

# Health, Nutrition & Exercise Sciences (HNES)

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

Facts about exercise and physical fitness.

**HNES 110. Introduction to Health and Physical Education. 3 Credits.**

This course will acquaint students with historical insights and current trends in the fields of health and physical education. Students will also identify various career opportunities within their field of study and acquaint themselves with the professional field.

**HNES 111. Wellness. 3 Credits.**

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

**HNES 112. Activity II. 1 Credit.**

Basic techniques and practice of individual and dual sports activities. May be repeated in different activities/subjects only.

**HNES 114. Racquetball. 1 Credit.**

Basic techniques and practice of racquetball.

**HNES 115. Bowling. 1 Credit.**

Basic techniques and practice of bowling.

**HNES 116. Billiards. 1 Credit.**

Basic technique and practice of billiards.

**HNES 117. Judo. 1 Credit.**

Basic techniques and practice of judo.

**HNES 126. Social Dance. 1 Credit.**

Basic techniques and practice of social and ballroom dance forms such as foxtrot, waltz, jitterbug, polka, schottische, and Latin American dances.

**HNES 128. Golf. 1 Credit.**

Basic technique and practice of golf.

**HNES 130. Rock Climbing. 1 Credit.**

Basic technique and practice of rock climbing.

**HNES 133. Volleyball. 1 Credit.**

In this course you will learn the basic principles, rules and practice of volleyball.

**HNES 134. Basketball. 1 Credit.**

Basic technique and practice of basketball.

**HNES 135. Badminton. 1 Credit.**

Basic technique and practice of badminton.

**HNES 139. Dodgeball. 1 Credit.**

Basic technique and practice of dodgeball.

**HNES 141. Food Sanitation. 1 Credit.**

Principles of safe food handling practices designed for foodservice operators. Includes Food Safety Managers' Certification. Restricted to Dietetics, Hospitality, Family Consumer Science, Food Science, and Food Safety majors and minors only.

**HNES 148. Team Sports. 1 Credit.**

Basic principles, rules, and practices of various team sports.

**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 190. Introduction to Sport Management. 3 Credits.**

This course is designed to introduce students to various concepts that make up the foundation and underlying principles of sport management. In addition, program expectations are covered and a focus is placed on professional development.

**HNES 194. Individual Study. 1-5 Credits.****HNES 196. Field Experience. 1-15 Credits.****HNES 199. Special Topics. 1-5 Credits.****HNES 200. Principles of Nutrition. 3 Credits.**

Current nutrition facts and philosophy as a basis for meeting nutritional needs in a changing society. 3 lectures.

**HNES 211. Successful Coaching. 1 Credit.**

This course is designed to help potential coaches develop a successful coaching philosophy. Students will complete an examination through the American Sport Education Program that will certify them to coach in 35 states.

**HNES 217. Personal and Community Health. 3 Credits.**

Study of vital personal and community health issues. Particular attention to current health facts, habits, and attitudes as they relate to home, school, and community.

**HNES 224. Sport and Event Management. 3 Credits.**

Introductory course in sport and event management that will provide students the opportunity to investigate the facilitation of sports events. A major component of this course will be working in a management or leadership role within a major sports event. Prereq: HNES 190.

**HNES 226. Socio-Cultural Dimension in Sport. 3 Credits.**

Students will gain a level of understanding of how sport has and does contribute to the notion of nation building in North America and across the world. Prereq: HNES 190 and Sport Management professional program students only.

**HNES 231. Officiating Football. 1 Credit.**

Rules and techniques of officiating football.

**HNES 232. Officiating Basketball. 1 Credit.**

Rules and techniques of officiating basketball.

**HNES 250. Nutrition Science. 3 Credits.**

Scientific principles of nutrition based on chemical structure and function of the nutrients. 3 lectures. Prereq or Coreq: CHEM 117 or CHEM 121.

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

Examination of growth and nutrient needs through the lifecycle. Prereq: HNES 200 or HNES 250.

**HNES 254. Curriculum, Standards and Assessment in Physical Education. 3 Credits.**

This course bridges the gap between theory and practice by providing a practical approach to curriculum writing, standards development and assessment techniques used in K-12 physical education programs. Prereq: HNES 110. Co-req: HNES 256.

**HNES 255. Professional Preparation in Middle School Physical Education. 3 Credits.**

Instruction of various fundamental movement for middle school students. Students will be exposed to such activities as team sports, intermediate movement skills, and games. Prereq: Students must be Physical Education majors.

**HNES 256. Professional Preparation in High School Physical Education. 3 Credits.**

Instruction in the fundamentals of teaching high school physical education activities. Prereq: HNES 110. Co-req: HNES 254.

**HNES 257. Professional Preparation in Elementary School Activities. 3 Credits.**

Instruction of various fundamental movements for elementary aged students. Students will be exposed to such activities as dance, gymnastics, fundamental movement skills, and games. Prereq: HNES 254.

**HNES 260. Athletic Training Medical Terminology. 1 Credit.**

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

**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. 3 lectures. Prereq: HNES 141 and CHEM 117 or CHEM 121.

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

Illustrates and extends lecture topics and stresses practical application of scientific food preparation principles. Important: Students who have a severe food allergy should self-regulate and carry and know how to use auto-injectable epinephrine and antihistamines to treat emergency reactions. Prereq: HNES 141. Coreq: HNES 261.

**HNES 274. Introduction to Youth and Interscholastic Sport. 3 Credits.**

The course will allow students to gain an understanding of issues, administration and organization of youth and interscholastic sport. Requirements to be completed will encourage students to think about the current events or issues and explain the effect each may have on the industry in the present and future of youth and interscholastic sport. Prereq: HNES 190. Co-req: HNES 226.

**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 301. Motor Learning and Performance. 3 Credits.**

Study of the principles of motor learning and development and how those principles apply in physical education and sport skill development. Prereq: acceptance into the Physical Education program.

**HNES 304. Sport Promotion and Public Relations. 3 Credits.**

This course explores the aspects of the sports promotion industry and how industry interfaces with the consumer. Theories of sport promotion and public relations will be related to promotion efficacy. Prereq: HNES 190, HNES 224 and students must be admitted to the Sport Management professional program.

**HNES 336. Methods Of Coaching. 3 Credits.**

Provides information necessary to coach at any level from elementary to college. Includes broad overview of the philosophy, methodology, and management of sport. Prereq: acceptance into the Health Education or Physical Education program.

**HNES 341. Psychosocial Aspects of Health. 3 Credits.**

Study of the interaction of the person and his/her environment. Discussion of emotional states, physiological responses and behaviors influencing a person's health, and the health of those around them. Prereq: PSYC 111, HNES 110 and HNES 217 and students must be professional level 2 Health Ed majors.

**HNES 345. Materials and Concepts of Health Education. 3 Credits.**

Development and dissemination of health content helping community and school health educators place health instruction in a perspective that relates it to efforts aimed at protecting and promoting the health of children, youth and adults. Prereq: HNES 367 and Health Education majors only.

**HNES 350. Fitness Education Activities and Materials. 3 Credits.**

Topics related to teaching concepts-based fitness in high school physical education. Prereq: HNES 367.

**HNES 351. Metabolic Basis of Nutrition. 4 Credits.**

Biochemical and physiological principles of human nutrition. Nutrients in relation to metabolic regulation. 4 lectures. Prereq: HNES 250, BIOC 260 or BIOC 460 and Dietetics professional standing.

**HNES 353. Adapted Physical Education. 3 Credits.**

Current concepts and trends in adapted physical education, including the planning and implementation of adapted physical education curriculum and lessons designed to meet the needs of individuals with disabilities. Prereq: HNES 367.

**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 three-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, HNES 351 and Dietetics professional standing.

**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. Coreq: HNES 361.

**HNES 361. Foodservice Systems Management I. 3 Credits.**

Principles and methods of purchasing, production, and management for quantity foodservice operations. 3 lectures. Prereq: HNES 261, HNES 261L.

**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 367. Principles of Conditioning. 3 Credits.**

Scientific theory and application of principles and techniques of physical conditioning to optimize training programs. Introduction of a wide variety of sports activities and associated training protocols. Prereq: acceptance into the Health Education or Physical Education program.

**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 professional 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: BIOL 221, BIOL 221L and HNES 375. Co-Req: HNES 465.

**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 professional 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 professional students 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 professional majors only.

**HNES 376. 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 professional status.

**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 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 394. Individual Study. 1-5 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 425. Practical Sport Marketing Research. 3 Credits.**

This course introduces students to research topics unique to sport and leisure marketing. This course will examine research relating to sport motivation for participants and spectators, connection to sport objects, sport consumer behavior, sport team identification, sport event attendance, sport analytics, sport finance, daily fantasy sport, eSports, sport economics, and the sociology of sport, among other topics. Students will be introduced to multiple ways of understanding research in sport and learning how to apply learned concepts and findings efficiently within the industry. Prereq: HNES 190, HNES 224, HNES 226 and restricted to Sport Management students only.

**HNES 426. Sport Administration. 3 Credits.**

This course is intended to familiarize sport management majors with common administrative practices in sport. Prereq: HNES 190, HNES 224, HNES 226, HNES 304, HNES 431, HNES 436, junior standing and Sport Management professional program students only.

**HNES 431. Governance, Policy, Legal Liability and Ethics in Sport. 3 Credits.**

This course examines how sport organizations interact and coordinate with numerous policy actors from inside and outside the sport realm to facilitate and coordinate the mechanisms of governance. Prereq: HNES 190, HNES 224 and students must be admitted to the Sport Management professional program.

**HNES 436. Managing Sport Facilities. 3 Credits.**

This class will cover numerous issues from construction-related concerns to marketing facilities, naming rights, and concession concerns. Also covered will be topics related to the facility management side of the industry, with special attention paid to back-of-the-house operations such as water, heating, cooling, and related activities. This is a comprehensive course focusing on applied rather than theoretical knowledge. Prereq: HNES 190, HNES 224, HNES 226, HNES 304 and students must be admitted to the Sport Management professional program.

**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 442L. Community Health and Nutrition Laboratory. 2 Credits.**

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

**HNES 445. Organization and Administration of Coordinated School Health Programs. 3 Credits.**

Examination of coordinated school health programs (CSHP). Analysis of the components of and approaches to development of CSHP. Emphasis on skills required for entry-level health educators. Prereq: HNES 345, senior standing.

**HNES 452. Nutrition, Health and Aging. 3 Credits.**

Physiological changes with aging and their relationship to food habits and nutritional need. Common nutritional health problems with emphasis on prevention and treatment. 3 lectures. Prereq: HNES 200 or HNES 250. {Also offered for graduate credit - see HNES 652.}

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

Supervised practice for CP students in nutrition care to accompany HNES 458. 1 eight-hour laboratory. Coreq: HNES 458.

**HNES 458. Advanced Medical Nutrition Therapy. 4 Credits.**

Principles in the nutrition care of patients with conditions requiring nutrition care. 4 lectures. Prereq: HNES 354 and Dietetics professional standing. {Also offered for graduate credit - see HNES 658.}

**HNES 460. Foodservice Systems Management II. 3 Credits.**

Role of foodservice in today's society. Application of administration concepts in foodservice operation including equipment, layout, marketing, and budget management. 3 lectures. Prereq: HNES 361. {Also offered for graduate credit - see HNES 660.}

**HNES 460L. Foodservice Systems Management II Laboratory. 3 Credits.**

Supervised practice for CP students in foodservice to accompany HNES 460. 1 eight-hour laboratory. Coreq: HNES 460.

**HNES 461. Administrative and Social Aspects of Physical Education and Athletics. 3 Credits.**

Study of administrative principles and social aspects that influence the development of physical education and athletic programs. Prereq: HNES 350.

**HNES 465. Physiology Of Exercise. 3 Credits.**

Effects of exercise on the physiology of the human body. Includes aerobic systems, strength/muscle adaptations, body composition, training programs, and other areas related to training. Prereq: BIOL 221, BIOL 221L and HNES 365, HNES 366. Restricted to Exercise Science professional majors only.

**HNES 466. Physiology Exercise Laboratory. 1 Credit.**

Laboratory exercises to test aerobic and anaerobic capacity, strength, body composition, dietary analysis. Coreq: HNES 465. Restricted to Exercise Science, Human Performance & Fitness or Athletic Training professional majors only.

**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 professional majors only.

**HNES 472. Exercise Assessment and Prescription. 3 Credits.**

Physiological testing procedures applicable to physical activity and fitness settings, with application to exercise prescription. Prereq: HNES 370, 465 and 466 and Exercise Science professional majors only. Co-req: HNES 476.

**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. 12 Credits.**

Capstone course for human performance and fitness majors. Supervised field work in a professional setting with emphasis on administration, supervision, and program leadership.

**HNES 476. Exercise Testing Laboratory. 2 Credits.**

The student will learn different physiological testing procedures applicable to physical activity and fitness settings. Prereq: HNES 465, HNES 466 and Exercise Science professional majors only. Co-req: HNES 472.

**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 460L.

**HNES 481. Dietetics: Capstone Course for DPD. 1 Credit.**

Capstone for Dietetics majors in the Didactic program in Dietetics.

**HNES 485. Sport Management Internship. 1-12 Credits.**

This course provides comprehensive learning experiences for students majoring in Sport Management. It includes 43 hours per credit of on-site work experience with approved organizations and may be repeated for a total of 12 credits. Prereq: HNES 190, HNES 224, HNES 226 and students must be admitted to the Sport Management professional program.

**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 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. 2 Credits.**

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

**HNES 652. Nutrition, Health and Aging. 3 Credits.**

Physiological changes with aging and their relationship to food habits and nutritional need. Common nutritional health problems with emphasis on prevention and treatment. 3 lectures. {Also offered for undergraduate credit - see HNES 452.}

**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. 3-4 lectures. Prereq: HNES 354. Restrictions: Section 1: Non-GPIDEA, Dietetics Professional Standing Section 2 and 3: Registered Dietitian (RD) or be RD<sub>2</sub>eligible, In GPIDEA Dietetics Program {Also offered for undergraduate credit - see HNES 458.}

**HNES 660. Foodservice Systems Management II. 3 Credits.**

Role of foodservice in today's society. Application of administration concepts in foodservice operation including equipment, layout, marketing, and budget management. {Also offered for undergraduate credit - see HNES 460.}

**HNES 690. Graduate Seminar. 1-3 Credits.**

**HNES 696. Special Topics. 1-5 Credits.**

**HNES 700. Research in Physical Education and Sport. 3 Credits.**

This course is designed to help teachers and coaches in the field better understand the process of conducting classroom/sport setting research through practitioner inquiry.

**HNES 701. Leadership and Supervision. 3 Credits.**

This course provides an introduction to leadership and supervision in physical education and sport settings. The course is designed to provide students with skills, techniques, and practices for successful leadership and supervision. Prereq: Must be accepted into the MS option of Leadership in Physical Education and Sports.

**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 705. Analysis of Sport Skill Instruction and Acquisition. 3 Credits.**

This course is designed to discuss theories of instruction in physical education and sport and the principles of motor learning. It includes the analysis of the learning process in relation to motor development and the role of the teacher and/or coach.

**HNES 707. Sport in American Society. 3 Credits.**

This course provides students with a better understanding of the relationship of sport to American culture and society. Course materials focus on the application of the sociological perspective to a variety of topics.

**HNES 708. Positive Youth Development through Sport. 3 Credits.**

This course is intended to increase student awareness and understanding of important issues and concerns in contemporary youth sport. Restrictions: Restricted to LPES graduate students.

**HNES 709. Leadership Influence in Physical Education and Sport. 3 Credits.**

This course is intended to increase student awareness and understanding of contemporary issues related to leadership in physical education sport. Prereq: restricted to LPES graduate students.

**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 711. Physical Education Curriculum. 3 Credits.**

To provide an understanding of the role and importance of physical education in today's society, steps involved in curriculum planning, trends and issues in physical education curriculum and to orient students to various ideas in physical education curriculum design.

**HNES 712. Principles of Management. 3 Credits.**

This course is designed to study the principles of management for the improvement of various phases of the learning process of teaching, coaching, and leadership. Students will develop a comprehensive foundation on the fundamentals of management. Prereq: Must be accepted into the MS option of Leadership in Physical Education and Sport.

**HNES 713. Graduate Exercise Physiology. 3 Credits.**

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

**HNES 714. Legal Liability in HPER. 3 Credits.**

Focused on risk management and legal liability in health, physical education, and recreation. Overview of civil and criminal law related to sports and recreation.

**HNES 715. Teaching Concepts-Based Fitness. 3 Credits.**

This course will cover topics directly related to the teaching of concepts-based health-related fitness in K-12 physical education. The overall aim is to help students have a better theoretical and practical understanding of the role of fitness education in contemporary physical education. The main goal of this course is to prepare students so that they can teach concepts-based health-related components to students in a public school setting.

**HNES 716. Financial Management in Sport. 3 Credits.**

This course discusses financial strategies related to sport entities and recreation and leisure-based organizations. This course will examine business structures, sources of capital, and theories of financial management in the sport enterprise and recreation industry. A large portion of this class is the creation of a comprehensive report in which the student critically examines and analyzes the financial feasibility of a local sport or recreational endeavor. Prereq: Eligible students are those enrolled in the Leadership in Physical Education and Sport Master Program at NDSU.

**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 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 in Dietetics. 3 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 731. Governance in Sport. 3 Credits.**

This course examines how sport organizations interact and coordinate with numerous policy actors from inside and outside the sport realm to facilitate and coordinate the mechanisms of governance.

**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 GPIDEA 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 736. Ethical Leadership. 3 Credits.**

This course looks at the various ethical situations coaches encounter within organizations and with other coaches and athletes. Students will gain an understanding of the ethical dimensions of sport and develop strategies to facilitate ethical coaching practices and encourage athletes to recognize and understand the importance of ethics in sport. Prereq: restricted to LPES graduate students only.

**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. Prereq: MS or PhD level students only.

**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. 2 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 899. Doctoral Dissertation. 1-15 Credits.**