

Health, Nutrition & Exercise Sciences (HNES)

HNES 100. Concepts of Fitness & Wellness. 2 Credits.

Facts about exercise and physical fitness.

HNES 111. Wellness. 3 Credits.

Examination of personal lifestyle choices related to emotional, nutritional, and mental well-being.

HNES 167. Esports. 1 Credit.

This course is designed to teach you to play different types of Esport games. It will acquaint you with the rules of these games as well as teach game and socialization etiquette. Students will compete in class against classmates, as well as people all over the world. As new games come out, they will be added and as games are no longer played, they will be removed.

HNES 170. Introduction to Exercise Science. 2 Credits.

Investigation of various Exercise Science career opportunities within the field and the professional track at NDSU.

HNES 175. Sport in the Ancient World. 3 Credits.

This course surveys the history of sport and physical activity in the ancient world, focusing on ancient Greek and Roman societies. The class will concentrate on two basic areas of physical activity. The course will explore the history of sports and the history of ideas and beliefs about physical activity and human nature.

HNES 194. Individual Study. 1-5 Credits.

HNES 196. Field Experience. 1-15 Credits.

HNES 199. Special Topics. 1-5 Credits.

HNES 250. Nutrition Science. 3 Credits.

Scientific principles of nutrition based on chemical structure and function of the nutrients. 3 lectures.

HNES 251. Nutrition, Growth and Development. 3 Credits.

Examination of growth and nutrient needs through the lifecycle.

HNES 260. Athletic Training Medical Terminology. 1 Credit.

Medical terminology related to athletic training and other allied health professions.

HNES 261L. Food Selection and Preparation Principles Laboratory. 2 Credits.

Illustrates and extends lecture topics and stresses practical application of scientific food preparation principles.

HNES 261. Food Selection and Preparation Principles. 3 Credits.

Scientific principles underlying food selection, preparation, and preservation; integration of nutrition principles, food standards, cost comparisons, and new food developments.

HNES 276. Professional Observation. 1 Credit.

Observation in a setting providing established health-fitness services. Prereq: HNES 170 and HNES 272.

HNES 291. Seminar. 1-5 Credits.

HNES 292. Global Practicum: Study Abroad. 1-15 Credits.

Pre-Arranged study at accredited foreign institutions (study abroad), domestic institutions (National Student Exchange) or on approved study abroad programs. Pre-requisite: Sophomore standing and prior approval by International Student and Study Abroad Services and major department. Graded 'P' or 'F' (Undergraduate), or 'S' or 'U' (Graduate).

HNES 294. Individual Study. 1-3 Credits.

HNES 299. Special Topics. 1-5 Credits.

HNES 351. Metabolic Basis of Nutrition. 4 Credits.

Biochemical and physiological principles of human nutrition. Nutrients in relation to metabolic regulation. Prereq: HNES 250 and BIOC 260 or BIOC 460. Student must be a Nutrition Science major.

HNES 354L. Introduction to Medical Nutrition Therapy Laboratory. 2 Credits.

Supervised practice in dietetics, for Coordinated Program Dietetics students, in a health care setting. 1 four-hour laboratory. Prereq: HNES 251, HNES 351. Coreq: HNES 354.

HNES 354. Introduction to Medical Nutrition Therapy. 4 Credits.

Introduction to the role and skills in nutritional care and application of skills necessary for beginning competency as a clinical dietitian. Prereq: HNES 251 and HNES 351. Student must be a Nutrition Science major.

HNES 361L. Foodservice Systems Management I Laboratory. 3 Credits.

Menu and special event planning, food production, recipe analysis, and safety & sanitation for student-led made-from-scratch lab experience.

HNES 361. Foodservice Systems Management I. 3 Credits.

Principles and methods of purchasing, production, and management for quantity foodservice operations.

HNES 365. Kinesiology. 3 Credits.

Study of movement analysis with emphasis on anatomical and movement principles. Prereq: BIOL 220, BIOL 220L. Restricted to Exercise Science majors only.

HNES 368. Biomechanics of Exercise. 3 Credits.

Study of the application of the principles of biomechanics and physics to human movement. Prereq: HNES 365. Restricted to Exercise Science majors only.

HNES 370. Exercise and Disease. 3 Credits.

Focus on the role physical activity or inactivity plays in the development, inhibition, and/or treatment of common chronic and metabolic conditions. Prereq: HNES 374. Prereq or Coreq: Exercise Science major.

HNES 371. Worksite Health Promotion. 3 Credits.

Design and implementation of worksite health promotion programs and the benefits for employees and employers. Prereq: HNES 375 and Exercise Science majors only.

HNES 374. Methods in Resistance Training and Cardiovascular Conditioning. 3 Credits.

This course is designed to provide the student knowledge in the techniques of resistance training, cardiovascular conditioning, and program design. Prereq: HNES 365. Restricted to Exercise Science majors only.

HNES 375. Research Methods and Design in Exercise Science. 3 Credits.

Understanding and application of a wide variety of research design principles and methodology in exercise science. Prereq: STAT 330 and Exercise Science majors only.

HNES 379. Global Seminar. 1-6 Credits.

NDSU instructed experience or field study in a foreign country. Conducted in English for residence credit. Pre-requisite: Prior approval by International Student and Study Abroad Services and major department. May be repeated. Standard Grading.

HNES 380. Exercise Behavior. 3 Credits.

Methods to facilitate the adoption of and optimize adherence to exercise programs and other healthy behaviors by using motivational interviewing, behavior change models and theories, and other advanced exercise education principles. Prereq: HNES 374 Prereq or Coreq: Exercise Science major.

HNES 388. Prevention and Care of Athletic Injuries. 3 Credits.

This course is designed to introduce the student to basic care, treatment, and prevention of athletic related injuries. Other sports medicine concepts will also be discussed.

HNES 391. Seminar. 1-3 Credits.**HNES 392. Global Practicum: Study Abroad. 1-15 Credits.**

Pre-Arranged study at accredited foreign institutions (study abroad), domestic institutions (National Student Exchange) or on approved study abroad programs. Pre-requisite: Sophomore standing and prior approval by International Student and Study Abroad Services and major department. Graded 'P' or 'F' (Undergraduate), or 'S' or 'U' (Graduate).

HNES 393. Undergraduate Research. 1-5 Credits.**HNES 394. Individual Study. 1-5 Credits.****HNES 396. Field Experience. 1-15 Credits.****HNES 399. Special Topics. 1-5 Credits.****HNES 400. Interprofessional Health Care Practice. 3 Credits.**

This course is designed for pharmacy, nursing, allied sciences, and other allied health students focusing on the necessary knowledge, skills, and attitudes to function as an effective member of the health care team. Prereq: HNES 354. Cross-listed with CHP.

HNES 404. Adapted Physical Activity. 3 Credits.

Current concepts and trends in adapted physical activity, including the planning and implementation of physical activity programs and sports designed to meet the needs of individuals with disabilities. Prereq: Exercise Science program only.

HNES 442L. Community Health and Nutrition Laboratory. 3 Credits.

Application of nutrition education and program development in community settings. Coreq: HNES 442. {Also offered for graduate credit - see HNES 642L.}.

HNES 442. Community Health and Nutrition Education. 3 Credits.

Nutrition education in community settings. Topics include behavior change, education and counseling theory, needs assessment, planning, implementation, and evaluation in a community setting. Prereq: HNES 251. {Also offered for graduate credit - see HNES 642.}.

HNES 458L. Advanced Medical Nutrition Therapy Laboratory. 3 Credits.

Supervised practice for students in the Coordinated Program in Dietetics to accompany Advanced Medical Nutrition Therapy course. Students gain practical experience in the nutrition care of patients with conditions requiring medical nutrition therapy. Prereq: HNES 354 and HNES 354L.

HNES 458. Advanced Medical Nutrition Therapy. 4 Credits.

Principles in the nutrition care of patients with conditions requiring nutrition care. Prereq: HNES 354. Prereq or coreq: Accelerated Coordinated Program in Nutrition Science and Dietetics major. Dual-listing: HNES 658.

HNES 465L. Exercise Physiology Laboratory. 1 Credit.

Laboratory exercises to test aerobic and anaerobic capacity, strength, body composition, and dietary analysis. Coreq: HNES 465.

HNES 465. Exercise Physiology. 3 Credits.

Effects of exercise on the physiology of the human body, including aerobic systems, strength/muscle adaptations, body composition, training programs, and other areas related to training. Prereq: HNES 365. Coreq: HNES 465L. Prereq or Coreq: Student must be an Exercise Science major.

HNES 467. EKG Monitoring. 3 Credits.

Introduction of the student to the monitoring and interpretation of an electrocardiogram. Prereq: HNES 465, HNES 466 and Exercise Science majors only.

HNES 468L. Foodservice Systems Management II Laboratory. 1 Credit.

Supervised practice for CPD students in foodservice to accompany HNES 468/668.

HNES 468. Foodservice Systems Management II. 1 Credit.

This course focuses on leadership, team-building, and professional communication in Nutrition Science & Dietetics. Leadership and communication theories will be applied to everyday practices to prepare participants to be successful leaders in the workforce. Dual-listing: HNES 668.

HNES 470. Professional Practices in Exercise Science. 3 Credits.

Professional practices and responsibilities in exercise science, including risk management, facility operations, emergency procedures, fiscal management, scope of practice, ethics, and legal issues. Prereq: HNES 371.

HNES 472. Exercise Assessment and Prescription. 3 Credits.

This course will focus on physiological testing procedures applicable to physical activity and fitness settings, applying exercise prescriptions. Prereq: HNES 465. Coreq: HNES 476. Prereq or Coreq: Exercise Science major.

HNES 473. Anaerobic Exercise Prescription and Advanced Resistance Training Techniques. 3 Credits.

Designing resistance training programs for various sports and activities, with hands on experience leading people through advanced resistance training exercises. Prereq: HNES 368.

HNES 475. Exercise Science Internship. 3-12 Credits.

Capstone course for exercise science majors. Supervised field work in a professional setting with emphasis on exercise testing and prescription, exercise program leadership, and administration. Prereq: Exercise Science majors only and Department Consent Required.

HNES 476. Exercise Testing Laboratory. 3 Credits.

This course will focus on the hands-on physiological testing procedures applicable to physical activity and fitness settings, applying exercise prescriptions. Prereq: HNES 465 and HNES 465L. Coreq: HNES 472. Prereq or Coreq: Exercise Science major.

HNES 480. Dietetics Practicum-Capstone Experience. 12 Credits.

Practical experience for students in the Coordinated Program in Dietetics with the responsibility equal to that of an entry-level dietitian. 40 hours laboratory per week in a clinical facility. Prereq: HNES 458L and HNES 468L.

HNES 491. Seminar. 1-5 Credits.**HNES 492. Global Practicum: Study Abroad. 1-15 Credits.**

Pre-Arranged study at accredited foreign institutions (study abroad), domestic institutions (National Student Exchange) or on approved study abroad programs. Pre-requisite: Sophomore standing and prior approval by International Student and Study Abroad Services and major department. Graded 'P' or 'F' (Undergraduate), or 'S' or 'U' (Graduate).

HNES 493. Undergraduate Research. 1-5 Credits.**HNES 494. Individual Study. 1-5 Credits.****HNES 496. Field Experience. 1-15 Credits.****HNES 499. Special Topics. 1-5 Credits.****HNES 604. Adapted Physical Activity. 3 Credits.**

Current concepts and trends in adapted physical activity, including the planning and implementation of physical activity programs and sports designed to meet the needs of individuals with disabilities. {Also offered for undergraduate credit - see HNES 404.}

HNES 642. Community Health and Nutrition Education. 3 Credits.

Nutrition education in community settings. Topics include behavior change, education and counseling theory, needs assessment, planning, implementation, and evaluation in a community setting. {Also offered for undergraduate credit - see HNES 442.}

HNES 642L. Community Health and Nutrition Laboratory. 3 Credits.

Application of nutrition education and program development in community settings. Coreq: HNES 642. {Also offered for undergraduate credit - see HNES 442L.}

HNES 652. Physical Health, Wellness, Nutrition and Active Aging. 3 Credits.

Normative biological and physiological changes due to aging are identified with a focus on how environmental factors such as physical activity and nutrition can support healthy aging and prevention of frailty and age-related diseases. Multiple facets of active aging that can augment quality of life will be examined. Resources for implementation of inclusive programs for diverse groups of aging adults will be explored.

HNES 655. Sports Nutrition. 3 Credits.

Provides both current research and the translation of research findings into practical advice, offering unique insights on how nutrition can be used to design and effectively implement the optimal diet for performance. {Also offered for undergraduate credit - see HNES 455.}.

HNES 658. Advanced Medical Nutrition Therapy. 3-4 Credits.

Principles in the nutrition care of patients with conditions requiring nutrition care. Prereq: HNES 354 Prereq or Coreq: Accelerated Coordinated Program In Nutrition Science and Dietetics Major. Dual-listing: HNES 458.

HNES 668. Foodservice Systems Management II. 1 Credit.

This course focuses on leadership, team-building, and professional communication in Nutrition Science & Dietetics. Leadership and communication theories will be applied to everyday practices to prepare participants to be successful leaders in the workforce. Dual-listing: HNES 468.

HNES 690. Graduate Seminar. 1-3 Credits.**HNES 692. Global Practicum: Study Abroad. 1-15 Credits.**

Pre-Arranged study at accredited foreign institutions (study abroad), domestic institutions (National Student Exchange) or on approved study abroad programs. Pre-requisite: Sophomore standing and prior approval by International Student and Study Abroad Services and major department. Graded 'P' or 'F' (Undergraduate), or 'S' or 'U' (Graduate).

HNES 696. Special Topics. 1-5 Credits.**HNES 702. Introduction to Advanced AT and Professionalism. 1 Credit.**

This course will include discussion of the expectations and responsibilities of the post-professional athletic trainer's transition into graduate school and as a professional healthcare provider. The content will be focused on information and tools to adjust to the new roles and responsibilities.

HNES 703. Graduate Biomechanics of Sport and Exercise. 3 Credits.

This course is designed to increase the knowledge and students understanding of the biomechanical principles behind training, sport, and physical activity.

HNES 704. Psychological Foundation of Sport & Physical Activity. 3 Credits.

Comprehensive description of sport psychology, application of concepts to sport performance improvements as well as other areas in physical activity.

HNES 710. Introduction to Research Design and Methods in HNES. 3 Credits.

This course is intended to prepare students to conduct research by discussing basic research designs and methods. Students will begin to develop topics, write research questions and identify appropriate methods to answer the questions for a thesis or research project. During this course students will write section(s) of their proposals or chapters and receive feedback. This course also reviews grant writing.

HNES 713. Graduate Exercise Physiology. 3 Credits.

Comprehensive state-of-the-art review of the current knowledge of the physiological responses to exercise.

HNES 717. Nutrition Counseling and Education Methods. 3 Credits.

The course is designed to explore in-depth coverage of theories and skills required to be an effective nutrition educator for both groups and individuals in clinical and community settings, global settings and via social media. The course includes discussion and experience in applying learning theory, assessing educational needs, stating goals and objectives, selecting learning activities, and implementing and evaluating instruction. Prereq or Coreq: Students must be enrolled in the Great Plains IDEA Dietetics program.

HNES 718. Diabetes Medical Nutrition Therapy. 3 Credits.

An online study of diabetes management and nutrition care. Topics will include diabetes pathophysiology, clinical care guidelines, basic pharmacology, clinical nutrition education and counseling strategies, and nutrition care planning. Prereq or Coreq: Students must be enrolled in the Great Plains IDEA Dietetics program.

HNES 719. Public Health Nutrition. 3 Credits.

This course provides information and activities related to the broad topic of public health nutrition and will focus on how nutrition research, policies and programs impact populations. Students will gain a broader understanding of public health nutrition through case studies, discussions and experiential learning experiences.

HNES 720. Advanced Emergency Care. 3 Credits.

This course will introduce advanced emergency care techniques as well as reinforce basic knowledge already learned in previous course work. Certified Athletic Trainers are expected to perform life-saving measures and this course will develop the skills needed to treat athletes and lay public with evidence based medical care.

HNES 721. Nutrition Therapy for Eating Disorders. 3 Credits.

An online study of eating disorders management and nutrition care. Topics will include eating disorders medical complications, clinical care guidelines, basic pharmacology, clinical nutrition education, nutrition care planning, psychology of eating disorders, team collaboration, and therapeutic modalities for nutrition counseling. Prereq or Coreq: Students must be enrolled in the Great Plains IDEA Dietetics program.

HNES 722. Evidence Based Orthopedic Evaluation. 3 Credits.

This course will involve investigation, discussion, and reflection of the research on clinical orthopedic special tests to allow the student to implement evidence based clinical examinations.

HNES 723. Advanced Techniques in Sports Medicine. 3 Credits.

This course will review current research in the latest and most advanced techniques in sports medicine.

HNES 724. Nutrition Education. 3 Credits.

Principles and practices of teaching individuals and groups to translate nutrition knowledge into action. Emphasis on research in evaluation of nutrition education.

HNES 726. Nutrition in Wellness. 3 Credits.

Course will address wellness promotion through nutrition. Nutritional risk and protective factors will be examined as they relate to public health and individual nutrition.

HNES 727. Physical Activity Epidemiology. 3 Credits.

Review of the evidence on the associations between physical activity and chronic diseases, and effects of physical activity on health. Understanding and discussion regarding how the methods of epidemiology are being used to scientifically confirm that physical inactivity is a burden on public health and what can be done about it.

HNES 728. Current Issues & Trends in Dietetics Practice. 2 Credits.

Environmental scanning of trends in dietetics, with the impact of changes in global, economic, social, ethical, political, legal, technological, and ecological areas on healthcare and on dietetics practice.

HNES 729. Grant Writing for the Health Professional. 3 Credits.

Steps needed for successful grant applications. Identification of funding sources and completion of the application form. Designed for Registered Dietitians.

HNES 730. Fundamentals of Leadership. 3 Credits.

An appreciation of the basic principles of leadership by gaining an insight into one's own leadership abilities and developing the practical skills necessary to function as a leader in a realistic context.

HNES 732. Foodservice Operation Management. 3 Credits.

In-depth analysis of several critical foodservice operations management decisions and development of analytical skills needed in solving operation management problems encountered in the foodservice industry.

HNES 733. Food Writing for Professionals. 3 Credits.

This course focuses on the writing skills needed by the food professional in order to communicate effectively in writing about food and food-related topics.

HNES 734. Foodservice Systems within Healthcare. 3 Credits.

A comprehensive review of today's health care institutions and their response to the economic, social/ethical, political/legal, technological, and ecological environments. Prereq: must be enrolled in the GPIEDA HNES: Option in Dietetics.

HNES 735. Nutrition and Human Performance. 3 Credits.

This course is designed for students to develop an understanding of nutrition based upon knowledge of the biochemical and physiological process and functions of specific nutrients in meeting nutritional requirements. The course emphasizes the relationship of optimal nutrition and physical efficiency and performance.

HNES 740. Maternal and Child Nutrition. 3 Credits.

Behavioral, physiological and public health issues impacting dietary and nutritional factors that support normal growth and development. Focuses on the early stages of the life cycle: gestation, lactation, infancy, preschool, school age and adolescence.

HNES 741. International Nutrition. 3 Credits.

Presents major nutritional problems that influence the health, survival, and developmental capacity of populations in developing societies. Covers approaches implemented at the household, community, national, and international levels to improve nutritional status.

HNES 742. Nutrition: A Focus on Life Stages. 3 Credits.

The influence of normal physiological stresses on nutritional needs throughout the life span will be explored. Evaluating nutritional status at different stages of life and identifying appropriate needs and services will be included.

HNES 743. Obesity Across the Lifespan. 3 Credits.

This course emphasizes obesity in a population from childhood to the adult with attention to the impact of obese conditions on disease development throughout the life cycle.

HNES 744. Dietary and Herbal Supplements. 3 Credits.

Explore the safety and efficacy of botanical/herbal and dietary supplements in health applications including dietary supplementation in the prevention and treatment of chronic illness.

HNES 746. Nutrition and Health Disparities. 3 Credits.

This course is an examination of nutrition and health disparities in the U.S. Identification of sociocultural determinants of health and their influence on nutrition and health outcomes. Exploration of interdisciplinary strategies to reduce nutrition and health disparities.

HNES 747. Understanding Food Culture. 3 Credits.

This course is designed as a survey of topics that affect how we perceive food in the modern world. Food is examined as a badge of cultural identity, a focus of media scrutiny and promotion, a symbol of religion, and a driver of technology.

HNES 748. Nutritional Epidemiology. 3 Credits.

Methods and issues involved in understand and conducting studies on the relationship between human diet and disease. Recommended: graduate level statistics course.

HNES 750. Advanced Human Nutrition: Macronutrients. 3 Credits.

Physiological and biochemical aspects of macronutrients of human nutrition.

HNES 751. Metabolism of Micronutrients. 3 Credits.

This course focuses on nutrition that integrates mechanisms and interactions of vitamins and minerals from the cellular level, through the integration and regulation of metabolism in the whole organism.

HNES 752. Phytochemicals. 3 Credits.

Overview of phytochemicals (non-nutritive biologically active compounds) from fruits, vegetables, cereals and oilseeds with implications related to chemistry, physiological functions, and potential health implications.

HNES 753. Nutrigenomics and Advanced Lipid Metabolism in Human Nutrition. 3 Credits.

Concepts of how nutrients regulate gene expression (nutrigenomics) and how an individual's genotype influences their nutrient requirements (nutrigenetics). This course will focus on the unique role of lipids in nutritional genomics and chronic disease. Students must be enrolled in the M.S. in Dietetics program (GPIDEA).

HNES 754. Assessment in Nutrition and Exercise Science. 3 Credits.

Techniques to assess nutritional status, physical fitness status and how to interpret the information received.

HNES 756. Pediatric Clinical Nutrition. 3 Credits.

The physiological, biochemical and nutritional aspects of disease processes relevant to infants and children up to 18 years of age, including inborn errors of metabolism, food hypersensitivity, obesity, and diseases of the major organ systems. Prereq: HNES 755.

HNES 757. Nutritional Aspects of Oncology. 3 Credits.

Basic cancer biology and the relationship between nutrition and cancer, the role of nutrition in specific cancers, and information for cancer prevention programs and how to apply this information in patient management.

HNES 758. Clinical Aspects of Nutrition Support. 3 Credits.

Specialized nutrition assessment and support. Review of energy expenditure and substrate utilization in disease states. Methods for the initiation and management of enteral and parenteral nutrition therapy. Evaluation of nutrition support selected disease states.

HNES 759. Nutrition and Immunology. 3 Credits.

Principles and issues related to nutrition and immunology. Impact of nutrients and nutritional status on immune responses. Impact of disease states on nutritional status.

HNES 760. Skeletal Muscle Physiology. 3 Credits.

This course is designed to provide students with an in-depth analysis of the structure and function of skeletal muscle. Course material ranges from skeletal muscle microanatomy and physiology to advanced topics in neuromuscular physiology.

HNES 761. Physiological and Fitness Assessment in Exercise Science. 3 Credits.

Instruction and practical guidelines of different physiological and fitness assessments in exercise science.

HNES 762. Exercise Endocrinology. 3 Credits.

A comprehensive review of the endocrine system with a specific emphasis on the hormonal response to exercise. Prerequisite: MS or PhD level students only.

HNES 764. Advanced Cardiovascular Exercise Physiology. 3 Credits.

This course will focus on understanding the structure and function of the cardiovascular system and the effects of exercise on the system.

HNES 765. Orthopedic Appliances. 3 Credits.

Application of common casting and bracing techniques.

HNES 770. Evidence Based Research and Practice. 2 Credits.

This course introduces students to current evidence based research methods and the importance of conducting and interpreting athletic training research. Prereq: HNES 780.

HNES 772. Prevention and Health Promotion in Athletic Training. 2 Credits.

General nutrition, prevention and health promotion concepts, and psychosocial and mental health aspects in athletic training. Prereq: HNES 770.

HNES 773. Athletic Training Capstone. 2 Credits.

Comprehensive review of patient case scenarios using evidence-based practice for clinical integration as a healthcare professional. Prereq: HNES 774, HNES 776.

HNES 774. Therapeutic Exercise. 3 Credits.

Therapeutic interventions involving rehabilitative techniques, equipment, and activities using body movements to enhance function, prevent impairments and activity restrictions to maximize participation and health-related quality of life.. Prereq: HNES 782.

HNES 775. Therapeutic Modalities. 3 Credits.

Therapeutic interventions involving contemporary modalities to prevent and treat orthopedic injuries to restore and enhance function and maximize participation and health-related quality of life. Prereq: HNES 770.

HNES 776. Non-Orthopedic Assessment. 3 Credits.

Clinical evaluation and diagnosis of non orthopedic conditions and illnesses. Prereq: HNES 782.

HNES 777. Scholarly Writing and Presenting in HNES. 3 Credits.

This course is designed for students pursuing their Master or Doctorate degree who are currently writing a proposal or a chapter of their thesis or dissertation. Class sessions cover the conventions for each chapter of the thesis/dissertation, analytical reading of research articles in the areas of HNES, and effective methods of presenting research.

HNES 778. Athletic Training Administration and Professional Development. 3 Credits.

Understand the health care system and professional competence as related to athletic training. Prereq: HNES 776.

HNES 780. Athletic Training Techniques. 3 Credits.

Exposure to a variety of fundamental athletic training skills and techniques. Prereq: Admission to the Master of Athletic Training program.

HNES 781. Orthopedic Assessment I. 4 Credits.

Clinical evaluation and diagnosis of the lower extremity. Prereq: HNES 780.

HNES 782. Orthopedic Assessment II. 5 Credits.

Clinical evaluation and diagnosis of the upper extremity, head, and spine. Prereq: HNES 781.

HNES 786. Diagnostic Ultrasound - Shoulder and Knee Basics. 3 Credits.

This course will introduce students to the normal tissue characteristics, common pathology characteristics and shoulder and knee evaluation protocols with musculoskeletal ultrasound.

HNES 787. Evidence Based Therapeutic Modalities. 3 Credits.

An advanced comprehensive examination of therapeutic modalities through readings, discussions, hands-on practice, and research. Emphasis will be on the current literature, how recent research fits into clinical practice, and new modalities/techniques.

HNES 788. Diagnostic Ultrasound - Case Studies and Ankle Basics. 3 Credits.

This course will introduce students to the normal tissue characteristics and common pathology characteristics of the ankle evaluation protocol with musculoskeletal ultrasound. In addition, students will perform shoulder, knee and ankle evaluations on patients in the clinical setting (NDSU Athletic Training Room) to practice their diagnostic ultrasound examination skills and have a better understanding of common pathologies.

HNES 790. Graduate Seminar. 1-3 Credits.**HNES 791. Temporary/Trial Topics. 1-5 Credits.****HNES 792. Graduate Teaching Experience. 1-6 Credits.****HNES 793. Individual Study. 1-5 Credits.****HNES 794. Practicum/Internship. 1-15 Credits.****HNES 795. Field Experience. 1-15 Credits.****HNES 796. Special Topics. 1-5 Credits.****HNES 797. Master's Paper. 1-3 Credits.****HNES 798. Master's Thesis. 1-10 Credits.****HNES 892. Graduate Teaching Experience. 1-6 Credits.****HNES 893. Individual Study/Tutorial. 1-5 Credits.****HNES 894. Practicum/Internship. 1-8 Credits.****HNES 898. Continuing Enrollment. 1-9 Credits.**

For graduate students who have completed all necessary credits of course work including thesis (798) and dissertation (899) on their approved Plan of Study, but who have not yet completed and submitted their thesis or dissertation. This course does not count towards the credit requirements for the degree and is not financial aid eligible. Department consent required to enroll.

HNES 899. Doctoral Dissertation. 1-15 Credits.