

# NUTR - NUTRITION

## NUTR 601/ANSC 601 General Animal Nutrition

**Credits 3. 3 Lecture Hours.** Comparative nutrition of animal species contrasting digestive, metabolic and physiological functions involved in processing and using nutrients. **Prerequisite:** ANSC 303 or ANSC 318 or equivalent. **Cross Listing:** ANSC 601/NUTR 601.

## NUTR 602/ANSC 602 Energetics of Metabolism and Growth

**Credits 3. 3 Lecture Hours.** Current fundamental concepts in protein and energy metabolism relating to nutrients required for maintenance, growth and development of animals. **Prerequisite:** BICH 410 or approval of instructor. **Cross Listing:** ANSC 602/NUTR 602.

## NUTR 610/FSTC 610 Nutritional Pharmacometrics of Food Compounds

**Credits 3. 3 Lecture Hours.** Introduction into nutritional pharmacokinetics and pharmacodynamics of food compounds; specific examples of toxicological and pharmacological effects of food compounds. **Prerequisite:** NUTR 202, NUTR 203, FSTC 201, CHEM 227, or CHEM 222, or instructor approval. **Cross Listing:** FSTC 610/NUTR 610.

## NUTR 613/ANSC 613 Protein Metabolism

**Credits 3. 3 Lecture Hours.** Basic concepts and recent advances in protein metabolism in animals with emphasis on physiological and nutritional significances; discussion of protein digestion; absorption of peptides; absorption, synthesis and degradation of amino acids; hormonal and nutritional regulation of protein turnover; determination of protein quality and requirements. **Prerequisite:** BICH 411 or BICH 601 or equivalent or approval of instructor. **Cross Listing:** ANSC 613/NUTR 613.

## NUTR 614 Fermentation and Gastrointestinal Microbiology

**Credits 3. 3 Lecture Hours.** Fermentation and gastrointestinal ecosystems in terms of microorganisms present, their activities and requirements and their interactions in a dynamic system. **Prerequisite:** Beginning microbiology and/or biochemistry or approval of instructor. **Cross Listing:** POSC 614 and VTMI 614.

## NUTR 617 Experimental Techniques in Meat Science

**Credits 3. 1 Lecture Hour. 6 Lab Hours.** Methods used in separating and identifying muscle proteins and fats; techniques for determining postmortem changes of muscle tissue as a result of antemortem treatments. **Prerequisite:** ANSC 607/FSTC 607; BICH 411.

## NUTR 618/ANSC 618 Lipids and Lipid Metabolism

**Credits 3. 3 Lecture Hours.** Chemical nature of various classes of lipids and lipid-derived hormones; absorption and metabolism of fatty-acids and lipids; regulation of lipid biosynthesis and obesity; relationship between lipid metabolism and cholesterol homeostasis; lipids as hormones. **Prerequisite:** BICH 410 or approval of instructor. **Cross Listing:** ANSC 618/NUTR 618.

## NUTR 631 Clinical Practice Skills in Dietetics

**Credit 1. 1 Lecture Hour.** Application of evidence-based practice to the Nutrition Care Process for clinical diagnoses and conditions; demonstration of clinical practice skills as a component of nutrition assessment, nutrition intervention, monitoring and evaluation. **Prerequisites:** Enrollment in Master of Clinical Nutrition Program.

## NUTR 632 Nutrition in Disease

**Credits 3. 3 Lecture Hours.** Human nutritional requirements in health and disease, emphasizing effects of disease states on intake, digestion, absorption, metabolism and excretion of nutrients; relationship of diet to development of certain diseases.

## NUTR 641/ANSC 641 Nutritional Biochemistry I

**Credits 3. 3 Lecture Hours.** Integration of the intermediary metabolism of glucose, amino acids and lipids with nutrition, physiology and pathophysiology in animals; regulation of metabolic pathways in cells, tissues and the whole body under normal and disease conditions; functions of vitamins and minerals in nutrient metabolism and health. **Prerequisite:** BICH 411 or BICH 604. **Cross Listing:** ANSC 641/NUTR 641.

## NUTR 642 Nutritional Biochemistry II

**Credits 3. 3 Lecture Hours.** Integration of nutrition, biochemistry and other life sciences focusing on nutrients and their needs in healthy and unhealthy individuals; macronutrients and their metabolism and the pertinent regulation; nutrient sensing and signaling pathways; nutritional and hormonal regulation of gene expression; commonly used nutritional and biochemical assays. **Prerequisites:** NUTR 475, BICH 410 or equivalent.

## NUTR 645/POSC 645 Nutrition and Metabolism of Vitamins

**Credits 3. 3 Lecture Hours.** Chemistry and metabolism of the fat soluble and water soluble vitamins and their roles in animals; integrates cellular biochemistry and metabolism of the vitamins in vertebrate animals. **Prerequisites:** POSC 411 or ANSC 303; BICH 410 or BICH 603. **Cross Listing:** POSC 645/NUTR 645.

## NUTR 646 Fundamentals of Space Life Sciences

**Credits 3. 3 Lecture Hours.** Integrates nutrition, physiology, and radiation biology to define major biological problems in long duration space flight; provide an overview of the problems of bone loss, muscle wasting, and radiation-enhanced carcinogenesis along with potential countermeasures; focus on nutritional interventions and exercise protocols. **Cross Listing:** NUEN 646 and KINE 646.

## NUTR 650/POSC 650 Nutrition and Metabolism of Minerals

**Credits 3. 3 Lecture Hours.** Nutritional significance of minerals in animal metabolism; chemical, biochemical and physiological role of minerals and homeostatic control in animal metabolism. **Prerequisites:** POSC 411 or ANSC 303; BICH 410 or BICH 603. **Cross Listing:** POSC 650/NUTR 650.

## NUTR 651 Nutritional Biochemistry of Fishes

**Credits 3. 3 Lecture Hours.** Principles of nutritional biochemistry including nutrient metabolism and biochemical energetics with special emphasis on finfish and shell fish. **Prerequisite:** BICH 410 or equivalent.

## NUTR 654 Nutrigenomics and Precision Nutrition

**Credits 3. 3 Lecture Hours.** Fundamentals of genetic variation and diet nutrients; dietary and nutrient impacts on gene expression and relationship to individual genomes; investigation of disease treatment through improved nutrition; the role of health through precise nutrition. **Prerequisites:** Graduate classification; undergraduate or graduate nutrition and genetics courses.

## NUTR 655 Nutrition and Healthy Aging

**Credits 3. 3 Lecture Hours.** Fusion of biology of aging and geriatric nutrition; different aging theories, pathophysiology of aging and age-related diseases, nutritional needs of older adults, nutritional impacts on lifespan and healthspan and nutritional interventions for healthy aging. **Prerequisite:** Graduate classification.

## NUTR 669 Experimental Nutrition & Food Science Laboratory

**Credits 4. 1 Lecture Hour. 6 Lab Hours.** Experimental Nutrition & Food Science Laboratory. Nutritional intervention in animal models of metabolic or emotional disorders; genetic modifications or pathogens in food products; analyses of gene expression and behavior. **Prerequisite:** BICH 432/GENE 432 or GENE 432/BICH 432 recommended; graduate in nutrition or related major.

## NUTR 671 Evidence-Based Practice and Synthesis Methods

**Credits 3. 3 Lecture Hours.** In this course, we will learn how to systematically identify the best available research on topics of clinical or public health interest, and critically review and appraise literature in the nutrition and allied health fields. We will also learn methods of comprehensive syntheses of research evidence. Rigorous review methods will be highlighted, such as searching for potentially relevant articles; selecting primary articles using explicit, reproducible criteria; appraisal of studies; quantitative data synthesis; and, interpretation. **Prerequisites:** Biostatistics course, NUTR 202 or instructor permission; graduate classification.

## NUTR 679 Lipoproteins in Health and Disease

**Credits 3. 3 Lecture Hours.** Understanding of lipoprotein biology as it relates to nutrient delivery and disease development; emphasis on understanding how structure influences the function of different lipoprotein particles in human and avian systems; opportunity to study individual lipoprotein profiles or those of animals by modern imaging techniques; background in basic lipid biochemistry helpful.

## NUTR 681 Seminar

**Credits 0-1. 0-1 Other Hours.** Oral reports and discussions of current research and developments in nutrition designed to broaden understanding of problems and to stimulate research.

## NUTR 684 Professional Internship

**Credits 0 to 16. 0 to 16 Other Hours.** Experience in application of formal training to a commercial operation under supervision of operations manager and designated faculty member; investigation of matter of mutual interest and report results in a professional paper approved by the graduate committee.

## NUTR 685 Directed Studies

**Credits 1 to 4. 1 to 4 Other Hours.** Directed study of selected problems emphasizing recent developments in research techniques.

## NUTR 689 Special Topics in...

**Credits 1 to 4. 1 to 4 Other Hours.** Special topics in an identified area of nutrition. May be repeated for credit.

## NUTR 691 Research

**Credits 1 to 23. 1 to 23 Other Hours.** Investigations leading to thesis or dissertation in various areas of nutrition.