Nutrition Sciences (Ph.D.)

View PDF of Nutrition Sciences (Ph.D.) Admissions Checklist
Prospective students should use this checklist to obtain specific admissions requirements on how to apply to Graduate School.

View PDF of Nutrition Sciences (M.S.) Admissions Checklist
Prospective students should use this checklist to obtain specific admissions requirements on how to apply to Graduate School.

View PDF of Nutrition, Dietetic Internship Program Admissions Checklist
Prospective students should use this checklist to obtain specific admissions requirements on how to apply to Graduate School.

View PDF version of the Nutrition Sciences catalog description

Degree Offered: Ph.D.
Director: Dr. Jose Fernandez
Phone: (205) 934-2029
E-mail: jose@uab.edu
Web site: www.uab.edu/nutrition

Faculty

Krista Casazza, PhD, RD  Assistant Professor (Nutrition Sciences); Resource partitioning during critical periods of growth and development with primary focus on the bone-fat interface.

Paula Chandler-Laney, PhD  Assistant Professor (Nutrition Sciences); Use of behavioral and/or psychological parameters to predict success in weight loss and maintenance programs; the association between satiety hormones and subjective responses; and an investigation of childhood body composition and metabolic health consequences of intrauterine exposure to gestational diabetes and maternal obesity

Pi-Ling Chang, PhD  Associate Professor (Nutrition Sciences); Vitamin D and Cancer, Osteoporosis, Bone-Matrix Proteins, Osteoblast Differentiation

Maria De Luca, PhD  Assistant Professor (Nutrition Sciences); Genetics of fat storage and innate immune function, Obesity, Aging.

Wendy Demark-Wahnefried, Phd, RD  Professor and Webb Endowed Chair of Nutrition Sciences; diet/hormonal/genetic interactions and their association with cancer; dietary interventions and lifestyle for cancer prevention and survival

Isao Eto, PhD  Associate Professor (Nutrition Sciences); Nutritional Biochemistry, Folate Metabolism and Interactions, Cancer Biology and Biochemistry

Jose R. Fernandez, PhD  Associate Professor (Nutrition Sciences); Gene Mapping, Genetic Admixture, Racial Differences, Obesity, Diabetes

Yuchang Fu, PhD  Assistant Professor (Nutrition Sciences); Gene Expression and Regulation Related to Lipid Metabolism in Atherosclerosis and Diabetes

W. Timothy Garvey, MD  Professor and Chair (Nutrition Sciences); Molecular, Metabolic, and Genetic Pathogenesis of Insulin Resistance, Type 2 Diabetes, and Obesity

Barbara A. Gower, PhD  Professor (Nutrition Sciences); Postmenopausal Hormone Replacement Therapy, Insulin Sensitivity

Elizabeth Kitchin, PhD, RD  Assistant Professor (Nutrition Sciences); General Nutrition and Health, Community Outreach and Education through Media

Susan Miller, MS, RD, LD  Assistant Professor; Interim Director UAB Dietetic Internship and Graduate Program in Nutrition Sciences

Douglas Moellering, PhD  Assistant Professor (Nutrition Sciences); mitochondrial physiology, bioenergetics, and free radical-mediated tissue injury and disease pathologies. Currently, research is focused on mitochondrial free-radical production contributing to altered bioenergetics, the development of obesity, insulin resistance and T2DM, increased cardiovascular disease susceptibility, and aging.

Tim R. Nagy, PhD  Professor (Nutrition Sciences); Regulation of Energy Expenditure; Body Fat/Caloric Restriction/Cancer; Small Animal Phenotyping

Laura Newton, MAEd, RD, LD  Assistant Professor (Nutrition Sciences); Clinical Nutrition, Nutrition and Cancer, Total Parenteral Nutrition

Chandrika Piyathilake, PhD  Associate Professor (Nutrition Sciences); Lung Cancer and Biomarkers

Charles W. Prince, PhD  Professor (Nutrition Sciences); Bone Metabolism, Vitamin D Function; Osteopontin, Orthopedic Implant Biocompatibility, Cellular Transduction of
Mechanical Load

Daniel L. Smith, Jr, PhD Assistant Professor (Nutrition Sciences); The interaction of diet and metabolism in relationship to aging and disease; obesity, calorie restriction, brown adipose tissue

Taraneh Soleymani, MD Assistant Professor (Nutrition Sciences); Clinical nutrition, Weight lost and management.

Qinglin Yang, PhD Associate Professor (Nutrition Sciences); molecular mechanisms underlying the development and progression of heart failure, especially those related to transcriptional regulation of myocardial fatty acid and carbohydrate metabolisms (eg., PPAR signaling pathway) in pathological conditions such as hypertension, obesity and diabetes

Patients with Pediatric Disease

M.S. Program in Nutrition Sciences

Degree Offered: M.S
Director: Susan B. Miller
Phone: (205) 934-3223
E-mail: miller1@uab.edu
Web site: www.uab.edu/nutrition

The program leading to the Master of Science degree in nutrition sciences is designed to provide training and experience in the treatment and prevention of disease through the science and art of optimal nutritional care. Professionals with backgrounds in the science of nutrition or dietetics will have an opportunity to learn the metabolic and biochemical basis for nutritional care while being involved in direct patient management and in either laboratory or clinical research. Opportunities exist for specialization within clinical subspecialty areas such as pediatrics, children with special health care needs, clinical nutrition research, exercise science, health education, health services administration, community nutrition, and public health.

Admission

The Nutrition Sciences graduate program recommends fall-term entry. Interested students must first obtain admission to the UAB Graduate School. Graduate School admission standards include

1. a B average computed overall, or alternatively computed over the last 60 semester hours of earned credit;
2. evidence of a bachelor’s degree from a regionally accredited university or college in the United States; and
3. a score of at least 153 on the verbal and 144 on the quantitative sections of the GRE General Test. Additionally, eligible students should be registered dietitians, registration-eligible dietitians, or have a baccalaureate degree from the Accrediting and Credentialing of Education for Nutrition and Dietetics (ACEND) approved Didactic Program in Dietetics. A nutrition research option is offered to nondietetics students with strong science backgrounds.

Degree Requirements

The graduate program in clinical nutrition offers the option for Plan I (thesis) or Plan 2 (non-thesis). Candidates for the M.S. degree, Plan 1, are expected to complete a minimum of 30 hours of graduate-level course work, and submit and defend thesis research that makes a contribution to the knowledge of clinical nutrition. Candidates for the M.S. degree, Plan 2, must complete a total of 36 hours of graduate-level course work.

Curriculum Core Requirements

Successful completion of the M.S. degree will require completion of a minimum of 20 semester hours in Nutrition Sciences core courses and additional courses to be selected from departmental offerings. The thesis option (Plan 1) requires completion of 6 semester hours of thesis research and presentation of a thesis. Students completing Plan 2 will require a total of 36 semester hours in Clinical Nutrition.

Additional Information

Deadline for Entry Term(s): Fall
Deadline for All Application Materials to be in the Graduate School Office: Six weeks before term begins
Number of Evaluation Forms Required: Three

Entrance Tests: GRE (TOEFL and TWE also required for international applicants whose native language is not English)

For detailed information, contact Susan B. Miller, Assistant Professor and Director, Graduate Program in Clinical Nutrition and Dietetic Internship, Department of Nutrition Sciences, UAB School of Health Related Professions, Webb Building, Room 449, 1675 University Boulevard, Birmingham, AL 35294-3360.
Dietetic Internship

The Dietetic Internship Program is accredited by the Accrediting and Credentialing of Education for Nutrition and Dietetics (ACEND) and is designed to prepare entry-level dietitians for careers in a variety of health care, wellness, and food service facilities. Internship appointments are awarded on a competitive basis through a national computer matching process. Dietetic interns must also be admitted to the Graduate School (admission standards are listed under the M.S. in Nutrition Sciences above) and are required to enroll in a full graduate course load each term during the internship.

An on-site internship is offered in Birmingham, and an off-site internship is offered in each of the following cities in Alabama: Huntsville, Mobile, Montgomery, and Birmingham. Upon completion of the internship, the student will be eligible to take the national examination to become a registered dietitian. Interns earn 12 hours of graduate credit, which may be applied toward the requirements for the M.S. in Nutrition Sciences. Students may elect to continue in the M.S. program in Nutrition Sciences to complete requirements for the M.S. degree on a full or part-time basis.

Additional Information

For detailed information, contact Susan Miller, Assistant Professor and Interim Director, Graduate Program in Nutrition Sciences and Dietetic Internship, Department of Nutrition Sciences, UAB School of Health Related Professions, Webb Building, Room 441 1675 University Boulevard, Birmingham, AL 35294-3360.

Telephone 205-934-3223
E-mail dintr@uab.edu
Web www.uab.edu/nutrition

Ph.D. Program in Nutrition Sciences

The program leading to the Ph.D. in Nutrition Sciences at UAB is designed to provide coursework and research experience that emphasizes the science of nutrition in maintaining the health of individuals and populations and preventing a variety of diseases. The doctoral program combines required and elective didactic coursework in basic sciences and nutrition with research incorporating basic science, clinical applications and translational research conducted in superb facilities in an outstanding research environment.

Admission

To meet Graduate School and departmental standards, a student must have a combined GRE score of 1100, an undergraduate degree with a strong science background, three letters of recommendation based on thorough knowledge of the applicant's background and abilities, and, of great importance, a statement of goals and purpose that delineates the student's motivation and purpose in seeking this degree. Fall-term entry is recommended.

Coursework and Other Requirements

Successful completion of the Ph.D. will require completion of a minimum of 33 semester hours in core courses (encompassing the disciplines of cellular and molecular biology, biochemistry, physiology, nutritional biochemistry, clinical nutrition, and statistics and experimental design) and at least 24 additional graduate semester hours of elective coursework; passing a comprehensive written qualifying examination; and defense of a dissertation reporting the results of original scientific research that makes a genuine contribution to the knowledge of nutrition sciences. In fulfilling the latter requirement, a student must author at least three papers that are publishable in peer-reviewed journals.


Additional Information

For detailed information, contact Dr. José R. Fernández, Director of the Ph.D. Program in Nutrition Sciences, Department of Nutrition Sciences, UAB School of Health Related Professions, Susan Mott Webb Nutrition Sciences Building, Room 449, 1675 University Boulevard, Birmingham, AL 35294-3360.

Telephone 205-975-2029
E-mail phdntr@uab.edu
Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

Nutrition Sciences (NTR)

579/779. Obesity in the 21st Century Overview of the facts and research findings underlying the understanding of obesity, its co morbidities, and its consequences in the population. Spring, Odd years.

589. Internship Practicum. Clinical experience in food service management and clinical nutrition. Fall, spring, summer.

601/701. Advanced Medical Nutrition. Nutrition in relationship to health; prevention of disease and correction of disorders resulting from nutritional imbalance throughout the life cycle. Prerequisite: Permission of instructor for non nutrition sciences majors. Spring.

604. Principles and Practice of Nutrition Support. Nutrition support for critically ill patients; theory integrated with clinical practice. Prerequisite: Permission of instructor for non nutrition sciences majors. Fall.

611. Advanced Food Service Systems Management. Management systems, application to hospital food service. Prerequisite: Permission of instructor. Prerequisite: Permission of instructor for non nutrition sciences majors. Spring.

612. Research and Technology Applications in Dietetics. Utilization of internet technology and research design in dietetics practice. Prerequisite: Permission of instructor for non nutrition sciences majors. Fall.

618/718. Nutritional Biochemistry. Metabolism and functions of nutrients; biosynthesis of vitamins and cofactors; human requirements for energy, amino acids, minerals, and vitamins; food fortification; current human nutritional problems. Fall. 6 hours.

622/722. Recent Advances in Nutrition Cancer Research. Critical evaluation of the effects of genetics and environmental factors, especially nutrients, on the development and prevention of obesity, atherosclerosis, and cancer. Prerequisite: Permission of instructor. Fall.

625/725. Human Nutrition Through the Life Cycle. Examination of the role of nutrition and dietary factors on the growth, development, and maintenance of health throughout the human life cycle. Nutritional guidelines/recommendations, special nutritional needs, physiology, and nutritional health concerns for each stage of the human lifecycle beginning with preconception and continuing throughout adulthood and aging. Fall Odd years.

626/726. Consumer Issues in Nutrition. Examination of contemporary nutritional issues that affect consumers. Focus on the translation of science to public policy, consumer communications, and food choices. Spring Odd years.

630. Maternal Child Health in Pediatric Nutrition. This course provides a public health approach to pediatric and MCH nutrition. The focus will be on the translation of evidence based approaches to pediatric nutrition including prevention and intervention. The course will emphasize the interdisciplinary aspects of care in pediatrics by utilizing guest speakers from a variety of disciplines. The course will cover topics and current issues in pediatric nutrition (e.g., obesity, media influences, diversity, food & nutrition policy, and chronic disease prevention and intervention). The development of written and oral communication skills will also be stressed.

633/733. Laboratory Instruments and Methods in Nutrition Research. Operation, capabilities, and limitations of laboratory instruments. Prerequisite: Permission of instructor. 1-3 hours.

636/736. Scientific Methods. Investigations in nutrition using animal models and laboratory procedures, design of experiments, data collection, analysis, interpretation, and communication of experimental results. Prerequisite: Permission of instructor. Spring.

650/750. Body Composition and Energy Metabolism. Methods of measurement and relationship to human health and disease. Prerequisite: Permission of instructor. Summer, Even years.


685. Pediatric Pulmonary Care: An Interdisciplinary Approach. Health care delivery to pediatric clients at risk for or compromised by pulmonary disease. Prerequisite: Permission of instructor.

690. Seminar. Review of current literature and research in nutrition. Prerequisite: Permission of instructor. 1 hour. Fall, Spring.
691. **Clinical Practicum: Nutritional Aspects of Mental Retardation and Developmental Disabilities.** Clinical experiences in evaluation of nutritional status, feeding behavior and food habits of mentally retarded and developmentally disabled children. Prerequisite: Permission of instructor. 1-6 hours.

692. **Clinical Practicum: Community Nutrition.** Clinical experiences in health care delivery systems with nutrition components. Prerequisite: Permission of instructor. 6 hours.

693. **Clinical Practicum: Pediatric Nutrition.** Clinical experiences in normal growth patterns in children; nutritional needs in health and disease. Prerequisite: Permission of instructor. 6 hours.

694. **Clinical Practicum: General Clinical Research.** Clinical experiences in a multidisciplinary research facility involving human subjects. Prerequisite: permission of instructor. 1-6 hours.

695. **Special Problems.** To meet individual student needs; clinical rotation, review of current literature, completion of defined objectives. Prerequisite: Permission of instructor. 1-3 hours.

696. **Clinical Practicum: Nutritional Support of Pediatric Clients with Pulmonary Problems.** Observation of and participation in interdisciplinary team delivery of health care to pediatric patients with pulmonary disease. Prerequisite: Permission of instructor. 1-6 hours.

697. **Clinical Practicum: Nutrition Support Service.** Interdisciplinary team delivery of nutrition support to critically ill hospitalized patients and ambulatory patients. 3-6 hours.

698. **Master's Nonthesis Research.** Prerequisite: Permission of instructor. 1-6 hours.

699. **Master's Thesis Research.** Prerequisites: Admission to candidacy and permission of instructor. 1-9 hours.

747. **Molecular Biology and Nutrition Sciences.** Overview of molecular biology applications in nutrition science research. Examination of basic molecular biology techniques, current usage of molecular biology to solve nutrition problems, and application of biotechnology to study disorders with a nutritional component. Prerequisite: Permission of instructor. Fall. Even years.

769. **Race and Ethnic Disparities as a Health Concern.** Introduction to the identification, measurement and exploration of etiological factors that underlie racial/ethnic disparities in health outcomes.

778. **Special Topics in Nutrition Sciences.** Fall, spring, summer. 1-5 hours.

788. **Advanced Nutrition Seminar.** Fall, spring, summer. 1 hour.

798. **Doctoral Nondissertation Research.** 1-15 hours.

799. **Doctoral Dissertation Research.** Prerequisite: Admission to candidacy. 1-15 hours.