The mission of the Department of Biological and Health Sciences at Texas A&M University-Kingsville is to provide excellence in teaching, research and service in a unique biotic and cultural region of Texas. The strong research and teaching base of our faculty allows us to provide the latest information in the biological sciences, including strong programs in biomedical science and organismal biology. Our commitment, as always, is to the success of our students. We offer both undergraduate degrees in Biology, Biomedical Science and Human Nutrition, an M.S. Degree in Biology and a Dietetic Internship/Practicum for students interested in obtaining a license as Registered Dietitians.

Human Nutrition
The major in Human Nutrition prepares students for careers in dietetics, food systems management and community nutrition. Students may find jobs in hospitals, community nutrition programs, wellness programs, school lunch programs, restaurants, hotels, catering establishments and a variety of management positions in the food service industry. Concepts studies include food principles, nutrition, medical nutrition therapy, experimental foods, community nutrition, quantity food preparation and food service management. The Human Nutrition program is a Didactic Program in Dietetics (DPD) accredited by the Academy of Nutrition and Dietetics (AND) Accreditation Council for Education in Nutrition and Dietetics (ACEND). This program is designed to meet the educational requirements for acceptance into an accredited dietetic internship program.

Didactic Program in Dietetics Verification Statement Policy
A verification statement is required in order to apply to dietetic internship programs. To be eligible to receive a verification statement, students in the Didactic Program in Dietetics (DPD) must have a minimum GPA of 3.0 overall in required DPD courses and hold a baccalaureate degree. Receipt of a verification statement, alone, does not guarantee acceptance into an ACEND accredited dietetic internship as programs are highly competitive. Students who do not meet the grade point requirement for a verification statement, but satisfy graduate requirements, remain eligible to graduate with a Bachelors of Science in Human Nutrition. For more detailed information, please see the Didactic Program in Dietetics Student Handbook (http://www.tamuk.edu/artscti/_files_COAS/biol/nutrition/manual.doc) available online.

Dietetic Internships/ Practica
Most of the programs in the department require completion of an internship or practicum in a setting that enhances and expands the knowledge and skills gained through course work. Students who plan to take the exam to become a registered dietitian should apply for an internship in an Accreditation Council for Education in Nutrition and Dietetics (ACEND) approved site following the completion of their degree. The department offers a fully accredited dietetic internship.

Grade Policy
Students majoring or minoring in human nutrition must make at least a C in every human nutrition course taken toward their degree.

Faculty
Department Faculty
Aguilar, Shannon  Assistant Professor of Practice, Department of Biological and Health Sciences; B.S., Texas A&M University-Kingsville; M.S., Texas A&M University-Kingsville.

Baskin, Jon  Professor, Department of Biological and Health Sciences; B.A., New York University; M.A., University of Arizona; Ph.D., University of Florida.

Bohm, Rudolf  Assistant Professor, Department of Biological and Health Sciences; B.S., The University of Texas at Austin; Ph.D., The University of Texas at Austin.

Deyhim, Farzad  Professor, Department of Biological and Health Sciences; B.S., California State University; M.S., California State University; Ph.D., Colorado State University; Ph.D., Oklahoma State University.

Galloway, Cynthia  Professor, Department of Biological and Health Sciences; B.S., California State Polytechnic University-Pomona; M.S., California State Polytechnic University-Pomona; Ph.D., University of California, Riverside.

He, Fang  Assistant Professor, Department of Biological and Health Sciences; B.S., Jiangxi Institute of Education (China); M.S., Nanjing University (China); Ph.D., Louisiana State University.
Kim, Haeyoung Assistant Professor, Department of Biological and Health Sciences; B.A., Chonnam National University (South Korea); M.A., Chonnam National University (South Korea).

Kumro, Shawnda Lecturer I, Department of Biological and Health Sciences; B.S., Texas A&M University-Kingsville; M.S., Texas A&M University-Kingsville.

Laughlin, Richard Assistant Professor, Department of Biological and Health Sciences; B.S., Stetson University; Ph.D., Clemson University.

Massa, Enrique Associate Professor, Department of Biological and Health Sciences; Chair; B.S., Pan American University; M.S., University of Michigan; Ph.D., University of Michigan.

Perez-Ballesteros, Rafael Professor, Department of Biological and Health Sciences; B.S., Universidad Autónoma de Madrid; M.S., University of Michigan; Ph.D., University of Michigan.

Perrigo, Glenn H Professor, Department of Biological and Health Sciences; B.S., State University College, Brockport; Ph.D., The University of Texas at Austin.

Powell, Randy Associate Professor, Department of Biological and Health Sciences; B.S., Logan College of Chiropractic; D.C., Logan College of Chiropractic; B.S., Southern Illinois University at Carbondale; M.S., Southern Illinois University at Carbondale; Ph.D., The University of Texas at El Paso.

Soto, Manuel A Associate Professor, Department of Biological and Health Sciences; B.S., Texas A&M University-Kingsville; M.A., Texas A&M University-Kingsville; Ph.D., University of Southern Mississippi.

Sung, Chang K Associate Professor, Department of Biological and Health Sciences; B.S., Yeungnam University (South Korea); M.S., Illinois Institute of Technology; Ph.D., University of Illinois.

Velez-Hernandez, Maria Assistant Professor, Department of Biological and Health Sciences; B.S., University of Puerto Rico at Mayaguez (Puerto Rico); Ph.D., University of Puerto Rico at Mayaguez (Puerto Rico).

Xi, Weimin Associate Professor, Department of Biological and Health Sciences; B.S., Capital Normal University (China); M.S., Southwest University (China); Ph.D., University of North Carolina at Chapel Hill.

Emeritus

Peacock, J. Talmer Professor of Biology, Department of Biological and Health Sciences; B.S., Maryville College; M.S., University of Alabama; Ph.D., The University of Texas at Austin.

Perez, John Professor of Biological and Health Sciences, Department of Biological and Health Sciences; Regents Professor; B.S., University of Utah; M.A., Mankato State College; Ph.D., Utah State University.

Wood, Carl Professor of Biology, Department of Biological and Health Sciences; B.S., Texas A&M University; M.S., Texas A&M University; Ph.D., Texas A&M University.

Courses

Biology (BIOL)

BIOL 1106 General Biology Laboratory I 1 SCH (0-3) A laboratory experience that focuses on laboratory techniques, data collection and analysis. The experience reinforces and promotes an understanding of the cell structure, energy transformation, reproduction and genetic variability. Pre- or corequisite: BIOL 1306. Fee: $6.00

BIOL 1107 General Biology Laboratory II 1 SCH (0-3) Experimental and observational techniques used to study plant and animal life at the organismal, population and community levels including morphology, physiology, reproduction and ecology. Pre- or corequisite: BIOL 1306. Fee: $6.00

BIOL 1111 Introductory Botany Laboratory 1 SCH (0-2) A laboratory experience that reinforces an understanding of plant form, function and identification. Prerequisites: exemption from or credit in WRIT 0300, READ 0300 and ALGE 0301. Pre or corequisite: BIOL 1311. Fee: $5.00

BIOL 1113 Introductory Zoology Laboratory 1 SCH (0-2) A laboratory experience that reinforces an understanding of animal form, function and identification. Prerequisites: exemption from or credit in WRIT 0300, READ 0300 and ALGE 0301. Pre or corequisite: BIOL 1313. Fee: $5.00
BIOL 1306  General Biology I  3 SCH (3-0-1)
Survey of contemporary biology that covers the chemical basis of life, structure, function and physiology of the cell, molecular biology and microevolution. Three lecture hours and one discussion hour a week for one semester. Concurrent enrollment in BIOL 1106 recommended.

BIOL 1307  General Biology II  3 SCH (3-0-1)
Continuation of a two-semester course in biological concepts; will emphasize organismal diversity and comparative anatomy, reproduction, physiology, ecology, behavior and evolution. Three lecture hours and one discussion hour a week for one semester. Concurrent enrollment in BIOL 1107 recommended. Prerequisite: BIOL 1306.

BIOL 1311  Introductory Botany  3 SCH (3-0)
Survey of the plant kingdom with emphasis on the evolution and diversity of form, function followed by a survey of plant diversity and ecology. Concurrent enrollment in BIOL 1111 is recommended. Prerequisites: exemption from or credit in WRIT 0300, READ 0300 and ALGE 0301.

BIOL 1313  Introductory Zoology  3 SCH (3-0)
Survey of the animal kingdom with emphasis on the evolution, structure and function followed by a survey of animal diversity and ecology. Concurrent enrollment in BIOL 1113 is recommended. Prerequisites: exemption from or credit in WRIT 0300, READ 0300 and ALGE 0301.

BIOL 1372  Biological Connections  3 SCH (3-0)
Role of biological sciences in issues of world concern. Some experience in biology assumed (either one year of high school biology or credit or registration in BIOL 1306). Prerequisite: ENGL 1301.

BIOL 2375  Life Science  3 SCH (3-2)
A survey of the basic concepts of biology. Emphasizes cell structure, energy transformation, plant and animal structures and functions, diversity, and classification.
Fee: $5.00

BIOL 2401  Human Anatomy and Physiology I  4 SCH (3-3)
Gross and microscopic anatomy and physiology of the cells and tissues, integument, skeletal, muscular and nervous systems. Six hours of chemistry recommended.
Fee: $6.00

BIOL 2402  Human Anatomy and Physiology II  4 SCH (3-3)
Gross and microscopic anatomy and physiology of the circulatory, respiratory, digestive, excretory, endocrine and reproductive systems. Prerequisites: READ 0300, BIOL 2401; 6 hours of chemistry recommended.
Fee: $6.00

BIOL 2421  Elementary Microbiology  4 SCH (3-3)
Fundamental principles of the relationship of microorganisms to the life of human beings, including their morphology, growth, nutrition, and study. Prerequisites: C or better in both BIOL 1306 and BIOL 1106; 6 hours of chemistry recommended.
Fee: $6.00

BIOL 3301  Evolutionary Theory  3 SCH (3-0)
A study of Darwinism, mechanisms of evolutionary change and a history of life in the context of contemporary biology. Prerequisite: 12 semester hours of biology are required.

BIOL 3401  Invertebrate Zoology  4 SCH (3-3)
Classification, anatomy, life history and evolution of invertebrates exclusive of insects. Prerequisite: 12 semester hours of biology.
Fee: $5.00

BIOL 3402  Genetics  4 SCH (0-3-0-0-3)
Fundamental concepts of heredity, including cell reproduction, transmission genetics, biochemistry of genetics, gene structure and function and genetics of population. Lecture and recitation meetings. Prerequisites: 12 semester hours of biology; 6 semester hours of chemistry recommended.

BIOL 3403  Plant Taxonomy  4 SCH (3-3)
An introductory course concerned with developing skill in recognition and identification of seed plants at the species and family levels. Emphasis will be placed on collection, use of keys and manuals and herbarium techniques. Prerequisite: 12 semester hours of biology.
Fee: $6.00

BIOL 3405  Vertebrate Zoology  4 SCH (3-3)
Anatomy, classification and natural history of the vertebrates; methods of collecting, preserving and identifying local vertebrates. Prerequisite: 12 semester hours of biology.
Fee: $4.00

BIOL 3407  Ecology  4 SCH (0-3-0-3)
Ecology of water and land forms of South Texas. Prerequisite: 12 semester hours of biology.
Fee: $5.00

BIOL 3408  Animal Physiology  4 SCH (3-3)
A study of the fundamental process of the animal systems. Prerequisites: 12 semester hours of biology and 6 semester hours of chemistry.
Fee: $6.00
BIOL 3409  Field Biology I  4 SCH (20-20)
A study of the ecology and conservation of southern Texas flora and fauna. Prerequisite: 6 semester hours of biology.
Fee: $5.00

BIOL 4102  Seminar (WI)  1 SCH (1-0)
Current biological literature with critical class reports. Course may be repeated for credit. Prerequisite: 12 semester hours of biology.
Fee: $21.00

BIOL 4304  Research Projects in Biol  1-3 SCH (1-3)
An independent review of literature and a laboratory or field problem yielding a formal report on the research. Variable credit dependent upon the project. May be repeated not to exceed accumulated total of 3 semester hours applicable to requirements for the major in biology. Prerequisite: advanced standing and prior approval of the problem by the supervising instructor.

BIOL 4332  Pathophysiology  3 SCH (3-0)
Fundamental concepts of pathophysiology, including changes at the cellular, organ, system, and whole-organism levels during the disease state. Prerequisites: BIOL 1306/BIOL 1106, BIOL 1307/BIOL 1107, BIOL 2421, and BIOL 3402. BIOL 2401 and 2402, or BIOL 3408 is recommended.

BIOL 4334  Molecular Neurobiology  3 SCH (3-0)
Fundamental concepts of neurobiology, including neuronal electrical signaling, synaptic transmission, signal transduction, neurotransmitter diversity, neural development, and synaptic. Prerequisites: BIOL 1306/BIOL 1106, BIOL 1307/BIOL 1107, BIOL 2421, and BIOL 3402. Either BIOL 2401 and BIOL 2402, or BIOL 3408 is recommended.

BIOL 4335  Molecular Genetics  3 SCH (3-0)
Fundamental concepts of molecular genetics, including gene structure and diversity, chromatin organization, nucleosomes, gene expression, and epigenetics. BIOL 1306/BIOL 1106, BIOL 1307/BIOL 1107, BIOL 2421, and BIOL 3402.

BIOL 4335  Topics in Biology  3 SCH (3-0)
Lectures in selected topics. May be repeated for credit under a different topic. Prerequisite: 12 semester hours of biology or equivalent.

BIOL 4401  Molecular Biology  4 SCH (3-3)
The application of modern molecular techniques to manipulate the replication and expression of genes. The laboratory will introduce basic and advanced molecular techniques. Prerequisites: 12 semester hours of biology and BIOL 3402.
Fee: $6.00

BIOL 4402  Vertebrate Embryology  4 SCH (3-3)
Embrogenic development of the frog, chick, and pig. Prerequisite: 12 semester hours of biology.
Fee: $5.00

BIOL 4406  Bacteriology  4 SCH (3-3)
Survey of medical, public health, water, sewage and milk bacteriology. Bacteriological technique is emphasized. Prerequisites: 12 semester hours of biology, including BIOL 2421; 6 semester hours of chemistry recommended.
Fee: $6.00

BIOL 4408  Immunology  4 SCH (3-3)
Experimental studies in the principles of infection and immunity. Prerequisite: 12 semester hours of biology, including BIOL 4406; organic chemistry recommended.
Fee: $6.00

BIOL 4410  Topics in Biology  4 SCH (3-3)
Lectures, literature investigation and research in selected topics. May be repeated for credit under a different topic. Prerequisite: 12 semester hours of biology or equivalent.
Fee: $5.00

BIOL 4411  Plant Physiology  4 SCH (3-3)
The study of the physiological functions of vascular plants including water relations, photosynthesis, respiration and hormone synthesis. Prerequisites: 12 hours of biology including BIOL 1107/BIOL 1307.
Fee: $6.00

BIOL 4413  Nonflowering Plants  4 SCH (3-3)
The study of structure, physiological function, life cycles and the economical and biological importance of algae, bryophytes, lichens, ferns and gymnosperms. Prerequisites: 12 hours of biology including BIOL 1107/BIOL 1307.
Fee: $6.00

BIOL 4425  Ornithology  4 SCH (3-3)
Classification, structures, physiology, natural history and field identification of birds. Prerequisite: 12 semester hours of biology.
Fee: $5.00

BIOL 4426  Cellular Physiology  4 SCH (3-3)
Physiochemical function at the cellular level. Prerequisites: 12 semester hours of Biology and CHEM 3312/CHEM 3123, CHEM 3325/3125; PHYS 1301/1101 and PHYS 1302/1102 recommended.
Fee: $6.00
**BIOL 4427  Herpetology  4 SCH (3-3)**
Classification, anatomy, life history and distribution of reptiles and amphibians with special emphasis on local forms. Prerequisite: 12 semester hours of biology.

**BIOL 4429  Mammalogy  4 SCH (3-3)**
Classification, distribution, life histories, economic importance, techniques of field study, methods of collection and preservation of mammals. Prerequisite: 12 semester hours of biology.

**BIOL 4430  Parasitology  4 SCH (3-3)**
Introduction to parasitism with special reference to human and other vertebrate hosts. Prerequisite: 12 semester hours of biology.

**Fee: $6.00**

**BIOL 4431  Ichthyology  4 SCH (3-3)**
Classification, anatomy, life history and distribution of fishes, with special emphasis on local fresh water forms. Prerequisite: 12 semester hours of biology.

**BIOL 4433  Histology  4 SCH (0-3-0-3)**
Fundamental concepts of histology, including microanatomy of tissues, organ systems, and organ physiology. Prerequisites: BIOL 1306/BIOL 1106, BIOL 1307/BIOL 1107, BIOL 2421, and BIOL 3402.

**BIOL 4434  Biology of Forensic Science I  4 SCH (3-3)**
Study of crime scene protocol, evidence collection, and analysis of trace evidence such as finger prints, hairs and fibers, DNA and blood. Prerequisite: 12 semester hours of biology or permission from the instructor.

**BIOL 4435  Biology of Forensic Science II  3 SCH (3-3)**
Concepts of forensic science such as determining time and place of death as well as methods of rigor mortis, algor mortis, and livor mortis. Identification of bodies by analysis of trace evidence such as pollen and diatoms as well as anthropology and odontology. Prerequisites: 12 semester hours of biology or permission from the instructor.

**Human Nutrition (HMNT)**

**HMNT 1350  Food Prep. and Meal Mgt.  3 SCH (2-2)**
Management of resources in selection, purchasing, preparation and serving of foods. Basic principles and fundamental knowledge of standard food preparation are included. Meals and special occasion menus which meet the dietary needs of family members are planned, prepared and served. Fee: $5.00

**HMNT 2150  Intro to Human Nutrition  1 SCH (1-0)**
Understand the process and expectations in the Didactic Program in Dietetics at TAMUK. Offer assistance in the understanding the importance of mentoring and precepting others. Demonstrate how to evaluate and use professional literature to make ethical and evidence based practice decisions and help to understand the governance of nutrition and dietetics practice. Gain experience that focuses on assessment of nutritional status of an individual.

**HMNT 2350  Introductory Nutrition  3 SCH (3-0)**
Basic principles of human nutrition with emphasis on the nutrients and factors which affect their utilization in the human body. Prerequisite: 4 semester hours of Biology or Chemistry.

**HMNT 3350  Nutrition Through Life Cycle  3 SCH (3-0)**
An in-depth study of the normal growth, development and nutrition associated with pregnancy, infancy, childhood, adolescence, adulthood and aging. Review of appropriate nutritional assessment methods. Prerequisite: junior standing.

**HMNT 3352  Experimental Food Science  3 SCH (2-3)**
Food preparation designed to consolidate previous food studies and to develop experimental attitudes and techniques. Emphasis is placed on basic scientific principles. Includes fundamentals of quality assurance and the various subjective and objective methods of evaluation. Prerequisites: CHEM 2421 (or CHEM 3123 and CHEM 3323), HMNT 1350.

**Fee: $5.00**

**HMNT 3353  Medical Nutrition Therapy I  3 SCH (3-0)**
Fundamentals of nutritional assessment techniques and management of diseases of infancy and childhood, diabetes, diseases of the heart, diseases of the upper and lower GI tract. Emphasis on physiology as related to disease and practical application of nutritional support. Includes case studies, practice problems, counseling methods and documentation. Prerequisites: Credit in HMNT 2150 and HMNT 2350 with a minimum grade of ‘C’.

**HMNT 3363  Medical Nutrition Therapy II  3 SCH (3-0)**
Advanced study of medical nutrition therapy. Course includes fundamentals of enteral and parenteral support and study of physiology as related to acute and chronic kidney disease, surgery, liver disease and acid/base balance. Prerequisite: Credit in HMNT 2150, HMNT 2350, and HMNT 3353 with a minimum grade of ‘C’.

**HMNT 4312  Nutr. Couns and Diet Instr.  3 SCH (3-0)**
Provide step-by-step approach guide for entry-level practitioners through basic components of changing food behavior and improving nutritional status. Prerequisites: HMNT 2350 is required (Recommended to take HMNT 3353 & HMNT 3363 prior to taking this course).
HMNT 4351  Foods and Nutrition I  3 SCH (3-0)
Study of the influence of socioeconomic, cultural and psychological trends, issues and other impacts on food and nutrition behaviors of individuals and communities.

HMNT 4352  Foods and Nutrition II (Wi)  3 SCH (3-0)
Global overview of agencies from community to international levels with emphasis on planning, marketing, implementing and evaluating nutrition programs. Prerequisites: Credit in HMNT 2150, HMNT 2350 and HMNT 3353 with a minimum grade of ‘C’.

HMNT 4360  Quant. Food Prep & Mgt.  3 SCH (1-4)
Meal planning, food purchasing and preparation of food in large quantities. Introduction to systems management and employer-employee relations. Prerequisite: Credit in HMNT 1350 with a minimum grade of ‘C’. Fee: $5.00

HMNT 4366  Adv. Inst Foodservice Mgt.  3 SCH (3-0)
Advanced studies in institutional foodservice administration including computer applications in foodservice management. Prerequisites: Credit in HMNT 4360 with a minimum grade of ‘C’.

HMNT 4367  Advanced Nutrition I  3 SCH (3-0)
Study of nutrients and their relation to the chemistry and physiology of the human body, including metabolism of energy and macronutrients in chronic diseases. Analysis and interpretation of current nutrition research. Prerequisites: CHEM 1312, CHEM 1112, credit in HMNT 2150 and HMNT 2350 with a minimum grade of ‘C’, or permission of instructor.

HMNT 4368  Advanced Nutrition II  3 SCH (3-0)
Study of nutrients and their relation to the chemistry and physiology of the human body, including regulatory nutrients and micronutrients and homeostatic maintenance in chronic diseases. Analysis and interpretation of current nutrition research. Prerequisites: Credit in HMNT 4367 with a minimum grade of ‘C’, or permission of instructor.

HMNT 4371  Topics in Nutrition  3 SCH (3-0)
Detailed study of one or more specific sub-disciplines of human nutrition. Course may be repeated for credit when topic changes. Prerequisite: Junior-level (or higher) standing.

Degree Requirements

Majors

- Biology with Teaching Certification, B.S. (https://catalog.tamuk.edu/undergraduate/arts-sciences/biological-health-sciences/biology-teaching-certification-bs/)
- Biology, B.A. (https://catalog.tamuk.edu/undergraduate/arts-sciences/biological-health-sciences/biology-ba/)
- Biology, B.S. (https://catalog.tamuk.edu/undergraduate/arts-sciences/biological-health-sciences/biology-bs/)
- Biomedical Sciences Pre-Professional Option, B.S. (https://catalog.tamuk.edu/undergraduate/arts-sciences/biological-health-sciences/biomedical-sciences-pre-professional-option-bs/)
- General Biomedical Sciences Option (Minor in Chemistry), B.S. (https://catalog.tamuk.edu/undergraduate/arts-sciences/biological-health-sciences/general-biomedical-sciences-option-minor-chemistry-bs/)

Minors

- Biology, Minor (https://catalog.tamuk.edu/undergraduate/arts-sciences/minors/biology-minor/)
- Human Nutrition, Minor (https://catalog.tamuk.edu/undergraduate/arts-sciences/minors/human-nutrition-minor/)