

# NUTRITION AND DIETETICS — COORDINATED PROGRAMS

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The registered dietitian (RD) is a vital member of the health-care team in the field of health promotion and medical nutrition therapy. This profession focuses on the field of health promotion. Medical nutrition therapy centers on the science of nutrition, the art of food presentation, and management in providing nutrition care as well as instruction in proper food choices throughout life. Individuals and groups benefit from the work of the registered dietitian, potentially leading to better health and longer life. Dietetic practice is the application of principles derived from integrating knowledge of food, nutrition, biochemistry, physiology, business and management, journalism, and behavioral and social sciences, as well as the artistic presentation of food to achieve and maintain health, prevent disease, and facilitate recovery from illness.

The coordinated program—a joint effort of the School of Allied Health Professions and the School of Public Health—offers students the option to pursue one of three degrees:

- Combined B.S. and M.S. degree in nutrition and dietetics;
- M.S. degree in nutrition and dietetics;
- M.P.H. degree in public health nutrition (described in the Nutrition Program of the School of Public Health section of the CATALOG).

Each of these degrees culminates in eligibility to take the registration examination for dietitians. Students obtain the credential in dietetics upon successful completion of the registration examination offered by the Commission on Dietetic Registration of the Academy of Nutrition and Dietetics. The coordinated program in dietetics combines didactic and supervised professional practice experiences, developing professional competencies concurrently with cognitive and technical skills, enabling the graduate to establish eligibility to become a registered dietitian.

The M.S. degree prepares entry-level dietitians to join the profession in areas of advanced practice as well as specialty areas, allowing them to contribute to the wholeness of humankind. Graduates are awarded an M.S. degree in nutrition and dietetics. The curriculum comprises didactic and supervised professional practice experiences in a health-sciences, liberal arts environment to prepare an educated graduate.

This curriculum includes theory, laboratory, research, and clinical experiences, with 1,000 hours of supervised professional practice

experiences scheduled in medical nutrition therapy, community, and administrative nutrition. Students participate as active members of nutrition-care teams in clinical settings.

Three choices are available to earn a Master of Science degree in nutrition and dietetics at Loma Linda University.

## Opportunities

Members of the dietetics profession practice in a variety of environments—including hospitals and other health-care facilities, schools and universities, government and community agencies, business, and industry. A growing number of dietitians are employed in physician offices, clinics, home health-care agencies, mass communications, and many other entrepreneurial roles.

By successfully passing the registration examination for dietitians, practice opportunities as a specialist in medical nutrition therapy, administrative dietetics, nutrition education, community nutrition, or research become available. There is increased recognition of the importance of nutrition in the fields of medicine, dentistry, and health promotion—with emphasis on fitness and optimal well-being. This indicates that the dietitian's scope of practice is steadily broadening.

The registered dietitian in medical nutrition therapy applies the science of nutrition to the care of people through health promotion and disease prevention, and uses medical nutrition therapy in the treatment of disease. As a member of the patient-care team, the registered dietitian (RD) is responsible for assessing, implementing, and monitoring the nutritional care of patients. In addition, the RD may serve professionally as a nutrition practitioner in health care; a teacher in an educational institution; a research dietitian; or a nutrition consultant-educator in municipal, state, or federal departments of health.

Dietitians in administration are accountable for the food service system. In a health-care institution, they are responsible for the effective functioning of food service from the standpoint of patients, administration, medical staff, and personnel. The administrative RD may also teach; manage food systems in educational, public, or commercial facilities; serve as a consultant to health-care or educational institutions; or enter the field of research.

Community registered dietitians practice in diverse settings, translating nutrition science into improved health status. Opportunities may include forming partnerships with various organizations, mastering technology, enacting regulations and policies that protect and improve the public's health, and creatively managing scarce resources. Dietitians working in the community exhibit high-quality leadership and planning skills.

## Professional registration

Upon satisfactory completion of the program and upon recommendation of the faculty, the graduate will receive a verification statement and be eligible to take the registration examination for dietitians in order to become a registered dietitian.

## Professional association

Students and graduates are eligible for membership in the Academy of Nutrition and Dietetics. The association grants student membership at a nominal rate to students in accredited programs.

The national office of the Academy of Nutrition and Dietetics is located at 120 South Riverside Plaza, Suite 2190, Chicago, IL 60606-6995. Along with membership in the Academy of Nutrition and Dietetics, students

become members of the California Dietetic Association. Students are also encouraged to join the California Dietetic Association–Inland District.

## Goals of the coordinated program

### Program Goal 1

The program will prepare students to be competent graduates who are eligible to write the registration examination for dietitians to become entry-level practitioners.

#### Program Objectives for Goal 1

1. Eighty percent (80%) of graduates who write the registration examination for dietitians will pass within the first year.
2. Eighty percent (80%) of students who enter the M.S. or M.P.H. degree programs will complete program/degree requirements within 150 percent of the program length.

### Program Goal 2

Provide professionally trained registered dietitians with either an emphasis in medical nutrition therapy or public health nutrition who may be employed by or contribute to the health-care and educational systems of the Seventh-day Adventist Church, or local, national, or international entities.

#### Program Objectives for Goal 2

1. Seventy percent (70%) or more of coordinated program graduates who seek employment in dietetics will be employed within twelve months of program completion.
2. Sixty percent (60%) of coordinated program graduates will contribute to the community and/or provide professional leadership in the field of dietetics within five years of graduation.

## Accreditation

The coordinated program in dietetics is currently granted continuing accreditation by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2190, Chicago, IL 60606-6995; telephone, 800/877-1600, ext. 5400; email, ACEND@eatright.org; website: <http://www.eatrightpro.org/acend> (<http://www.eatrightpro.org/acend/>).

## Programs

- Nutrition and Dietetics – B.S. and M.S. (<http://llucatalog.llu.edu/allied-health-professions/nutrition-dietetics-coordinated-programs/bs-ms/>), M.S. (Prior B.S.) (<http://llucatalog.llu.edu/allied-health-professions/nutrition-dietetics-coordinated-programs/prior-bs-ms/>), M.S. (post DPD), (<http://llucatalog.llu.edu/allied-health-professions/nutrition-dietetics-coordinated-programs/dpd-ms/>) Comparison (<http://llucatalog.llu.edu/allied-health-professions/nutrition-dietetics-comparison/>)

## Courses

### DTCS 301. Human Nutrition. 3 Units.

Fundamentals of normal nutrition. Carbohydrates, proteins, fats, vitamins, minerals; their roles in human metabolism. Introduction to nutrition in the life cycle. Per week: lecture three hours.

### DTCS 302. Food Selection and Presentation. 5 Units.

Develops food preparation techniques. Addresses changes associated with maturation, preservation, preparation, transportation, and storage in relation to food quality; nutritional concepts and cultural food patterns in planning and producing meals; meal service in professional settings; and appreciation of food as a nutrient delivery pathway for gustatory perspective. Per week: Lecture (3 hours), practicum (6 hours). Laboratory fee. Prerequisite: Basic Nutrition.

### DTCS 304. Community Nutrition. 4 Units.

Community-based nutrition education which requires knowledge of normal nutrition and life-cycle issues. Includes nutrition assessment; medical nutrition-therapy topics; legislative processes and politics; program planning, implementation, management, and evaluation; counseling, teaching, and facilitating group processes; interpreting data and research findings; identifying and accessing community nutrition resources.

### DTCS 305. Professional Issues in Nutrition and Dietetics. 1 Unit.

Examines the growth of nutrition and dietetics as a profession, and the role of the professional in the restoration and maintenance of health. Nontraditional roles of the registered dietitian and dietetic technician, registered. Emphasizes development of professionalism, accountability, and responsibility for life-long learning. Requires preparation of a professional portfolio and a project completed throughout the program and submitted prior to graduation. May be repeated once for credit.

### DTCS 321. Nutrition and Human Metabolism. 4 Units.

Nutritional requirements and metabolism of essential nutrients for the human organism at the cellular level. Focuses on macro- and micronutrients metabolism. Per week: lecture four hours. Prerequisite: Anatomy and physiology, biochemistry.

### DTCS 329. Organic Chemistry with Applications for Nutrition. 4 Units.

Covers the nomenclature, chemical/physical properties, and common reactions of carbon-based compounds relevant to human nutrition.

### DTCS 334. Biochemistry with Applications for Nutrition. 4 Units.

The chemistry and metabolism of carbohydrates, lipids, proteins, and nucleic acids. Preliminarily investigates the chemical basis of life processes, emphasizing aspects of human nutrition. Includes laboratory experiments to support student competency. Prerequisite: DTCS 329; or equivalent.

### DTCS 338. Introduction to Clinical Nutrition. 2 Units.

Basic knowledge of the responsibilities of the clinical dietitian: familiarizing students with the electronic medical record and the nutrition care process. Emphasizes nutrition assessment knowledge and skills.

### DTCS 340. Nutrition through Life Stages. 3 Units.

Includes a review of basic nutrition, as well as normal nutrition needs of individuals across the life span, with a focus on pregnancy and lactation; normal infant growth and development; and childhood and adolescence. Adult men's and women's health issues, geriatrics, food allergies, vegetarian diets, obesity, and eating disorders.

### DTCS 342. Medical Nutrition Therapy I. 5 Units.

Basic biochemical and physiological conditions necessitating dietary modifications in the clinical management of the patient. Includes cardiovascular disease and hypertension, diabetes. Involves patient interviewing and counseling, nutrition assessment and documentation, and use of computer-assisted nutritional analysis. Ongoing study of medical terminology. Advanced topics include lipids and antioxidants.

**DTCS 343. Medical Nutrition Therapy II. 5 Units.**

Basic biochemical and pathophysiologic processes necessitating dietary modifications in clinical patients with pulmonary disease; disorders of the digestive, liver, and biliary systems, and pancreas; alcoholism; renal disease; solid-organ transplantation; and sepsis/trauma. Nutrition assessment, patient interviewing, and counseling. Applies enteral and parenteral nutrition support when indicated. Introduces preparation of an in-depth case study.

**DTCS 371. Quantity Food Purchasing, Production, and Service. 5 Units.**

Emphasizes methods to achieve quantitative and qualitative standards in quantity food production. Menu planning for institutions. Practicum in food purchasing, production, and service. Open to dietetics students only. Per week: lecture two hours, practicum nine hours.

**DTCS 372. Food Systems Organization and Management. 4 Units.**

Studies food-service systems. Effective utilization of resources within the food system. Computer application in food-systems management. Per week: lecture two hours, practicum six hours.

**DTCS 395. Nutrition and Dietetics Practicum. 12 Units.**

Supervised experience in medical nutrition therapy, community, and administrative dietetics in hospitals, outpatient clinics, public health departments, and food systems. Performance review and evaluation. Ten weeks (400 clock hours) during the summer at the end of the junior year.

**DTCS 405. Senior Seminar. 1 Unit.**

Develops professional skills, team efforts to market nutrition in the community, volunteer efforts in the community, professional networking, and special topics as determined by nutrition and dietetics faculty. Emphasizes professional portfolio and transition to entry-level nutrition educator/dietitian/food service director. Introduces preparation of an in-depth case study.

**DTCS 445. Nutrition Care Management. 4 Units.**

Applies operations analysis, financial management, quantitative decision making, and productivity-management techniques to enhance the delivery of nutrition care. Staff justification, continuous quality improvement, reimbursement for nutrition services, case management, and entrepreneurship.

**DTCS 446. Nutrition Counseling and Education. 3 Units.**

Applies techniques of nutrition counseling, with emphasis on improving skills in verbal and nonverbal communication, assertiveness, and dealing with cultural differences as well as death and dying. Builds skills in administration for the nutrition counselor. Discusses ethical implications in health care. Per week: Lecture (2 hours), practicum (3 hours). Prerequisite: DTCS 343.

**DTCS 452. Advanced Nutrition. 4 Units.**

Covers three interrelated topics in modern nutrition research: functional foods that provide physiological benefit beyond meeting basic nutritional needs; food toxicology—that is, the physiological consequences of natural and synthetic toxins found in the foods we consume; and nutritional genomics applied to evaluation of the links between nutrition, health, and the human genome. Prerequisite: DTCS 321.

**DTCS 453. Advanced Medical Nutrition Therapy. 3 Units.**

Theory and application of critical-care nutrition to complex medical conditions. Interpretation and synthesis of fluid and electrolyte balance, acid/base balance, vital signs, ICU monitoring forms, interpretation of laboratory data and diagnostic tests, medical and surgical history, and drug/nutrient interactions. Focus on a problem-list approach to nutrition assessment, documentation, intervention, and outcome evaluation. Per week: lecture two hours, practicum three hours.

**DTCS 454. Advanced Nutrition. 2 Units.**

Covers two interrelated topics in modern nutrition research: food toxicology, the physiological consequences of natural and synthetic toxins found in the foods we consume; and nutritional genomics applied to evaluating the links between nutrition, health, and the human genome. Prerequisite: DTCS 321.

**DTCS 461. Food Science. 4 Units.**

Chemical, physical, and biological effects of maturation, processing, storage, and preservation on the structure, composition, palatability, product quality, and microbiological safety of food and its additives. Per week: lecture four hours, laboratory three hours. Laboratory fee. Prerequisite: Basic foods, human nutrition, organic chemistry.

**DTCS 473. Medical Nutrition Therapy Affiliation. 6,12 Units.**

Student applies knowledge and skills in clinical facilities as they work with a staff dietitian and confers with supervisor to develop and enhance advanced-level professional competence. Student completes a major project relating to medical nutrition therapy. For 6 units, minimum of five weeks (200 clock hours); for 12 units, minimum of ten weeks (400 clock hours). May take more than once for credit.

**DTCS 476. Exercise Physiology in Medical Nutrition Therapy. 3 Units.**

Basic preparation for development and leadership of exercise programs. Includes: exercise-physiology training, acute and chronic effects of exercise, simple assessment of fitness, role of exercise in prevention of common health problems, and management of selected risk factors. Discusses endurance, strength, flexibility, and aerobic exercises. Laboratory included. Prerequisite: Anatomy and physiology.

**DTCS 499. Nutrition and Dietetics Independent Study. 1-5 Units.**

Project or paper to be submitted on a topic of current interest in an area of nutrition and dietetics. Regular meetings provide the student with guidance and evaluation. Elected on the basis of need or interest.

**DTCS 504. Metabolism of Nutrients. 5 Units.**

The study of normal metabolism of carbohydrates, lipids, and proteins. Includes vitamin and mineral involvement, as well as metabolic changes due to the presence of various hormonal states.

**DTCS 506. Professional Seminar in Nutrition and Dietetics. 1 Unit.**

Review and application of topics in nutrition and dietetics in preparation for professional practice and the registration examination for dietitians. Student presentations covering professional competencies and material essential for high-level practice.

**DTCS 510. Public Health Nutrition Issues and Policies. 3 Units.**

Nutrition policies and interventions that lead to prevention of and care for diseases prevalent in the community. Genetic and environmental influences related to nutrition health studies.

**DTCS 517. Carbohydrates and Lipids. 4 Units.**

A comprehensive study of the sources, metabolism, and function of carbohydrates and lipid—including their influence on human health and disease states.

**DTCS 518. Proteins, Vitamins and Minerals. 4 Units.**

A comprehensive study of the sources, metabolism, and function of proteins, vitamins, and minerals—including their influence on human health and disease states.

**DTCS 519. Functional Foods and Phytochemicals. 2 Units.**

Study of phytochemicals and their impact on treatment and prevention of diseases and their role in health maintenance.

**DTCS 524. Food Ethics. 2 Units.**

Explores ethical issues related to food, nutrition, and dietetics. Topics include food science, policy, food security, religious and cultural beliefs, malnutrition, professional practices, media, and marketing.

**DTCS 526. Pharmacology in Medical Nutrition Therapy. 2 Units.**

Pharmacology at the graduate level, including kinetics, dynamics, and therapeutics of drugs. Basic definitions, sources of information, classification of drugs, and principles and mechanisms of drug actions. Emphasizes drug-nutrient interactions.

**DTCS 534. Pediatric Medical Nutrition Therapy. 3 Units.**

Management of the nutrition needs of the pediatric population. Focuses on growth and development in the normal and abnormal child. Addresses the biochemical and physiological conditions that necessitate dietary modifications in the clinical management of the patient. Per week: lecture 2 hours, practicum 3 hours.

**DTCS 536. Health Care Financial Management. 3 Units.**

Management of the nutrition care-management system involving prospective reimbursement and dietitian billing, business plan development, budget development and analysis of budget variances, operation statements, and productivity related to a department budget.

**DTCS 542. Nutrient Delivery, Education, and Counseling. 2 Units.**

Techniques and models used in the nutrition intervention step of the nutrition care process. Investigates food/nutrient provision, education (assessment to evaluation), counseling (theoretical basis/approach and strategies); as well as coordination of nutrition care.

**DTCS 544. Medical Nutrition Therapy II. 5 Units.**

Basic biochemical and pathophysiologic processes that necessitate dietary modifications in the clinical management of the patient with pulmonary disease—including cystic fibrosis; digestive disorders; disorders of the liver, biliary system, and pancreas; alcoholism; renal disease; solid-organ transplantation; sepsis/trauma; metabolic disorders; and neurologic disorders—including spinal cord injury and stroke. Continues nutrition assessment, patient interviewing, and counseling. Applies enteral and parenteral nutrition support when indicated in the clinical management of patients with these conditions. Introduces preparation of an in-depth case study. Graduate level project will be required. Per week: lecture 3 hours, practicum 6 hours.

**DTCS 545. Nutrition Care Management. 4 Units.**

Applies classical management theories and current application in the delivery of nutrition care; applies continuous quality management, staffing decision making, operations analysis, business planning, quantitative decision making, and productivity-management techniques to enhance the delivery of nutrition care. Includes reimbursement for nutrition services, servant leadership, case management, and entrepreneurship. Major paper due at end of quarter.

**DTCS 546. Introduction to Integrative and Functional Medical Nutrition Therapy. 3 Units.**

Introduces guiding principles for the practice of integrative and functional medical nutrition therapy. Applies the clinical nutrition care process (assessment, diagnosis, intervention, monitoring, and evaluation) to restoring function for a client, focusing on nutritional imbalances characteristic of chronic disease pathophysiology, supporting individuals with persistent symptoms, and preventing chronic disease by addressing root causes. Prerequisite: DTCS 342, DTCS 343.

**DTCS 554. Advanced Medical Nutrition Therapy. 3 Units.**

Uses case-study approach to apply critical care nutrition to complex medical conditions. Interprets and synthesizes decision information regarding fluid and electrolyte balance, acid-base balance, vital signs, ICU and surgical history, and drug-nutrient interactions. Focuses on problem-based evaluation. Develops and analyzes a clinical case study. Emphasizes geriatric care and the special needs of this population.

**DTCS 566. Food Chemistry and Experimental Foods. 4 Units.**

Chemical, physical, and biological changes of food in processing and preservation. Experimentation in recipe development and improving the nutritional quality of food.

**DTCS 574. Advanced Food Systems Management. 3 Units.**

Develops competencies in total quality management; quality control; production planning, including forecasting production demand; linear programming; program evaluation and review technique (PERT); productivity management, including line balancing; financial management, including economics; food and labor cost control; budgeting project; and financial analysis of operations. Per week: lecture 3 hours, practicum three hours.

**DTCS 575. Food Systems Management. 5 Units.**

Develops administrative skills in effective management of food systems. Qualitative and quantitative standards, budget development and analysis, labor-management relations, computer-assisted information system.

**DTCS 576. Exercise Physiology in Medical Nutrition Therapy. 3 Units.**

Develops leadership in the development and presentation of exercise programs. Includes exercise-physiology training, acute and chronic effects of exercise, simple assessment of fitness, role of exercise in prevention of common health problems, and management of selected risk factors. Discusses endurance, strength, flexibility, and aerobic exercises. Laboratory included.

**DTCS 584. Contemporary Issues in the Dietetic Profession. 4 Units.**

Investigates nutrition trends in the public arena. Reviews current nutrition topics in popular literature, with evaluation of health implications using peer-reviewed evidence.

**DTCS 585. Operations Management in Food and Nutrition Services. 4 Units.**

Develops conceptual skills in operation of a food or nutrition service using quantitative decision making, forecasting, planning tools, development of quality standards and control mechanisms, job design, layout, work measurement, inventory control, and information systems.

**DTCS 589. Capstone Course in Nutrition and Dietetics. 3 Units.**

Develops a systems viewpoint of advanced medical nutrition therapy, management skills, and application of technology. Advanced application of operations management in nutrition care; development and application of high ethical standards in all aspects of the profession—including patient care; and human-resource management. Identifies trends that affect the operation of the department.

**DTCS 599. Nutrition and Dietetics Independent Study. 1-5 Units.**

Project or paper to be submitted on a topic of current interest in an area of nutrition and dietetics. Regular meetings provide the student with guidance and evaluation. Elected on the basis of need or interest.

**DTCS 605. Nutrition Seminar. 1 Unit.**

Study and discussion of current topics in nutrition. Requires a major paper, including meta-analysis of literature and presentation of a nutrition topic.

**DTCS 694. Research. 1-8 Units.**

Independent research for doctoral degree candidates and qualified master's degree students on problems currently being studied in the department, or in other department(s) with which they collaborate. Research program arranged with faculty member(s) involved. Minimum of 100 hours required for each unit of credit. Written report required.

**DTCS 777. Food Systems Management Affiliation. 6 Units.**

Five weeks (200 hours) of supervised experience in food systems management in health care or school food service. May be repeated for additional credit. Prerequisite: DTCS 575.

**DTCS 778. Clinical Nutrition Affiliation. 6,12 Units.**

Student applies knowledge and skills in clinical facilities as they work with a staff dietitian and confers with supervisor to develop and enhance advanced-level professional competence. Student completes a major project relating to medical nutrition therapy. For 6 units, minimum of five weeks (200 clock hours); for 12 units, minimum of ten weeks (400 clock hours). May be repeated for additional credit.

**DTCS 795. Nutrition and Dietetics Graduate Practicum. 12 Units.**

Supervised professional practice in medical nutrition therapy, community nutrition, and food systems management. Professional experiences in health care, public health centers, and food production facilities. Performance review and assessment, written weekly reports of learning achieved, and review. May be repeated for additional units. Ten weeks (400 clock hours) during the summer term.