Examine the impact of aging on organ systems and address the relationship among physiologic aging, nutrition, and disease.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2023

Learning Outcomes: 1. Articulate how the physiologic changes of aging impact nutrition, distinguishing between natural physiologic changes of aging and those occurring from disease.

Audience: Graduate

2. List characteristics representative of the aging population.

Audience: Graduate

3. Describe how dietary recommendations for older adults differ from younger adults.

Audience: Graduate

4. Identify physiologic changes of aging that impact exercise capacity and describe the benefits of exercise for older adults.

Audience: Graduate

5. Examine, investigate, and summarize the essential components of a nutritional assessment for an older adult, including anthropometric, biochemical, clinical, and dietary factors.

Audience: Graduate

6. Describe the nutritional impact of diseases and conditions common in older adults.

Audience: Graduate

7. Explain the significance of nutrition in prevention and management of diseases frequently impacting older adults.

Audience: Graduate

8. Implement appropriate dietary and lifestyle interventions for the prevention of disease and conditions common among older adults.

Audience: Graduate

NUTR SCI 657 – MANAGEMENT IN DIETETICS

3 credits.

Evaluate research and apply management principles in dietetics practice. Enhance leadership and management skills for settings such as hospitals, long-term care facilities, schools, universities, prisons, and other locations where food and nutrition services are administered.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Summer 2025

Learning Outcomes: 1. Apply professionalism and related topics to career development.

Audience: Graduate

2. Enhance critical thinking and decision-making skills.

Audience: Graduate

3. Apply leadership and management theories, especially useful for managing a professional staff.

Audience: Graduate

4. Develop a business plan for an area of advanced practice, including a logic model, marketing plan, implementation plan, budgeting system, and outcomes measurement.

Audience: Graduate

5. Apply a framework to assess, develop, implement and evaluate products, programs and services.

Audience: Graduate

6. Demonstrate leadership skills to guide practice

Audience: Graduate

7. Apply principles of organization management

Audience: Graduate

8. Apply project management principles to achieve project goals and objectives.

Audience: Graduate

9. Lead quality and performance improvement activities to measure, evaluate and improve a program's services, products and initiatives.

Audience: Graduate

10. Develop and lead implementation of risk management strategies and programs.

Audience: Graduate

NUTR SCI 670 – NUTRITION AND DIETETICS PRACTICUM I

3 credits.

The first of two supervised practice experiences in nutrition and dietetics at University of Wisconsin Hospital and Clinics and affiliated sites. Dietetic interns apply their academic training, furthering their competency in: clinical nutrition, food systems management, research, and community experiences.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Repeatable for Credit: No

Last Taught: Spring 2025

NUTR SCI 671 – NUTRITION AND DIETETICS PRACTICUM II

3 credits.

The second of two supervised practice experiences in nutrition and dietetics at University of Wisconsin Hospital and Clinics and affiliated sites. Dietetic interns apply their academic training, furthering their competency in: clinical nutrition, food systems management, research, and community experiences.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Repeatable for Credit: No

Last Taught: Summer 2025

NUTR SCI 675 – NUTRACEUTICALS FOR HEALTHCARE PROFESSIONALS

1 credit.

Overview of the principles and processes necessary to evaluate and utilize bioactive food components and dietary supplements in practice, including federal regulations. Current scientific evidence supporting or refuting the biochemical and physiological efficacy of select bioactive food components and dietary supplements will be addressed.

Requisites: ANAT&PHY 335 and (BIOCHEM 301 or 501) or declared in the Capstone Certificate in Clinical Nutrition or Clinical Nutrition MS

Course Designation: Grad 50% – Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Discuss current regulation of bioactive food components and dietary supplements

Audience: Both Grad & Undergrad

2. Assess quality, purity and identity of dietary supplements

Audience: Both Grad & Undergrad

3. Explain basic principles of functional nutrition and how bioactive food components and dietary supplements relate

Audience: Both Grad & Undergrad

4. Utilize appropriate resources to obtain current information on bioactive food components and dietary supplements

Audience: Both Grad & Undergrad

5. Critically evaluate the research to support or refute the use of selected bioactive food components and dietary supplements

Audience: Both Grad & Undergrad

6. Summarize current knowledge on popular bioactive food components and dietary supplements used in various health conditions

Audience: Both Grad & Undergrad

7. Apply knowledge of bioactive food components and dietary supplements to working with patients/clients

Audience: Both Grad & Undergrad

8. Apply an understanding of environmental, molecular factors (e.g. genes, proteins, metabolites) and food in the development and management of disease (ACEND Competency [1.1])

Audience: Both Grad & Undergrad

9. Apply an understanding of anatomy, physiology, and biochemistry (ACEND Competency [1.2])

Audience: Both Grad & Undergrad

10. Integrate knowledge of chemistry and food science as it pertains to food and nutrition product development and when making modifications to food (ACEND Competency [1.4])

Audience: Both Grad & Undergrad

11. Apply knowledge of pathophysiology and nutritional biochemistry to physiology, health and disease (ACEND Competency [1.5])

Audience: Both Grad & Undergrad

12. Apply knowledge of social, psychological and environmental aspects of eating and food (ACEND Competency [1.6])

Audience: Both Grad & Undergrad

13. Integrate the principles of cultural competence within own practice and when directing services (ACEND Competency [1.7])

NUTR SCI 681 – SENIOR HONORS THESIS

2-4 credits.

Individual study and research for students completing theses under direct guidance of a Nutritional Science faculty or instructional academic staff member.

Requisites: Consent of instructor

Course Designation: Honors – Honors Only Courses (H)

Repeatable for Credit: No

Last Taught: Fall 2016

Learning Outcomes: 1. Review and analyze scientific literature.

Audience: Undergraduate

2. Identify and use appropriate research methodologies to address a research question.

Audience: Undergraduate

3. Begin structuring and writing a thesis based on original research.

Audience: Undergraduate

4. Effectively communicate scientific findings in an oral and/or written format.

Audience: Undergraduate

NUTR SCI 682 – SENIOR HONORS THESIS

2-4 credits.

Individual study and research for students completing theses under direct guidance of a Nutritional Science faculty or instructional academic staff member.

Requisites: Consent of instructor

Course Designation: Honors – Honors Only Courses (H)

Repeatable for Credit: No

Last Taught: Spring 2017

Learning Outcomes: 1. Review and analyze scientific literature.

Audience: Undergraduate

2. Identify and use appropriate research methodologies to address a research question.

Audience: Undergraduate

3. Write a thesis based on original research.

Audience: Undergraduate

4. Effectively communicate scientific findings in an oral and/or written format.

Audience: Undergraduate

NUTR SCI 691 – SENIOR THESIS-NUTRITION

1-4 credits.

Individual study and research for students completing theses under direct guidance of a Nutritional Science faculty or instructional academic staff member.

Requisites: Consent of instructor

Repeatable for Credit: No

Last Taught: Fall 2021

Learning Outcomes: 1. Review and analyze scientific literature.

Audience: Undergraduate

2. Identify and use appropriate research methodologies to address a research question.

Audience: Undergraduate

3. Begin structuring and writing a thesis based on original research.

Audience: Undergraduate

4. Effectively communicate scientific findings in an oral and/or written format.

Audience: Undergraduate

NUTR SCI 692 – SENIOR THESIS

1-4 credits.

Individual study and research for students completing theses under direct guidance of a Nutritional Science faculty or instructional academic staff member.

Requisites: Consent of instructor

Repeatable for Credit: No

Last Taught: Spring 2022

Learning Outcomes: 1. Review and analyze scientific literature.

Audience: Undergraduate

2. Identify and use appropriate research methodologies to address a research question.

Audience: Undergraduate

3. Write a thesis based on original research

Audience: Undergraduate

4. Effectively communicate scientific findings in an oral and/or written format.

Audience: Undergraduate

NUTR SCI 699 – SPECIAL PROBLEMS

1-3 credits.

Directed study under direct guidance of a Nutritional Science faculty member or instructional academic staff member.

Requisites: Consent of instructor

Course Designation: Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Summer 2025

Learning Outcomes: 1. Articulate a clear research question or problem and formulate a hypothesis.

Audience: Undergraduate

2. Identify appropriate research methodologies and collect sound scientific data.

Audience: Undergraduate

3. Apply critical thinking skills to interpret laboratory data and apply problem solving skills to constructively address research setbacks.

Audience: Undergraduate

4. Practice research ethics and responsible conduct in research.

Audience: Undergraduate

5. Communicate scientific ideas and results verbally and in written form effectively

Audience: Undergraduate

NUTR SCI 710 – HUMAN ENERGY METABOLISM

2 credits.

Fundamentals in human macronutrient metabolism and its role in health and disease. Biochemistry and physiology of macronutrient digestion, anabolism, and catabolism. Disorders of energy metabolism (obesity, type 1 and type 2 diabetes, starvation). Metabolic effects of fiber and the microbiota. Body composition and energy assessment. Taught in an online format using lectures, guided readings, and projects.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Summer 2025

NUTR SCI 711 – PERSONALIZED NUTRITION: GENETICS, GENOMICS, AND METAGENOMICS

1 credit.

Genetic factors that modulate the relationships between diet, health, and disease risks, including the effects of differences in our genetic makeup (Nutrigenetics), the regulation of gene expression by nutrients and dietary patterns (Nutrigenomics), and the interactions between diet, gut microbiome, and human hosts (Metagenomics).

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2024

NUTR SCI 715 – MICRONUTRIENTS: HUMAN PHYSIOLOGY AND DISEASE

3 credits.

Micronutrients explores the function of vitamins and essential mineral nutrients from the biochemical and nutritional perspective with emphasis on issues essential for clinical nutrition.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

NUTR SCI 720 – ADVANCED NUTRITION ASSESSMENT

1 credit.

Advanced skills and evolving methods of nutritional assessment. Measurement and interpretation of physical examination and laboratory parameters. Diagnosing malnutrition and nutrient deficiencies, including clinical characteristics used to identify and label the degree of malnutrition.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Summer 2025

NUTR SCI 721 – NUTRITION INFORMATICS

1 credit.

The emerging role of the electronic storage, retrieval and dissemination of food and nutrition related data and the effective use of information for problem solving and decision-making for the dietetics professional.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Summer 2025

NUTR SCI 725 – ADVANCED COMMUNITY NUTRITION

1 credit.

Community nutrition as it applies to clinical nutrition practice: programs, resources and issues supporting clinical nutrition practice in the community.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2024

NUTR SCI 726 – NUTRITIONAL MANAGEMENT OF GASTROINTESTINAL DISORDERS

3 credits.

Highlights the important interaction between nutrition and the human gastrointestinal tract (GI). Includes exploration of various gastrointestinal related disorders and diseases, and covers contemporary issues, current research, and real-life examples applicable to the field of nutrition, and nutrition providers. Includes instruction from content collaborators and GI nutrition experts. Apply the pathophysiology of GI disorders and disease, deconstruct differential diagnoses; and describe current medical management and dietary requirements of an individual and translate this into appropriate medical nutritional therapy.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2024

Learning Outcomes: 1. Articulate the importance of the interaction between nutrition and the human gastrointestinal tract.

Audience: Graduate

2. Examine, investigate, and summarize the role, current trends and research of the gut microbiome, functional medicine, popular/fad diets and efficacy for treatment of common GI disorders and diseases.

Audience: Graduate

3. Apply the pathophysiology of GI disorders/diseases, deconstruct differential diagnosis, describe current medical management and dietary requirements of an individual-and translate this into appropriate medical nutritional therapy.

Audience: Graduate

4. Reflect on external and internal environment forces that can impact your nutritional recommendations to an individual or family, assess the effectiveness of recommendations, and be able to modify or adjust accordingly.

Audience: Graduate

NUTR SCI 731 – RESEARCH IN PROGRESS SEMINAR

1 credit.

Seminars on topics in nutritional sciences of interest to Nutritional Sciences dissertators and reports on doctoral student research.

Requisites: Consent of instructor

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Construct and deliver more effective presentations on their research to their peers and other researchers in their general field

Audience: Graduate

2. Evaluate and provide constructive feedback and criticism of their peers' seminar presentations

Audience: Graduate

3. Interact constructively with peers and other researchers in the field

Audience: Graduate

4. Relate personal research interests to topics in the larger field of Nutritional Sciences

Audience: Graduate

NUTR SCI 745 – GRANT WRITING FOR NUTRITIONAL SCIENCES RESEARCH

2 credits.

Interactively address the knowledge, approach, and professional skills (conceptual, technical, and writing) required to create a successful grant proposal and initiate a career in research. Format is focused on the planning and completion of NIH-style grant proposals. Lectures and workshops will address the development of long term goals, hypotheses, and specific aims, as well as research design and methodology. Basic guidelines and approaches to proposal review and scoring are also covered. Several key components of a grant proposal will be generated using an iterative and peer-supported process.

Requisites: Consent of instructor

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Identify the components of an NIH grant and the content expected within each section during the review process.

Audience: Graduate

2. Succinctly analyze the current literature on a significant topic and identify gaps in knowledge that are worthy of further investigation.

Audience: Graduate

3. Generate overall objectives, hypotheses, and specific aims for projects that fill knowledge gaps.

Audience: Graduate

4. Construct a compelling research plan that describes the significance of completing a project's objectives, the methods to be used in the research, and potential problems and alternative strategies.

Audience: Graduate

5. Give and receive critical constructive feedback and revise research ideas in response.

Audience: Graduate

NUTR SCI 750 – ADVANCED SPORTS NUTRITION

2 credits.

Integration of foundational nutrition and exercise physiology principles with sports nutrition concepts from a clinical perspective. Evaluation of the unique nutritional requirements for athletes/active individuals on body composition, performance, and timing of nutrients and hydration related to pre-activity, during activity, and post-activity recovery. Application of these concepts with clinical conditions requiring specialized sports nutrition approaches such as diabetes, gastrointestinal disorders, eating disorders, micronutrients deficiencies and life cycle populations (youth/adolescent, pregnant and masters' athletes). Analysis of sports nutrition research to utilize evidenced-based practice and recommendations around ergogenic aids/supplements and other sports nutrition topics.

Requisites: Declared in Clinical Nutrition MS or the Capstone Certificate in Clinical Nutrition

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Summer 2025

Learning Outcomes: 1. Expand and adapt foundational knowledge of macronutrient, micronutrient and fluid needs for exercise and activity along with rationale for requirements.

Audience: Graduate

2. Evaluate sports nutrition research on ergogenic aids/supplementation and translate research to practice.

Audience: Graduate

3. Integrate current knowledge of sports nutrition into individual's goals for performance.

Audience: Graduate

4. Apply sports nutrition and medical nutrition therapy concepts to unique athletic situations and varied conditions and special populations.

Audience: Graduate

NUTR SCI 799 – PRACTICUM IN NUTRITIONAL SCIENCES TEACHING

1-3 credits.

Instructional orientation to teaching at the higher education level in the agricultural and life sciences, direct teaching experience under faculty supervision, experience in testing and evaluation of students, and the analysis of teaching performance.

Requisites: Consent of instructor

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

NUTR SCI 875 – SPECIAL TOPICS

1-4 credits.

Special topics on contemporary issues relevant to graduate students studying health and nutrition.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Summer 2025

NUTR SCI 881 – SEMINAR-TOPICS IN HUMAN AND CLINICAL NUTRITION

1 credit.

Varied topics in clinical and human nutrition.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2024

NUTR SCI/BIOCHEM 901 – SEMINAR-NUTRITION AND METABOLISM (ADVANCED)

1 credit.

Presentation of original research results; discussion of recent articles in animal metabolism and nutrition.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2024

Learning Outcomes: 1. Discuss state-of-the-art research in nutrients and genetic regulation of metabolism

Audience: Graduate

2. Communicate scientific research and critically evaluate experimental results

Audience: Graduate

NUTR SCI 931 – SEMINAR-NUTRITION

1 credit.

Seminar features expert presentations of current research and issue-based applications that represent the breadth of nutritional sciences; topics investigate problems "from molecules to communities".

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2025

NUTR SCI 991 – RESEARCH NUTRITION

1-12 credits.

Independent research with assigned instructor. Research projects determined by agreement between instructor and student.

Requisites: Consent of instructor

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Summer 2025