



## MSACN COURSE DESCRIPTIONS

### **NTR 5104: Biochemistry I: The Macronutrients**

**Course Description:** This is an online interactive course designed to prepare students to understand how carbohydrates, fats and proteins function in the body; how each macronutrient, alone and when combined, undergoes integrated metabolism within tissues; and how the macronutrients integrate to affect overall metabolism, disease risk and recovery. Suggestions for client counseling on these issues will be presented.

### **NTR 5106: Theories and Principles of Applied Clinical Nutrition and Whole Food Science**

**Course Description:** This is an online interactive course designed to provide an overview of whole food science, which allows students to understand the functions of nutrients in the production, quality and consumption of foods and how they are to be prepared consistent with food safety precautions. This course will introduce the factors that influence the end quality of foods, which include the production, selection, storage, preparation, and ingredient modifications. This course will provide students with the core knowledge of the current nutritional landscape in regards to the regulatory environment, nutritional topics and strategies as well as an introduction to the issues associated with developing a nutritional business. Addressed are common current nutritional intervention plans currently used by the nutritional professional. Clinical applications will be reviewed and discussed.

### **NTR 5206: Biochemistry II: The Micronutrients**

**Course Description:** This course explores the metabolic pathways to which micronutrients (vitamins and minerals) play a significant regulatory role as well as the interaction between nutrients within these pathways. In this course students will also explore the variability in micronutrient requirements between individuals, outline the signs and symptoms associated with both nutrient deficiency and excess, and evaluate possible dosages associated with different forms of micronutrient supplements. Food sources for micronutrients and the various uses with respect to disease prevention and therapy in industrialized countries will be reviewed.

### **NTR5207: Nutrition Across the Lifespan**

**Course Description:** This is an online interactive course focusing on the fundamentals of normal nutrition from preconception to old age. Special attention will be paid to the clinical and nutritional interventions that apply to each part of the life cycle. In addition to the essential nutrition concepts, physiological principles and nutritional recommendations, we will apply case studies to real life at each stage in development, with consideration of cultural competence and effective client counseling.

**NTR5204: Clinical Nutrition for Pain & Inflammation**

**Course Description:** This is a course designed to facilitate the use of diet and basic nutritional supplements in clinical practice. The focus is nutritional applications to reduce inflammation and pain. The inflammatory process will be studied in significant detail and related to the process of nociception and pain. Also examined will be the relationship between chronic inflammation and various degenerative diseases such as cancer, heart disease, syndrome X, Alzheimer's disease, depression, cold/flu symptoms, and other conditions. Practical nutritional applications will be directed at reducing inflammation with diet and supplements.

**NTR 5305: Design, Analysis, and Critical Evaluation of Research**

**Course Description:** An online interactive course designed to introduce the graduate student to typical methods in analyzing and interpreting biomedical data and research design. This course will help guide the graduate student in developing research studies, conducting statistical analyses and reading / evaluating the literature.

**NTR 5405: Behavioral Nutrition**

**Course Description:** Food and nutrition-related behaviors are often key determinants of many health issues such as heart disease and type 2 diabetes. This course is designed to introduce students to the field of behavioral nutrition beginning with an overview of theories of health behavior and concluding with nutrition education techniques to promote effective behavior change from the individual to the population level. Critical analysis of existing behavior change programs creates a meaningful understanding of the key concepts of behavioral nutrition including: health psychology, behavioral epidemiology, mediating variables, theoretical framework, and cultural competency.

**NTR5406: Clinical Herbalism**

**Course Description:** This is an online course focusing on the use of natural materials as therapeutic agents. Plants have yielded many important medicines; in this course students will learn to understand the pharmacological and biological effects of medicinal herbs, as well as how to properly select and prepare them for clinical use. The biochemical constituents of plant extracts and the isolation of their active components, as well as relevant clinical studies will be explored.

**NTR 5407: Professionalism and Ethics**

**Course Description:** This course teaches the foundational ethics and professional attributes associated with the nutritional profession. Students will demonstrate knowledge of: professional attributes and interactions, setting and maintaining healthy boundaries with patients, credentialing, scope of practice rights and restrictions, HIPAA, and risk management.

**NTR5402: Drug Induced Nutrient Depletion & Herb/Drug Interaction**

**Course Description:** This is an interactive course describing the numerous drugs that can cause depletions through a variety of biochemical mechanisms. Depletion of nutrients can lead to alterations in physiology leading to side effects, adverse clinical symptoms and disease. This course will review the most significant drug induced nutrient depletions and their impact on the body. This course will also review the most significant herb/drug interactions and provide a review of databases and information relating to this topic. Scientific studies that report, verify, and explain these two prominent issues in integrative care will be reviewed and discussed.

**NTR 5503: NUTRITIONAL ASSESSMENT**

**Course Description:** Clinical nutrition not only assesses deficiency states, but can be used to improve health via proper food selection and nutrition supplementation. A clinical and laboratory assessment enables a health care provider to develop an individualized therapeutic program to address deficiencies and disease states. This interactive online course will educate the student on the assessment of a client's state of health, diet and lifestyle history, anthropometric measurements, as well as laboratory testing including analysis of blood, stool, saliva and urine. The course will integrate use of these measurements in the design of an appropriate nutritional protocol for the client. The student will also learn effective client management and follow-up.

**NTR5603: Therapeutic Nutrition**

**Course Description:** This is an online interactive course focusing on the use of nutrition therapy in the management of health and disease. Specific nutrition intervention including diet, vitamins, minerals, botanicals, essential fatty acids and amino acids will be explored for a wide variety of diseases commonly encountered in clinical practice. The biochemistry of each intervention will be discussed for a full understanding of how to integrate nutrition therapy into patient care.

**NTR 5604: Clinical Sports Nutrition**

**Course Description:** This online interactive course will use exercise physiology as a basis for exploring the acute and chronic adaptations of the body to the strenuous demands of exercise and sports. Topics covered include the physiology of the skeletal, muscular, cardiorespiratory and endocrine systems. Nutritional concepts relating to how the body uses the macronutrients and micronutrients to fuel energy systems will be explored. Popular performance enhancing and weight-loss supplements will be examined. Nutritional and exercise prescription for athletes, adolescents, ageing and diseased-state will be investigated.