MASTER OF SCIENCE (M.S.),
MAJOR IN HUMAN NUTRITION

Major Program
The graduate program in human nutrition promotes the study of human nutrition, food science, and biotechnology with emphasis on promoting health and preventing disease. Graduate instruction is based on a variety of learning strategies, including lecture, seminar-style discussion, participation in research, and practical laboratory work using state of the art equipment and techniques. Graduates achieve the technical skills, scientific knowledge, and local, national, and global perspectives to integrate the fields of nutrition, food science and food biotechnology to address human health concerns of the 21st century.

Admission Policy
For information regarding admission application requirements and deadlines, please visit The Graduate College website at http://www.gradcollege.txstate.edu/hmnt.html.

Additional Course Requirements for Special Admission Considerations
Applicants with limited academic preparation in nutrition and foods can be conditionally admitted. Foundation courses will be required to provide fundamental knowledge for the discipline. These courses will not apply toward completion of the master’s degree and include, but may not be limited to:

- NUTR 5300: Foundation Studies in Human Nutrition (Nutrition Science) 3
- NUTR 5300: Foundation Studies in Human Nutrition (Food Science) 3
- NUTR 5300: Foundation Studies in Human Nutrition (Biochemical Nutrition) 3

Students with no biology or chemistry background will not be considered for admission without evidence of completion of the following courses:

- Introductory Biology
- Microbiology
- Anatomy and Physiology
- Two terms of Introductory Chemistry
- At least one Organic Chemistry course
- One course in Biochemistry

Dietetic Internship Concurrent Enrollment
Students enrolled in the M.S. program who are interested in obtaining the registered dietitian (RD) credential are encouraged to apply for admission to the Texas State dietetic internship (DI) after they have completed at least one term. While up to nine hours of courses taken as part of the DI may count towards the M.S. degree, completion of both the M.S. and DI may require more course work than needed to complete the M.S. alone. Students interested in this dual option are required to meet with the graduate coordinator to determine courses required to complete both programs. It is important to note that admission to the M.S. does not guarantee acceptance into the Texas State DI.

Degree Requirements
The nutritional science concentration prepares students to work in public and private nutrition and health care-related facilities, agencies and advocacy organizations. It also prepares students for doctoral programs in nutrition.

Thesis Option
Core Courses
- FCS 5310: Research Methods in FCS 3
- NUTR 5304: Advanced Functional Foods and Nutraceuticals 3
- NUTR 5305: Seminar in Nutrition and Disease 3
- NUTR 5306: Seminar in Nutrition in the Lifespan 3
- NUTR 5366: Nutrient Metabolism I 3
- NUTR 5367: Nutrient Metabolism II 3

Nutritional Science Courses
- FCS 5311: Statistics and Data Analysis for Family and Consumer Sciences 3
- NUTR 5302I: Advances in Nutrition Policy & Ethics 3
- NUTR 5302E: Nutrition and Disease
- NUTR 5302F: Nutritional Supplements
- NUTR 5302G: Pediatric Obesity
- NUTR 5302H: Advanced Nutrition and Genetics
- NUTR 5302J: Diet Therapy and Pathophysiology
- NUTR 5362: Advanced Medical Nutrition Therapy
- NUTR 5363: Advanced Community Nutrition
- NUTR 5364: The Science of Nutrition and Exercise
- NUTR 5371: Externship in Human Nutrition
- BIO 5426: Immunology
- ESS 5317: Exercise Physiology
- H ED 5315: Application of Quantitative Data Analysis in Health and Wellness Promotion (Research II)
- H ED 5320: Foundation of Public Health
- HR 5362: Bioinformatics

Thesis Course Work 6
Choose a minimum 6 hours
- NUTR 5199B: Thesis
- NUTR 5299B: Thesis
- NUTR 5399A: Thesis
- NUTR 5399B: Thesis
- NUTR 5599B: Thesis
- NUTR 5999B: Thesis

Total Hours 33

Non-thesis Option
Core Courses
- FCS 5310: Research Methods in FCS 3
- NUTR 5304: Advanced Functional Foods and Nutraceuticals 3
- NUTR 5305: Seminar in Nutrition and Disease 3
- NUTR 5306: Seminar in Nutrition in the Lifespan 3
- NUTR 5366: Nutrient Metabolism I 3
- NUTR 5367: Nutrient Metabolism II 3

Nutritional Science Prescribed Electives
If a student elects to follow the thesis option for the degree, a committee to direct the written thesis will be established. The thesis must demonstrate the student’s capability for research and independent thought. Preparation of the thesis must be in conformity with the Graduate College Guide to Preparing and Submitting a Thesis or Dissertation. The thesis handbook may be accessed at http://www.gradcollege.txstate.edu/docs/Thesis_Diss_Guide.pdf.

### Thesis Proposal

The student must submit an official Master’s Thesis Proposal form to their thesis committee. The required thesis proposal form may be obtained from The Graduate College at http://www.gradcollege.txstate.edu/gcforms.html. After signing the form and obtaining committee members’ signatures, graduate advisor’s signature (if required by the program), and the department chair’s signature, the student must submit the thesis proposal form with one copy of the proposal attached to the dean of The Graduate College for approval before proceeding with research on the thesis. If the thesis research involves human subjects, the student must obtain exemption or approval from the Texas State Institutional Review Board prior to submitting the proposal form to The Graduate College. If the thesis research involves vertebrate animals, the proposal form must include the Texas State IACUC approval code. It is recommended the thesis proposal form be submitted to the dean of The Graduate College by the end of the student’s enrollment in 5399A.

### Thesis Committee

The thesis committee must be composed of a minimum of three approved graduate faculty members.

### Thesis Enrollment and Credit

The completion of a minimum of six hours of thesis enrollment is required. Enrollment for the thesis will be in course number 5399A for a student’s initial thesis enrollment and a thesis B course for each subsequent thesis enrollment in the field in which the subject matter of the thesis falls, e.g., ENG 5399A, ENG 5199B, ENG 5299B, ENG 5399B, ENG 5599B, and ENG 5999B. Preliminary discussions regarding the selection of a topic and assignment to a research supervisor will not require enrollment for the thesis course.

A student will be required to enroll in and pay the fee for at least one hour of the thesis course during any term in which the student will receive thesis supervision or guidance and/or in which the student is using university resources. Failure to register for the thesis course during a term in which supervision is received may result in postponement of graduation. After initial enrollment in 5399A, the student will continue to enroll in a thesis B course as long as it takes to complete the thesis. In the rare case when a student has not previously enrolled in thesis and plans to work on and complete the thesis in one term, the student will enroll in both 5399A and 5399B. The only grades assigned for thesis courses are PR (progress), CR (credit), W (withdraw), and F (failing). If acceptable progress is not being made in a thesis course, the instructor may issue a grade of F. If the student is making acceptable progress, a grade of PR is assigned until the thesis is completed. The minimum number of hours of thesis credit (“CR”) will be awarded only after the thesis is filed in the Alkek Library and the librarian has electronically returned the thesis card to the office of The Graduate College.

A student who has selected the thesis option must be registered for the thesis course during the term or Summer I (during summer the thesis course runs ten weeks for both sessions) in which the degree will be conferred.

### Fee Reduction

A master’s degree candidate for graduation may be eligible for a one-time fee reduction under V.T.C.A. Education Code, Section 54.054. Please refer to the section titled Fee Reduction in the Additional Fees and Expenses chapter of this catalog for more information.

### Thesis Deadlines and Approval Process

Thesis deadlines are posted at the following web page: http://www.gradcollege.txstate.edu/Thes-Diss_Info/T-D_Deadlines.html. The completed thesis must be submitted to the chair of the thesis committee no later than 41 days before the date of the commencement at which the degree is to be conferred.

The following must be submitted to the office of The Graduate College no later than 24 days, not counting weekends or holidays, before the date of commencement at which the degree is to be conferred (see The Graduate College webpage for specific deadlines):

1. The Thesis/Dissertation Committee Approval form bearing original signatures of the student and all committee members.
2. One (1) copy of the thesis in final form, approved by all committee members, on standard paper (Hard-copy Submission Option) or PDF of the thesis in final form, approved by all committee members, uploaded in the on-line Vireo submission system (Vireo On-line Submission Option).

After the dean of The Graduate College approves the thesis, the process is as follows:

1. For the Vireo On-line Submission Option:
   a. No copies are required to be submitted to the Alkek Library.
      However, Alkek will bind copies submitted that the student wants bound for personal use. Personal copies are not required to be printed on archival quality paper. The student will take the
Nutrition and Foods (NUTR)

NUTR 5101. Graduate Assistant Development.
This course is required as a condition of employment for graduate teaching and instructional assistants. This course provides regular in-service and planned periodic evaluations of instructional responsibilities. This course does not earn graduate degree credit.

1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.
Course Attribute(s): Graduate Assistantship
Grade Mode: Leveling/Assistantships about Graduate Assistant Development

NUTR 5199B. Thesis.
Continuing thesis enrollment. Focus is on data collection, analysis and writing of the thesis. The student continues to enroll in this course until the thesis is defended. Prerequisite: NUTR 5399A.

1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.
Grade Mode: Credit/No Credit about Thesis

NUTR 5299B. Thesis.
Continuing thesis enrollment. Focus is on data collection, analysis and writing of the thesis. The student continues to enroll in this course until the thesis is defended. Prerequisite: NUTR 5399A.

2 Credit Hours. 2 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Credit/No Credit about Thesis

This course is designed for students who do not have a sufficient background in the foundations of nutrition and food science to be successful in graduate level courses. Prerequisite: consent of graduate advisor. No graduate credit awarded; may be repeated.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from Graduate GPA Leveling about Foundation Studies in Human Nutrition

NUTR 5302E. Nutrition and Disease.
An advanced study of the ability of various nutrient and non-nutrient compounds found in food to prevent and treat disease. Diseases covered include cancer, diabetes, cardiovascular disease, among others. Prerequisite: graduate standing and permission of instructor.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Topics
Grade Mode: Standard Letter about Nutrition and Disease

NUTR 5302F. Nutritional Supplements.
An advanced study of the efficacy of dietary supplements. Both nutrient and non-nutrient supplement components will be discussed. Clinical trials, epidemiological data and molecular mechanisms of action of dietary supplements will be compared to manufacturer’s claimed action. Prerequisite: graduate standing and consent of instructor.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Topics
Grade Mode: Standard Letter about Nutritional Supplements

NUTR 5302G. Pediatric Obesity.
An advanced study of pediatric obesity, including causes, economic and health related consequences, evidence-based treatment and prevention strategies. Prerequisite: graduate standing and consent of instructor.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Topics
Grade Mode: Standard Letter about Pediatric Obesity

NUTR 5302H. Advanced Nutrition and Genetics.
This course will examine the specific processes in intermediary nutrient metabolism and their genetic regulation. The effects on gene expression, cell signaling, cell physiology, and disease processes will also be explored. Prerequisite: Admission to MS in Human Nutrition.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Topics
Grade Mode: Standard Letter about Advanced Nutrition and Genetics

NUTR 5302I. Advances in Nutrition Policy & Ethics.
This course will investigate scientific literature reviewing ethical and policy issues influencing the food systems and nutrition science in the United States and globally. Students will identify ethical issues, review current policy, and conduct analyses of policy solutions. Students will prepare and engage in informed debates of current issues.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing Topics
Grade Mode: Standard Letter about Advances in Nutrition Policy & Ethics

NUTR 5302J. Diet Therapy and Pathophysiology.
This course will investigate the use of diet as a treatment for a variety of acute and chronic disease states. Students will also learn to apply the nutrition care process to treat patients/clients with acute and chronic diseases.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing Topics
Grade Mode: Standard Letter about Diet Therapy and Pathophysiology
NUTR 5303. Nutrition and Food Science Project.
Directs the graduate student to review, analyze and compile current scientific literature pertaining to a specific, advanced topic in nutrition under guidance of faculty. Course includes preparation of a manuscript (review of literature) in publication format. Prerequisite: Graduate Standing.

about Nutrition and Food Science Project
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

Sources and mechanism of action of dietary bioactive compounds in functional foods, nutraceuticals and supplements in the prevention and management of chronic and infectious diseases. The efficacy, safety and regulatory issues governing development and commercialization will be discussed.
about Advanced Functional Foods and Nutraceuticals
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

NUTR 5305. Seminar in Nutrition and Disease.
An advanced study of a selected topic in nutrition concerning nutrients and functional foods and their role in disease prevention or treatment. Class topics will enter on clinical trials, epidemiological data and molecular mechanisms of action concerning the ability of nutrients to prevent or treat disease. Repeatable for credit when topic varies.
about Seminar in Nutrition and Disease
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

NUTR 5306. Seminar in Nutrition in the Lifespan.
An advanced study of a selected topic in nutrition and the lifespan from a multidisciplinary perspective, including review of scientific literature in nutrition, physiology, biochemistry, sociology, exercise sports science, epidemiology, endocrinology and genetics. Repeatable for credit when topic varies.
about Seminar in Nutrition in the Lifespan
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

Evaluation of research concepts, methods, and strategies used in nutrition and food science research. Topics include the nature of scientific research, sampling, measurement, data collection, types of research methodology, use of data analysis and management software, and evaluation of research reports.
about Research Methods in Nutrition and Food Science
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

Individual work with specific guidance from graduate nutrition faculty. Work may include participation in research, professional practice, and/or critical review of the scientific literature. Course may be repeated once for credit when topics vary.
about Advanced Independent Study in Nutrition
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

NUTR 5360. Practicum for Dietetic Internship.
Students observe and engage in the practice of dietetics under the supervision of practitioners in facilities for health care, public health, and food systems. Repeated twice to meet requirements to complete the dietetic internship program. Graded on a credit (CR), no credit (F) basis. Prerequisites: Admission to Texas State Dietetic Internship.
about Practicum for Dietetic Internship
3 Credit Hours. 0 Lecture Contact Hours. 6 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

NUTR 5361. Advanced Food Systems Administration.
Techniques and procedures for management, service, and marketing of meals in commercial and noncommercial food service facilities.
about Advanced Food Systems Administration
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

NUTR 5362. Advanced Medical Nutrition Therapy.
Advanced study of medical nutrition therapy with emphasis on application of principles and techniques of nutritional assessment emphasizing current clinical nutrition practices. Current scientific literature will be used extensively to discuss most recent advances in the area of medical nutrition therapy.
about Advanced Medical Nutrition Therapy
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

NUTR 5363. Advanced Community Nutrition.
Assessment of the nutritional needs of the community and of programs that serve the needs. Experiences include survey techniques, nutritional education, and management of programs to meet specific nutritional needs through community agencies.
about Advanced Community Nutrition
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

An advanced course focusing on the physiological and biochemical impact of nutrient intake on physical performance, health and fitness. Special emphasis will be placed on the investigation of a variety of dietary supplements, including purported ergogenic aids. The course requires significant reading and interpreting of the scientific literature.
about The Science of Nutrition and Exercise
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter
NUTR 5365. Analytical Food Science and Molecular Techniques.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter
about Analytical Food Science and Molecular Techniques

NUTR 5366. Nutrient Metabolism I.
An advanced study of the biochemical and physiological foundations of nutrition and metabolism and its relevance to health and wellness. Scientific literature pertaining to biochemical structure, metabolism and physiological regulation of macronutrients and water-soluble vitamins. Prerequisites: Graduate Standing.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter
about Nutrient Metabolism I

NUTR 5367. Nutrient Metabolism II.
An advanced study of the biochemical and physiological foundations of nutrition with emphasis on fat-soluble vitamins and minerals. Current scientific information pertaining to structure, metabolism and physiological regulation of these micronutrients. Prerequisites: Graduate Standing.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter
about Nutrient Metabolism II

NUTR 5368. Food Biotechnology.
Applications of microbiology, genetic engineering and biotechnology to the production of food and food ingredients. Addresses the use of biotechnology in creation of genetically engineered foods and functional foods from microbes, plants and animals. Ethical and security risks associated with food biotechnology will be debated. Prerequisites: Graduate Standing.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter
about Food Biotechnology

NUTR 5369. Nutrition and Immune Function.
This course integrates existing knowledge in several areas - nutrition, food science, metabolism and immunology. Discussion will focus on the effect of dietary components on activation of cells and genes related to immune system and underlying mechanisms of nutritional immunomodulation. Prerequisites: Graduate Standing.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter
about Nutrition and Immune Function

NUTR 5370. Food and Nutritional Toxicology.
Basic principles of nutritional and food toxicology. Absorption, metabolism and excretion of xenobiotics, allergenic and toxic constituents in diet. Effect of dietary toxins on nutritional status, mutagenesis, carcinogenesis and disease. Regulation and safety assessment of foods including food additives, environmental contaminants, pesticides and antibiotic residues. Prerequisite: Graduate Standing.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter
about Food and Nutritional Toxicology

NUTR 5371. Externship in Human Nutrition.
Structured practical experience in human nutrition, food science, food biotechnology. Supervision provided by a member of the graduate faculty and a designated individual at the work site. Requires a minimum of 150 hours of supervised experience. Prerequisites: Graduate standing and approval by graduate advisor and faculty supervisor.
3 Credit Hours. 0 Lecture Contact Hours. 40 Lab Contact Hours.
Grade Mode: Standard Letter
about Externship in Human Nutrition

NUTR 5375. Advances in Life Span Nutrition.
An advanced study of the nutritional requirements throughout the life span involving a multidisciplinary approach including, biochemistry, endocrinology and genetics, and perspectives of human psychological and social development. Prerequisite: consent of graduate advisor.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter
about Advances in Life Span Nutrition

NUTR 5399A. Thesis.
Initial thesis enrollment. Focus is on identification of thesis topic, review of literature, research design and preparation of thesis proposal. No thesis credit is awarded until completion of NUTR 5399B. Prerequisite: Graduate standing.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Credit/No Credit
about Thesis

NUTR 5399B. Thesis.
Continuing thesis enrollment. Focus is on data collection, analysis and writing of the thesis. The student continues to enroll in this course until the thesis is defended. Prerequisite: NUTR 5399A.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Credit/No Credit
about Thesis

NUTR 5599B. Thesis.
Continuing thesis enrollment. Focus is on data collection, analysis and writing of the thesis. The student continues to enroll in this course until the thesis is defended. Prerequisite: NUTR 5399A.
5 Credit Hours. 5 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Credit/No Credit
about Thesis
NUTR 5999B. Thesis.
Continuing thesis enrollment. Focus is on data collection, analysis and writing of the thesis. The student continues to enroll in this course until the thesis is defended. Prerequisite: NUTR 5399A.

9 Credit Hours. 9 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Credit/No Credit