

NUTRITION AND DIETETICS (NUDT)

NUDT 103 Introduction to Food Science Lab (1)

Students will develop laboratory skills to examine the characteristics of raw food materials and to explore the development, preparation, and preservation of food. Co-requisite NUDT 105

NUDT 104 Introduction to Nutrition Lab (1)

Students will collect personal dietary data using various techniques and analyze the nutrient composition and compare findings with the Dietary Recommended Intakes appropriate for age and gender. Students will analyze organic and inorganic nutrients from a 24-hour menu using homogenates that simulate digestion using blender. They will develop skills to collect anthropometric measurements on themselves and their classmates and evaluate the results. Students will submit written lab reports based on scientific laboratory format. Co-requisite: NUDT 106

NUDT 105 Introduction to Food Science Lecture (3)

Students will explore food science and food technology through examination of the early history of food and the development of the food industry to the present. Students will discuss current and future opportunities in the food industry with a focus on emerging careers for food scientists and food engineers in a society that focuses on sustainability of resources. They will develop an understanding of the general characteristics of raw food materials, harvesting, and processing of foods. They will learn about methods of food preparation that preserve the color, flavors, and nutrient content of foods. Co-requisite: NUDT 103

NUDT 106 Introduction to Nutrition Lecture (3)

This course prepares students of all disciplines to improve the nutritional health for themselves, their families, and their communities. It meets the university-wide life science requirement. Factors that affect the food choices of individuals across cultural groups will be emphasized. Basic information on the classification, chemistry, functions, and metabolism, and deficiency symptoms and dietary sources of essential nutrients will be discussed. Students will discuss basic issues of energy balance and utilize diet-planning guides, including MyPlate. Each student will research a nutrition topic from evidence-based sources and will present their findings to the class. Co-requisite: NUDT 104

NUDT 209 Food Processing Lab (3) [Not offered in current curriculum.]

Students will have the opportunity to can, freeze, dehydrate, and ferment foods. Prerequisites: NUDT 103, NUDT 105; co-requisite: NUDT 211

NUDT 210 Food Processing II Lab (1) [Not offered in current curriculum.]

Students will perform laboratory exercises in the manufacture of fabricated foods, snack foods, cereals, mayonnaise, and in the preservation of fruits and vegetables. Prerequisites: NUDT 209, NUDT 211; Co-requisite: NUDT 212

NUDT 211 Food Processing I Lecture (3) [Not offered in current curriculum.]

Students will explore the fundamental principles involved in food processing, refrigeration, freezing, thermal processing, dehydration, fermentation, emulsions, and more. Prerequisites: NUDT105, NUDT103; Co-requisite: NUDT 209

NUDT 212 Food Processing II Lecture (3) [Not offered in current curriculum.]

Students will explore the fundamental principles and major unit operations involved in the technology and commercial manufacture of fabricated foods, snack foods, cereals, mayonnaise and salad dressings. Students will visit various food industry plants to observe food plant layouts. Prerequisites: NUDT 209, NUDT 211; Co-requisite: NUDT 210

NUDT 313 Nutrition in the Life Cycle (3)

Guest speakers from organizations such as La Leche League highlight this course. How nutrient requirements are altered by physical development throughout life, from preconception, prenatal development, lactation, and adolescence to aging is addressed. Students will translate this information into practical pointers in providing quality nutrition care for individuals and groups at various stages of development. They will research and present reports on important community-based programs that span the life cycle. Oral presentations and peer assessment are emphasized. This course is targeted not only for nutrition and dietetics majors, but also for those in related fields of study, including nursing, education, public health, social work, counseling, and psychology. Prerequisite: NUDT 106

NUDT 314 Community Nutrition Practicum (1)

Selected organizations located in and around the District of Columbia, including public and charter schools, Head Start, WIC, and D.C. Public Housing, will allow students to address real-life challenges. Students will apply strategies to meet nutrition needs outside of acute-care settings, with emphasis on nutrition education and food assistance programs. Students will gain an understanding of the complexities of the external environment on health outcomes. Students will be required to travel to local community nutrition sites during the semester. Prerequisite: NUDT 106; Co-requisite: NUDT 316

NUDT 316 Community Nutrition Lecture (3)

An introduction to programs, policies, and institutions that influence nutrition services at the local, state, and national levels. This course supports the development of skills needed to practice nutrition in community settings with special attention to populations at high nutritional risk. Nutrition assessment, program planning and evaluation, and cultural competency are emphasized. Oral presentations and peer assessment of formal presentations are emphasized.

Advocacy is an underlying theme for discussions and for individual and group projects. Certificates in (1) Protecting Human Research Participants or (2) Responsible Conduct of Research are expected to be earned by end of course. Prerequisite: NUDT106; Co-requisite: NUDT314

NUDT 317 Advanced Nutrition: Exercise/Sport (3)

This course emphasizes the significance of fundamental concepts of energy metabolism and applied nutrition with an emphasis on nutrient utilization and requirements for varying levels of physical activity and human performance throughout the life cycle. This includes the energy systems, specialized cells, enzymes and hormones involved in metabolic processes during rested and exercised states and utilization of macronutrients during exercise at varying intensities. In addition, micronutrients and the impact of hydration and electrolyte status on performance will be examined. Controversies pertaining to the use of dietary supplements, ergogenic aids, achieving desired body weight, and nutritional concerns of special populations will be further explored and evaluated through a practical assessment and evidence-based literature.

Prerequisites: BIOL 111/BIO112 and BIO 112/BIO114, CHEM 111/CHEM 112 and CHEM 113/CHEM 114, NUDT 313 or NUDT 316 or NUDT 320; Co-requisites: CHEM 231/CHEM 233 (if not completed prior to enrollment in NUDT 317)

NUDT 318 Child Health and Nutrition (3) *(This is not a course requirement for the DPD program. This course is for majors in Human Development.)*

Evaluates ways of achieving excellent nutritional status in children. Discusses nutrient needs for optimal growth and health during early years of life and application of nutrition knowledge to the daily challenges of feeding children and forming lasting dietary patterns that will serve them well throughout their lives.

NUDT 320 Nutrition Education Lecture (3)

This course includes a survey of the philosophy, principles and methods of nutrition education. Discussions include reliable sources of nutrition information, tools and skills used in managing nutrition programs, and various aspects of nutrition surveillance, nutrition care and promotion. Cultural competency and effective communication are stressed. Guest speakers from agencies within USDA and other federal and District of Columbia departments will join the class throughout the semester. Prerequisite: NUDT 106; Co-requisite: NUDT 316

NUDT 321 Nutrition Education Practicum (1)

Students will develop appropriate tools for nutrition education, including writing lesson plans and nutrition education evaluation tools. Developing curriculum, learning objectives, and goals for nutrition programs are also reviewed. Counseling skills will be developed through in-class and field experiences scheduled in sites across the District of Columbia, including public and charter schools, faith-based organizations, and senior-citizen wellness sites. Creation of an electronic nutrition education portfolio is a requirement of this course. Prerequisite: NUDT 106; Co-requisite: NUDT 320

NUDT 322 Nutrition Assessment Lecture (3)

This course serves as the core foundation to the application of addressing nutrition-related issues among individuals and target populations. Students will be required to gather, verify, and interpret pertinent data to determine nutrition-related risks, problems, root causes, and intervention strategies through a systematic process. The components of a nutrition assessment include food intake history, anthropometric measurements, biochemical data, nutrition-related physical findings, and client/population history, including social/economic circumstances, medical history and family history. Indicators of nutrition risk will allow students to prioritize goals and objectives in the clinical and public health/community settings. Furthermore, students will build a knowledge base of medical terminology and drug/nutrient interactions to comprehend and accurately assess nutrition issues. Lastly, students will utilize critical thinking skills to develop nutrition care plans around complex factors that impact nutritional status.

Prerequisites: BIOL 111/BIOL 112 and BIO 112/BIO 114, CHEM 111/CHEM 112 and CHEM 113/CHEM 114, NUDT 313 or NUDT 316 or NUDT 320; Co-requisites: NUDT 323, CHEM 231/CHEM 233

NUDT 323 Nutrition Assessment Practicum (1)

In this practicum, students will develop and demonstrate the knowledge and skills for performing all components of a comprehensive nutrition assessment through independent and collective assignments for applied practice. Applied work will consist of an extensive dietary assessment project, anthropometric assessments of body composition, testing for biochemical markers of nutritional status, calculating feeding formulas for enteral and parenteral nutrition administration and independent case studies. Prerequisites: BIOL 111/112 and 112/114, CHEM 111/112 and 113/114, NUDT 313 or NUDT 314 or NUDT 320; Co-requisites: NUDT 322, CHEM 231/233

NUDT 344: Nutritional Biochemistry (3)

The course is designed to facilitate the understanding of biochemical principles and concepts to human nutrition. The course content will address structure, metabolism and functions of biological nutrients, including water, proteins, carbohydrates, lipids and minerals. Topics covered include bioenergetics; intermediary metabolism, regulation of metabolic control and enzymes, vitamins and co-factors, biochemistry of cellular signaling, membrane structure and function, hormones, signal transduction, nucleic acids, gene expression and regulation. Emphasis is placed on metabolic pathways, the interrelationships of major nutrients and the relation of metabolic processes to the overall nutritional health of an individual. Prerequisites: CHEM 232/CHEM 234; Co-requisite: NUDT 345

NUDT 345: Nutritional Biochemistry, Lab (1)

Principles of protein folding and structure; methods for determining protein structure; protein structure prediction and modeling, contents of structural databases, structure visualization, structure validation and analysis, rational mutagenesis, computational biochemistry tools. Explores biotechnology techniques for DNA cloning and analysis: DNA sequencing, sequence

analysis by computer, plasmid cloning. Prerequisites: CHEM 231/CHEM 232; Co-requisite NUDT 344

NUDT 374 Geriatric Nutrition Lecture (2)

This course is an overview of the physiological, psychological, and socioeconomic aspects of aging and their impact on nutritional health. It includes in-depth discussions of nutritional assessment, nutrition programs, and chronic medical disorders associated with the older adult. Students will be required to present specific topics to their peers in an interactive manner throughout the semester. Peer assessment is emphasized. Geriatric Nutrition generally precedes Therapeutic Nutrition I and II and serves as an introduction to the diseases and conditions that are covered in more depth and over additional life cycles in subsequent courses. Prerequisite: NUDT 106; co-requisite NUDT 375

NUDT 375 Geriatric Nutrition Practicum (1)

Under the supervision of registered dietitians and other nutrition professionals, students will work with older adults in various agencies across the District of Columbia. Students will develop or adapt lesson plans and provide nutrition education and nutrition screening to this population. Students may conduct food demonstrations, when applicable. A panel of senior citizens, in the format of “speed-dating,” is the highlight of this course. Prerequisite: NUDT 106; Co-requisite: NUDT 374

NUDT 421 Therapeutic Nutrition I Lecture (3)

This course will enable students to demonstrate an understanding of pathophysiology, epidemiology, nutritional genomics, symptomology, medical terminology, and pharmacology in relation to medical nutrition therapy. Concepts of clinical care will be based on medical nutrition therapy for weight/energy imbalances, cardiovascular diseases, diseases and disorders of the upper and lower gastrointestinal tract, hepatic and pancreatic diseases, endocrine disorders and appropriate enteral/parenteral therapies for these conditions. The lab work will be synchronized with lectures to enable students to practice medical nutrition therapy through the nutrition care process (nutrition assessment, nutrition diagnosis, intervention, and monitoring and evaluation). Prerequisites: BIOL 111/BIOL 113, BIOL 112/BIOL 114, BIOL 240/BIO 241, CHEM 111/CHEM 113 and CHEM 112/CHEM 114, CHEM 231/CHEM 233, CHEM 232/CHEM 234, NUDT 313, NUDT 314 or NUDT 320, NUDT 322/NUDT 323; Co-requisites: NUDT 317 (if not completed prior to enrollment in NUDT 421), NUDT 344/NUDT 345 (if not completed prior to enrollment in NUDT 421), NUDT 423

NUDT 422 Therapeutic Nutrition II Lecture (3)

This course is a continuation of Therapeutic Nutrition I. Students will build upon their understanding of pathophysiology, epidemiology, nutritional genomics, symptomology, medical terminology, and pharmacology in relation to medical nutrition therapy. Concepts of clinical care will be based on medical nutrition therapy for renal diseases, hematological disorders,

neurological diseases, respiratory diseases, metabolic stress, metabolic disorders, neoplastic diseases, HIV/AIDS, musculoskeletal diseases and appropriate enteral/parenteral therapies for these conditions. The lab work will be synchronized with lectures to enable students to practice medical nutrition therapy through the nutrition care process (nutrition assessment, nutrition diagnosis, intervention, and monitoring and evaluation). Prerequisites: BIOL 111/BIOL 113, BIOL 112/BIOL 114, BIOL 240/BIOL 241, CHEM 111/CHEM 113 and CHEM 112/CHEM 114, CHEM 231/CHEM 233, CHEM 232/CHEM 234, NUDT 313, NUDT 316 or NUDT 320, NUDT 317, NUDT 322/323, NUDT 344/345; Co-requisite: NUDT 424

NUDT 423 Therapeutic Nutrition Practicum (1)

Lab time will provide an opportunity for students to demonstrate skills in applying the standardized language of the nutrition care process to medical nutrition therapy at the entry-level. Health conditions and disease states of focus for this term include weight/energy imbalances, cardiovascular diseases, diseases and disorders of the upper and lower gastrointestinal tract, hepatic and pancreatic diseases, and endocrine disorders. The lab work will be synchronized with lectures to enable students to practice medical nutrition therapy through utilization of the nutrition care process (nutrition assessment, nutrition diagnosis, intervention, and monitoring and evaluation) of patient cases. Prerequisites: BIOL 111/BIOL 113, BIOL 112/BIOL 114, BIOL 240/BIOL 241, CHEM 111/CHEM 113 and CHEM 112/CHEM 114, CHEM 231/CHEM 233, CHEM 232/CHEM 234, NUDT 313, NUDT 316 or NUDT 320, NUDT 322/NUDT 323; Co-requisites: NUDT 317 (if not completed prior to enrollment in NUDT 423), NUDT 344/NUDT 345 (if not completed prior to enrollment in NUDT 423), NUDT 421

NUDT 424 Therapeutic Nutrition II Practicum(1)

Lab time will provide an opportunity for students to demonstrate skills in applying the standardized language of the nutrition care process to medical nutrition therapy at the entry-level. Health conditions and disease states of focus for this term include renal diseases, hematological disorders, neurological diseases, respiratory diseases, metabolic stress, metabolic disorders, neoplastic diseases, HIV/AIDS, and musculoskeletal diseases. The lab work will be synchronized with lectures to enable students to practice medical nutrition therapy through utilization of the nutrition care process (nutrition assessment, nutrition diagnosis, intervention, and monitoring and evaluation) of patient cases. In addition, students will engage in interviews and discussions with registered dietitian nutritionists, role-playing dialogues, and patient simulations. Prerequisites: BIOL 111/BIOL 113, BIOL 112/BIOL 114, BIOL 240/BIOL 241, CHEM 111/CHEM 113 and CHEM 112/CHEM 114, CHEM 231/CHEM 233, CHEM 232/CHEM 234, NUDT 313, NUDT 316 or NUDT 320, NUDT 317, NUDT 322/NUDT 323, NUDT 344/NUDT 345; Co-requisite: NUDT 422

NUDT 426 Food Systems Management I Lecture (2)

The course covers the essentials of operations of foodservice facilities. Topics covered: menu planning, purchasing specifications, food and equipment, storage, production, quality control, safety and sanitation, delivery and service. Prerequisites: NUDT106 (Introduction to Nutrition)

and NUDT105 (Introduction to Food Science); Co-requisite: NUDT428. *Restricted to students of junior or senior standing within the Nutrition and Dietetics Program.*

NUDT 427 Food Systems Management II Lecture (2)

This course addresses concepts, theory, and design of foodservice organizational structure. Topics covered: effective management, administrative leadership, accountability, planning, communication, implementation and control, total quality management, mechanics of cost control, and facility planning. Prerequisites: NUDT 426 and NUDT 428; Co-requisite: NUDT 429. *Restricted to students of junior or senior standing within the Nutrition and Dietetics Program.*

NUDT428 Food Systems Management I Practicum (1)

This practicum course is a combination of in-class instruction and 30 hours of off-campus experience in foodservice operations. Students must be enrolled concurrently in the lecture course (NUDT 426). Prerequisites: NUDT 106 (Introduction to Nutrition) and NUDT 105 (Introduction to Food Science); Co-requisite: NUDT 426. *Restricted to students of junior or senior standing within the Nutrition and Dietetics Program.*

NUDT 429 Food Systems Management II Practicum (1)

This practicum course is a combination of in-class instruction and off-campus experience in foodservice management. Students must be enrolled concurrently in the lecture course (NUDT 427). Prerequisites: NUDT 426 and NUDT 428; Co-requisite: NUDT 429. *Restricted to students of junior or senior standing within the Nutrition and Dietetics Program.*

NUDT 442 Food Chemistry Lab (1)

Three hours of laboratory per week where students analyze the changes that occur during processing and utilization of foods using state-of-the art chemical, physical and instrumental methods. Prerequisite: CHEM 231/CHEM 233 (Organic Chemistry I); Co-requisite: NUDT 444

NUDT 444 Food Chemistry Lecture (3)

This course emphasizes the basic composition, structure and properties of food and the chemistry of changes that occur to foods during processing and utilization. Prerequisite: CHEM 231/CHEM 233 (Organic Chemistry I); Co-requisite: NUDT 442

NUDT 490 Senior Seminar and Research (3)

This capstone course involves critical review of literature on recent research in nutrition, dietetics, and food science and acquiring competency in writing proposals, conducting research, and presenting the research findings. Research will be conducted under the direction of Nutrition Department faculty members. Arrangements can be made to work under a preceptor outside of the university in collaboration with a UDC faculty advisor. Suggested sites of research include,

but are not limited to, USDA Agricultural Research Center (ARC), UDC Agricultural Experiment Station, the UDC Environmental Quality Testing Lab, and other agencies and organizations located in the Greater Washington Metropolitan Area identified by the student and faculty research advisor. Submission of a written undergraduate thesis is required. All students enrolled in this course must earn certification in Responsible Conduct of Research before they can begin their research. Prerequisite: Senior standing in the B.S. Nutrition and Food Science Degree Program and permission of Department Chairperson and faculty research advisor.

[The following graduate courses were not reviewed by the UDC DPD Director. They will need to be reviewed by the incoming Director of the Masters in Nutrition Program.]

NUDT500 Dietary Cancer Prevention (2)

Features presentations primarily by the faculty and postdoctoral fellows, and class discussions of any materials provided to the students in advance. Students may be required to read up to 2 papers per week, and to participate in all class discussions.

NUDT501 Nutritional Epidemiology (2)

This course introduces principles of epidemiology and methods used in the investigation of health-related events. The course will examine and emphasize detection of trends in disease and nutrition, including the distribution of diseases or other health-related states and events in human populations. Discussion on factors, especially in urban populations, that influence this distribution, (e.g., age, sex, occupation, ethnicity, and economic status) and the application of this study to control health problems will be emphasized. Topics covered include: basic epidemiology, statistical methods, and analytical issues related to diet and disease

NUDT520 Nutritional Biochemistry (3)

The course provides an in depth view of human biochemistry with focus in energy metabolism and its regulation, plus nutrient synthesis and degradation at the cellular level. Major nutrient classes will be reviewed at the cellular level as well as biochemical pathways for their digestion, absorption, metabolism and degradation will be analyzed. There will be a focus in normal physiological processes but we will also discuss some major pathological states.

Prerequisites: NUDT422, NUDT424.

NUDT525 Integrating Nutrition Assessment and Research Methods (3)

Nutrition assessment is the interpretation of information using anthropometric, biochemical, clinical and dietary methods, study of data collection techniques, nutrient analysis and dietary modifications, the new nutrition care process, and methods of nutritional support; current reimbursement issues, policies and regulations, and the appropriate use of these tools in determining the nutrition status of a population and/or individual client. The assessment also addresses the process of conducting a food & nutrition environment and occupational assessment that impacts the nutritional status. Discussion of minerals and trace minerals is also included. Methods and tools used in screening and assessment of nutritional status of individuals and population groups are studied. Laboratory experiences are provided to allow students practice time for learning and applying assessment techniques.

NUDT530 Pharmacology for Nutrition Professionals, Medical Nutrition Therapy IV (3)

This course provides an integrated approach to the biochemical functions and nutritional metabolism and drug-nutrient interactions of fat-soluble and water-soluble vitamins. The course emphasizes the comprehensive study of terms used by health care practitioners to describe laboratory, radiology, pathology procedures and pharmacological products for body systems. Other topics covered are pharmacokinetics, pharmacodynamics, bioavailability and biotransformation of drugs, drug-nutrient interactions of antibiotics, antiviral drugs, IV and TPN fluids, anesthetics, anti-histamine, autonomic, cardiovascular, central nervous system,

gastrointestinal, hormones and synthetic substitutes, heavy metal antagonists, non-prescription drugs, herbal supplements and chemotherapeutic agents. Prerequisite: NUDT520.

NUDT 540: Nutrition in Disease Prevention and Treatment: 3 Credits

The Dietary Guidelines tell healthy Americans what to eat in order to maintain overall health and wellness, but individuals with health conditions have different nutritional needs and require special diets. This course examines the physiologic, biochemical and psychosocial basis of various disease states and the application of medical nutrition therapy in clinical treatment. The course provides the relationship of, cardiovascular disease, diabetes, and other health issues;

NUDT-640 Management, Policy and Community Health: 3 credits

This course examines political, social and philosophical aspects of legislating public policy and health policy in particular. Emphasizes how issues, power, policy, lobbyists and the legislative process work in conjunction with one another and how coalitions are formed to promote legislative impacting constituents. The course will identify and discuss current legislative topics and current health-related policies under consideration in the U.S. Congress. The course clarifies the importance of advocacy, public interest and public policy and emphasizes nutrition policies and programs.

NUDT650 Nutrition Research Methods, Research (3)

The course is designed to examination of quantitative and qualitative techniques appropriate for research in the field of nutrition and dietetics. The course emphasizes on class discussions of each student's efforts in developing a master's thesis and integrating the appropriate techniques for developing their nutrition related research. The course will use a combination of didactic, interactive and applied techniques to strengthen the skills relevant for qualitative and quantitative research. Preparation of the proposal and completing the master's thesis or project are stressed. The students are strongly advised to take Applied Statistical Methods course in addition to this introductory course in research methods.

NUDT651 Nutrition Thesis (1)

Scholarly essay based on research, written under the guidance of the student's adviser. Credit given upon meeting thesis requirements for the master's degree. Prerequisite: Consent of instructor.

NUDT- 690 Nutri-Genomics- Lecture: 3 credits

Introduces the principals of genetics at the molecular, cellular, organismal, and population level. Emphasis will be on nucleic acid structure, gene expression, the process of DNA replication, gene transcription, RNA translation, how mutations occur and recombinant DNA methodology.

NUDT-691 Nutri-Genomics- Laboratory: 1 credits

Emphasizes electrophoretic separation of nucleic acids and proteins. Introduces purification and enzymatic digestion of nucleic acids, principles of agarose and polyacrylamids gel electrophoresis; Southern, Northern and Western blotting, DNA sequencing and fingerprinting, RFLP's, PCR and other applications in biotechnology.

NUDT694 Contemporary Issues in Nutrition

The course will critically examine the theories, models, and concepts from social & behavioral sciences to increase the understanding of individual and environmental factors affecting food and

nutrition issues locally regionally and globally. The students will conduct literature review and Examine sustainable nutrition practices and global food issues such as starvation and malnutrition and present the results in class.