

# Kinesiology and Nutrition

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## Administration:

Department Head: Kelly A. Tappenden  
Director of Graduate Studies: Giamila Fantuzzi

## Program Codes:

20FS0351MS (MS in Kinesiology)  
20FS1506MS (MS in Nutrition)  
20FS5416PHD (PhD in Kinesiology and Nutrition)

The Department of Kinesiology and Nutrition offers programs leading to degrees at both the master's and doctoral levels.

- [MS in Kinesiology](#)
- [MS in Nutrition](#)
- [PhD in Kinesiology and Nutrition](#)

Kinesiology and nutrition are multidisciplinary fields that draw upon and integrate subject matter from a variety of disciplines (e.g., anatomy, biochemistry, biomechanics, motor control, molecular and cell biology, neuroscience and physiology as well as epidemiology, physical and cultural anthropology, sociology, and behavioral psychology). The master's degree programs in Kinesiology or Nutrition as a terminal degree (i.e., not leading to a PhD) are most appropriate for students who wish to apply their knowledge through practice in healthcare or industry settings and can be combined, for example, with focused course work in other fields such as public health, toxicology, business, or education. Doctoral studies are designed to lead to academic research and teaching careers or to research careers in government or industry. Students are given the opportunity to conduct research that is related to fundamental questions related to kinesiology and nutrition.

## Admission and Degree Requirements

- [PhD in Kinesiology and Nutrition](#)

[Human Nutrition](#) (p. 1)

[Kinesiology](#) (p. 3)

## Human Nutrition Courses

### HN 405. Food as Medicine I: Cooking for Healing and Wellness. 2 hours.

A new disease state or medical diet will be covered each week and students will learn how to plan menus and prepare foods that are appropriate for each diet. Course Information: Prerequisite(s): HN 110.

### HN 406. Food as Medicine II. 2 hours.

A wellness related diet, a disease state, or a medical topic will be covered each week. Students will learn how to plan menus and prepare foods that are appropriate to each diet. Course Information: Prerequisite(s): HN 110; and approval of the department This course is designed for undergraduate and graduate students majoring in nutrition.

### HN 407. Writing Process in Nutrition. 2 hours.

Approaches writing as an instrument of thought and a tool of persuasion. Students will learn to effectively communicate nutrition information through writing. Course Information: May be repeated for credit. Prerequisite(s): ENGL 160 and ENGL 161; and junior standing or above; and approval of the department. Recommended Background: HN 196 and HN 110.

### HN 410. Food Microbiology. 4 hours.

Discusses food-borne pathogens, toxins, and contaminants. Covers spoilage, pathogenic and beneficial microorganisms in the food industry and microbiological techniques for isolating and quantifying microorganisms of public health concern. Course Information: Prerequisite(s): BIOS 350 and BIOS 351; and approval of the department. Class Schedule Information: To be properly registered, students must enroll in one Lecture and one Laboratory.

### HN 411. Food Analysis. 4 hours.

Principles and application of the chemical, physical and instrumental methods used to determine the constituents of foods. Course Information: Prerequisite(s): CHEM 222 and HN 300; and approval of the department. Class Schedule Information: To be properly registered, students must enroll in one Lecture and one Laboratory.

### HN 412. Sensory Evaluation for Foods and Beverages. 2 hours.

Teaches the physiological and psychological basis of human subjects, chemistry of aroma and taste, basic sensory methodologies in food evaluation and analysis and interpretation of sensory data. Course Information: Prerequisite(s): Approval of the Department.

### HN 413. Food Product Development. 3 hours.

Principles of food product development: target market evaluation, concept development and presentation, formulation, manufacturing, packaging, product costs, pricing, safety and marketing. Course Information: Prerequisite(s): HN 300; and approval of the department.

### HN 414. Fermented Foods and Beverages. 2 hours.

Covers the health benefits and the chemistry and microbiology in making fermented foods and beverages. Course Information: Prerequisite(s): Approval of the Department.

### HN 420. Clinical Nutrition II. 3 hours.

Principles of nutrition, biochemistry, physiology, pathology, education, and psychology related to management of selected diseases (diabetes, cancer, HIV/AIDS, renal diseases, and metabolic stress). Course Information: Prerequisite(s): HN 308; or approval of the department.

### HN 422. Clinical Nutrition III. 2 hours.

Principles of nutrition, biochemistry, physiology, and pathology related to the management of critically ill patients. Course Information: Prerequisite(s): HN 309 and HN 420; or consent of the instructor.

### HN 423. Nutrition Counseling. 3 hours.

Teaches theory and skill development for effective nutrition interviewing and counseling. Experiential opportunities to practice various counseling approaches are provided. Prerequisite(s): HN 302 or HN 201; or approval of the department.

**HN 425. Sports Nutrition. 3 hours.**

Designed to teach the foundations and application of sports nutrition, including how to assess, counsel and address the nutritional needs of athletes and active individuals. Course Information: Prerequisite(s): HN 302; and approval of the department.

**HN 440. The Research Process in Nutrition. 3 hours.**

Covers methods for reading and critiquing current scientific literature, overview of study designs used to address different types of research questions, basic overview of study design, data analysis and interpretation of results. Course Information: Prerequisite(s): HN 196; and approval of the department.

**HN 455. Supervised Practice II. 1-11 hours.**

An advanced supervised practicum in a professional setting to prepare for entry-level dietetics practice. Course Information: Satisfactory/Unsatisfactory grading only. May be repeated to a maximum of 15 hours. Prerequisite(s): Grade of C or better in HN 420 and senior standing or above; and approval of the department.

**HN 480. Field Study. 2 hours.**

Provides practical experience to develop/strengthen the student's knowledge and skills in an area of nutrition practice. Course Information: Prerequisite(s): HN 410; or consent of the instructor. Class Schedule Information: To be properly registered, students must enroll in one Clinical Practice and one Conference.

**HN 503. Advanced Pathophysiology of Chronic Diseases. 3 hours.**

Focuses on an in-depth evaluation of the most important mechanisms of pathogenesis, with an emphasis on chronic conditions with a nutritional component. Course Information: Prerequisite(s): KN 251 and KN 252. Recommended background: HN 318.

**HN 505. Advanced Topics in Diabetes Management. 3 hours.**

Designed to use current research in diabetes to learn how to effectively provide nutrition education and counseling to people with diabetes in different stages of life or with other chronic diseases. Course Information: Prerequisite(s): Grade of C or better in HN 320; and approval of the department.

**HN 510. Nutrition - Physiological Aspects. 3 hours.**

A thorough discussion of the absorption, transport, and metabolism of macronutrients, plus factors affecting these processes. Treats in an integrated fashion how various organs participate. Course Information: Prerequisite(s): HN 410 and PHYB 341 or the equivalent, or consent of the instructor.

**HN 511. Intervention Design and Evaluation in Kinesiology and Nutrition. 3 hours.**

Applying the scientific process to change physical activity and nutrition behavior. Best practices for design and evaluation of theory-, community-, and evidence-based physical activity and nutrition interventions are explored. Course Information: Same as KN 511. Prerequisite(s): Graduate standing; or consent of the instructor or BS in Kinesiology or related field. Recommended background: KN 237; and KN 438.

**HN 516. Advanced Vitamins and Minerals. 3 hours.**

A critical analysis of current research in the areas of vitamin and mineral requirements in human nutrition; nutrient interactions; and interrelationships of vitamins and minerals within various disease states. Course Information: Prerequisite(s): HN 309; and HN 440; or consent of the instructor.

**HN 525. Sports Nutrition and Athlete Consulting. 4 hours.**

Designed to teach both arms of nutritional counseling - current research on sports nutrition principles and athlete counseling/motivational interviewing techniques. Students will consult with athletes to apply the information learned. Course Information: Field work required. Prerequisite(s): Grade of C or better in HN 306 and Grade of C or better in KN 436; and consent of the instructor. Recommended background: Grade of C or better in KN 437. Restricted to students in the Master's  $\text{€}^{\text{TM}}$ s in Nutrition program in dietetic track and registered and licensed dietitians. Class Schedule Information: To be properly registered, students must enroll in one Lecture-Discussion and one Clinical Practice.

**HN 532. Evaluation of Nutritional Status. 3 hours.**

Community and clinical considerations in nutrition status surveillance and monitoring systems; characterization in the collection, standards and reference population development. Course Information: Prerequisite(s): HN 410; or consent of the instructor.

**HN 541. Research on Clinical Nutrition Problems. 2 hours.**

Development and conduct of research on clinical nutrition problems, patient outcomes, or nutrition or food service delivery systems within a hospital or ambulatory care setting. Course Information: Prerequisite(s): Consent of the instructor.

**HN 555. Obesity. 3 hours.**

Examines the multifactorial aspects of obesity, maintenance of healthy weight, and the relationship of weight status and chronic disease risk. Popular diet and exercise trends to treat obesity will also be discussed. Course Information: Prerequisite(s): Grade of C or better in HN 309 and Grade of C or better in HN 440. Restricted to students in the MS in Nutrition program in dietetic track or already registered and licensed dietitians.

**HN 560. Advanced Topics in Public Health Nutrition: Development and Evaluation of Community-Based Nutrition. 3 hours.**

Focuses on understanding the role and application of both theory and empirical data in the development and evaluation of community-based nutrition interventions. Course Information: Field work required. Prerequisite(s): HN 413 or consent of the instructor.

**HN 570. Advances in Clinical Nutrition I. 2 hours.**

Selected topics in clinical nutrition, emphasizing current theory, research and practice in such areas as cardiovascular disease, obesity, diabetes and iatrogenic malnutrition. Course Information: Prerequisite(s): HN 422; or consent of the instructor.

**HN 580. Advanced Field Practicum. 2 hours.**

Advanced practical experience in a specialized area of human nutrition and dietetics. The practicum may be carried out in a clinical setting, business, industry or government agency. Course Information: Prerequisite(s): HN 410; or consent of the instructor.

**HN 581. Dietetics/Nutrition Instructional Practicum. 2 hours.**

Teaching practicum in clinical dietetics and/or nutrition. Course Information: Prerequisite(s): HN 201 and HN 410 and HN 570 or the equivalent, or consent of the instructor.

**HN 594. Special Topics in Human Nutrition. 1-4 hours.**

Advanced course dealing with selected topics. Topics vary from year to year and may include drug/nutrient interaction, protein metabolism, nutrition and behavior, nutrition and exercise. Course Information: May be repeated. Prerequisite(s): HN 410; or consent of the instructor.

**HN 595. Seminar in Human Nutrition. 1 hour.**

Topics of current interest in human nutrition. Includes discussions of current journal articles and important new developments in the specific disciplines. Course Information: Satisfactory/Unsatisfactory grading only. May be repeated with approval. Approval to repeat course granted by the department. Prerequisite(s): HN 410; or consent of the instructor.

**HN 596. Independent Study in Human Nutrition. 1-4 hours.**

Study in selected areas of human nutrition is carried out under the direction of a faculty member. Modes of investigation are determined by the nature of the problem selected. Course Information: May be repeated. Students may register in more than one section per term. Prerequisite(s): Admission to the human nutrition graduate program and consent of the instructor.

**HN 597. Master's Project Research. 0-8 hours.**

For nutrition graduate students who wish to pursue a project other than thesis research. Course Information: Satisfactory/Unsatisfactory grading only. May be repeated. Students may register in more than one section per term. Prerequisite(s): Consent of the instructor.

**HN 598. Research in Human Nutrition. 0-16 hours.**

Independent research in one area of human nutrition. Course Information: Satisfactory/Unsatisfactory grading only. May be repeated. Prerequisite(s): Consent of the instructor.

**HN 599. Ph.D. Thesis Research. 0-16 hours.**

Independent dissertation research by the student, under the guidance of the advisor. Course Information: Satisfactory/Unsatisfactory grading only. May be repeated. Prerequisite(s): Consent of the faculty adviser.

## Kinesiology Courses

**KN 400. Entrepreneurship for Applied Health Professionals. 3 hours.**

Relates the theory, principles and practices applied in entrepreneurial start-up settings in healthcare and human performance professions. Course Information: Prerequisite(s): Junior standing or above.

**KN 410. Aging and the Motor System. 3 hours.**

Introduction to aging with a focus on its impact on the physical structure and function of the neural, muscular and skeletal systems; the mechanics through which the trajectory of aging can be potentially modified. Course Information: Prerequisite(s): KN 252.

**KN 431. Lower Extremity Overuse Injury. 3 hours.**

Critical review of the literature related to lower extremity overuse injury; current practices and research gaps in the prevention and treatment of these injuries; movement assessment and corrective exercise to prevent and care of these injuries. Course Information: Prerequisite(s): KN 261 and KN 331. Class Schedule Information: To be properly registered, students must enroll in one Lecture-Discussion and one Laboratory.

**KN 432. Foundations of Positive Psychology. 3 hours.**

Introduces students to positive psychology and the opportunities for human development channeling positive thoughts, emotions and behaviors to achieve life, relationships and legacy goals. Course Information: Prerequisite(s): Acceptance into the concentration in Performance, Sport and Exercise Psychology within the MS in Kinesiology or consent of the instructor.

**KN 435. Sport Psychology for Individual and Team Performance. 3 hours.**

Analysis and application of psychological concepts related to process and outcomes of sport and exercise programs. Course Information: Prerequisite(s): KN 237 or KN 335.

**KN 438. Advanced Sport and Exercise Psychology. 3 hours.**

Explores research on the psychological effects of sport and exercise across the lifespan. Emphasis will be placed on understanding research methods and applying knowledge of consequences in practice. Course Information: Prerequisite(s): KN 237. Class Schedule Information: To be properly registered, students must enroll in one Lecture-Discussion and one Laboratory.

**KN 441. Muscle Physiology. 3 hours.**

Examination of skeletal muscle function during physical activity and adaptations of skeletal muscle that occur with exercise training, inactivity and aging. Course Information: Prerequisite(s): KN 352.

**KN 442. Principles of ECG Interpretation. 3 hours.**

Introduction to the basic principles and interpretation of the electrocardiogram (ECG) as it relates to fitness programs involving the apparently healthy as well as cardiac rehabilitation patients. Course Information: Prerequisite(s): Grade of C or better in KN 352; and junior standing or above; or consent of the instructor. Class Schedule Information: To be properly registered, students must enroll in one Lecture/Discussion and one Laboratory.

**KN 445. Corrective Exercise for Postural and Movement Imbalances. 3 hours.**

Focuses on how to develop, integrate, and apply comprehensive strategies to identify, assess, and improve common postural and muscular imbalances which contributes to movement impairments. Course Information: Prerequisite(s): KN 243. Class Schedule Information: To be properly registered, students must enroll in one Laboratory and one Lecture-Discussion.

**KN 447. Mental Health in Athletics. 3 hours.**

Designed to advance student understanding and response to current and emerging mental health issues in athletics. Course Information: Prerequisite(s): Junior standing or above.

**KN 448. Adapted Exercise Programming. 3 hours.**

Examines the criteria for exercise and fitness participation for individuals with disabilities or chronic health conditions. Course Information: Previously listed as KN 348. Prerequisite(s): KN 345.

**KN 450. Exercise Programming for Athletic Performance. 3 hours.**

Students develop the required knowledge and competencies to complete professional credential examinations with nationally and internationally recognized organizations such as the National Strength and Conditioning Association. Course Information: KN 345 or consent of instructor.

**KN 452. Advanced Exercise Physiology. 3 hours.**

Builds on the science foundation provided by KN 352 to examine timely and emerging topics in exercise physiology. Students will develop skills for critical thinking, problem solving, and forming and defending a scientific opinion. Course Information: Prerequisite(s): KN 352. Class Schedule Information: To be properly registered, students must enroll in one Lecture-Discussion and one Laboratory.

**KN 460. Neuromechanical Basis of Human Movement. 3 hours.**

Biomechanics of single and multi-joint systems, and its role in neural control of movement. Mechanisms of acute adaptations including warm-up, fatigue and potentiation, and chronic adaptations arising from reduced use or training. Course Information: Prerequisite(s): KN 361.

**KN 465. Biomechanics of the Neuromusculoskeletal Systems. 3 hours.**

Introduces the non-engineering/physics student to the biomechanics of the neural, muscular and skeletal systems. The course focuses on normal structure-function of tissues and joints, injury and prevention. Course Information: Previously listed as KN 365. Prerequisite(s): KN 361 or one year of college physics; or consent of the instructor.

**KN 472. Movement Neuroscience. 3 hours.**

Overview of the neurophysiology of human movement. This course will cover the mechanisms and neural circuitry of sensory and sensorimotor processes underlying the control of movement. Course Information: Prerequisite(s): KN 252. Recommended background: KN 352 and KN 372.

**KN 475. Movement Disorders. 3 hours.**

Examines basic and applied understanding of the neural changes in motor function in disease and disorders of movement. This will include peripheral and central motor deficits. Prerequisite(s): KN 352 and KN 372.

**KN 491. Professional Preparation. 3 hours.**

Advances student employability and graduate school success in five domains: problem solving, communication, team work, adaptability, and emotional intelligence; helps students develop five key skill competencies. Course Information: Prerequisite(s): Junior standing or above.

**KN 493. Practicum in Undergraduate Teaching. 1-3 hours.**

Peer instruction experience for undergraduate students. Course Information: May be repeated to a maximum of 6 hours. Students may register for more than one section per term. Prerequisite(s): Students must have successfully completed the course in which they will be assisting (or an equivalent) and obtain consent of the instructor.

**KN 494. Special Topics in Kinesiology. 1-3 hours.**

Flexible course structure designed to accommodate relevant topics beyond the scope of the current course offerings, with more in-depth analysis of primary literature. Course Information: May be repeated if topics vary. Students may register in more than one section per term. Prerequisite(s): Depending on topic, specific prerequisites may be required.

**KN 495. Senior Seminar. 1 hour.**

Challenges students to integrate concepts learned in previous courses to solve problems and come to conclusions on health-related topics. It also prepares students for their immediate post-baccalaureate professional steps. Course Information: Prerequisite(s): Senior standing or above.

**KN 496. Special Projects in Kinesiology. 1-3 hours.**

Independent research on special projects. Course Information: Prerequisite(s): Approval by graduate faculty member and graduate director.

**KN 500. Evidence-Based Practice in Kinesiology and Nutrition. 3 hours.**

Training in the research approaches pertaining to specific areas of study in kinesiology and nutrition. Emphasis is placed on accessing, evaluating and applying findings in the primary literature as critical steps in evidence-based practice.

**KN 501. Current Research in Kinesiology. 1 hour.**

In-depth analysis of current original research. Course Information: May be repeated to a maximum of 10 hours with approval. Approval to repeat course granted by the department. Prerequisite(s): Consent of the instructor.

**KN 502. Movement Science. 4 hours.**

Synthesis of the body of knowledge in kinesiology using various diseases as a teaching model. Course Information: Prerequisite(s): Consent of instructor.

**KN 503. Responsible Conduct of and Ethical Decision Making in Research. 2 hours.**

The conventions, standards and rules that govern the responsible conduct of basic, clinical and translational research (RCR); including the roles of regulatory agencies, ethical decision making and fostering professional behavior in research.

**KN 505. Qualitative Research in Kinesiology and Nutrition. 3 hours.**

Introduces the logic, utility and practices of qualitative research; describes methods for conceptualizing, gathering, managing and interpreting qualitative data concentrating on interviewing, visual and ethnographic methodologies. Course Information: Prerequisite(s): Consent of the instructor.

**KN 511. Intervention Design and Evaluation in Kinesiology and Nutrition. 3 hours.**

Applying the scientific process to change physical activity and nutrition behavior. Best practices for design and evaluation of theory-, community-, and evidence-based physical activity and nutrition interventions are explored. Course Information: Same as HN 511. Prerequisite(s): Graduate standing; or consent of the instructor or BS in Kinesiology or related field. Recommended background: KN 237; and KN 438.

**KN 520. Disability and Physical Activity. 3 hours.**

Examination of the foundations of physical activity for persons with disabilities. Emphasis on strategies for promoting physical activity among persons with disabilities in community settings. Course Information: Same as DHD 520.

**KN 521. Physical Activity Intervention in Diverse Populations. 3 hours.**

Background information about diverse populations, information about health promotion and physical activity efforts among diverse populations; and the design of physical activity interventions in such populations.

**KN 523. Tissue Inflammation and Repair. 3 hours.**

Mechanisms of tissue inflammation and repair in various tissues and different pathological conditions. This course will focus on current research related to factors influencing inflammation and tissue repair including the effects of exercise. Course Information: Same as PHYB 523. Prerequisite(s): Graduate standing; and consent of the instructor.

**KN 527. Molecular Biology of Muscle Genes and Proteins. 2 hours.**

Regulatory mechanisms which govern gene expression relevant to the function of skeletal and cardiac muscle. Course Information: Prerequisite(s): BIOS 524 and BIOS 525 and consent of instructor.

**KN 528. Cellular Response to Exercise. 3 hours.**

Examines cellular structure/function relationships important for acute and chronic adaptations to exercise. Emphasis on understanding cellular basis of physiological response to exercise. Course Information: Prerequisite(s): BIOS 422 or consent of the instructor.

**KN 529. Exercise Genomics. 3 hours.**

Molecular mechanisms by which cells adapt to increases and decreases in physical activity. Emphasis on understanding genomic, transcriptional, translational and post-translational sites of control. Course Information: Prerequisite(s): Consent of the instructor.



**KN 532. Cultural Humility. 3 hours.**

Multicultural performance, sport and exercise psychology services in a diverse society are examined. Theories of identity development and cultural humility practitioner training are provided. Course Information: Prerequisite(s): Acceptance into the concentration in Performance, Sport and Exercise Psychology within the MS in Kinesiology or consent of the instructor.

**KN 534. Professional Ethics in Performance, Sport and Exercise Psychology. 3 hours.**

Ethical standards of the profession. Practicing self-reflexivity in terms of one's own ethical values and decision making and applying ethical practice in various ethical and/or legal issues or dilemmas. Ethical and moral values in consulting. Course Information: Prerequisite(s): Acceptance into the concentration in Performance, Sport and Exercise Psychology within the MS in Kinesiology or consent of the instructor.

**KN 535. Nutrition and Human Performance. 2 hours.**

Nutrition which impacts on human performance; impaired performance due to nutritional problems; aspects relevant to the professional athlete. Course Information: Same as HN 535. Prerequisite(s): PHYB 341 or KN 352; or consent of the instructor.

**KN 538. Race, Culture, and Health Disparities. 2-3 hours.**

Focuses on developing students' critical thinking skills as they relate to race, health disparities and engaging in culturally responsive care. Course Information: Same as DHD 528 and OT 528. Students registering for 3 hours of credit complete an immersion activity and a research paper. Prerequisite(s): Consent of the instructor.

**KN 545. Advanced Exercise Programming and Assessment. 3 hours.**

Emphasis on current recommendations for exercise prescription and assessment methods for adult populations. Diagnostic and prescriptive procedures will be delineated. Course Information: Prerequisite(s): KN 452 or consent of the instructor. Class Schedule Information: To be properly registered, students must enroll in one Laboratory-Discussion and one Lecture.

**KN 550. Applied Exercise Physiology. 3 hours.**

Designed to provide an in-depth examination of the theoretical aspects of exercise physiology in all individuals, including those with disabilities or chronic health conditions. Course Information: Prerequisite(s): Admission to the MS in Kinesiology concentration in Clinical Exercise Physiology or consent of instructor.

**KN 552. Human Bioenergetics. 3 hours.**

Examines current topics in exercise physiology including bioenergetics; fatigue; organ system support; exercise metabolism; relationships between exercise effects and outcomes; and effects of training adaptations for sport or health. Course Information: Prerequisite(s): KN 352; and one college-level course in biochemistry.

**KN 554. Cardiovascular Exercise Physiology. 3 hours.**

Examines the theoretical aspects of human cardiovascular physiology, and apply these concepts to acute and chronic exercise in healthy individuals, as well as chronic disease. Course Information: Prerequisite(s): Admission to the MS in Kinesiology concentration in Clinical Exercise Physiology or consent of instructor.

**KN 561. Biomechanics of Human Locomotion. 3 hours.**

Teaches the measurement, analysis, and interpretation of biomechanical data related to human walking. Utilization of the scientific process to understand normal and pathological gait will be explored and practiced. Course Information: Prerequisite(s): Graduate standing and an undergraduate background in Kinesiology or related field; or consent of instructor. Recommended background: KN 361.

**KN 570. Neural Mechanisms Underlying Motor Control. 4 hours.**

Neurophysiological mechanisms that underlie the control and regulation of movement. Course Information: Prerequisite(s): Consent of the instructor.

**KN 571. Biomechanics of Normal and Abnormal Movement. 3 hours.**

Principles of statics and dynamics exemplified by human movements. Examination of muscle mechanics, joint forces, stability. Redundancy and intersegmental interactions in multijoint movements. Course Information: Same as PT 571. Prerequisite(s): Consent of the instructor.

**KN 572. Psychology of Motor Control and Learning. 3 hours.**

Advanced principles of the control and acquisition of complex, voluntary skills. Course Information: Same as PT 572. Prerequisite(s): KN 372; or consent of the instructor.

**KN 573. Advanced Topics in Motor Control and Learning. 3 hours.**

Contemporary theories and models in motor control and learning.

**KN 574. Instrumentation for Motor Control Research. 3 hours.**

Introduction to oscilloscopes, amplifiers, filters, and transducers. Origin and processing of electromyograms. Motion capture and processing techniques. Course Information: Same as PT 574. Prerequisite(s): KN 571 or PT 571.

**KN 581. Exercise Leadership Field Instruction. 3 hours.**

Students are assigned to fitness classes where, under the supervision of a field instructor, they prepare lessons, give instruction and administer written and physical fitness exams. Course Information: Prerequisite(s): KN 545. Class Schedule Information: To be properly registered, students must enroll in one Lecture-Discussion and one Practice.

**KN 585. Practicum in Health, Exercise and Sport Behavior Applications. 3-6 hours.**

Students observe/document professionals in the exercise and sports related industry perform their job responsibilities. Students will also participate to a limited extent in performing tasks under supervision by program professor and on-site staff. Course Information: May be repeated to a maximum of 12 hours. Field work required. Prerequisite(s): KN 500 and KN 505.

**KN 590. Seminar in Kinesiology. 1 hour.**

Final experience for 40-hour MS student. Student must demonstrate ability to synthesize material obtained in program and relate it to their area of concentration. Course Information: Prerequisite(s): 32 semester hours of graduate credit and consent of major advisor.

**KN 591. Psychosocial Aspects of Cardiac Rehabilitation. 3 hours.**

Examines the psychosocial experience of individuals recovering from myocardial infarction and associated cardiac experiences related to cardiac rehabilitation programs. Course Information: Prerequisite(s): Consent of the instructor.

**KN 592. Clinical Rotations in Exercise Physiology. 1-4 hours.**

The clinical rotation serves as an avenue to introduce students to various experiences in clinical exercise physiology and as a precursor to a clinical internship. Field work is required. Course Information: Satisfactory/Unsatisfactory grading only. May be repeated to a maximum of 4 hours. Prerequisite(s): Approval of the department.

**KN 593. Internship in Kinesiology. 1-12 hours.**

Supervised internship in a laboratory or field setting. A written report is required. Normally open only to candidates in the Applied Exercise Physiology MS area of concentration. Course Information: Satisfactory/Unsatisfactory grading only. May be repeated to a maximum of 12 hours. Credit is not given for KN 593 if the student has credit in KN 597 or KN 598. Field work required. Prerequisite(s): Students must pass the comprehensive examination before placement at an internship site.

**KN 594. Selected Topics in Kinesiology. 1-3 hours.**

Topic to be announced. Analysis of selected problems and concerns in specified concentrations. Topics vary from semester to semester, depending on the needs and interests of the graduate students. Course Information: May be repeated if topics vary. Prerequisite(s): Consent of the instructor.

**KN 596. Independent Research in Kinesiology. 1-4 hours.**

Topics vary. Students design, implement, and analyze a research problem in their individual area of concentration under the supervision of a faculty member. Course Information: Prerequisite(s): KN 500.

**KN 597. Project in Kinesiology. 0-8 hours.**

Supervised practicum in laboratory or field setting in which recent research findings are applied, tested, and evaluated. Course Information: Satisfactory/Unsatisfactory grading only. May be repeated. Prerequisite(s): KN 500 and consent of the advisor and director of graduate studies.

**KN 598. Master's Thesis Research. 0-16 hours.**

Thesis work under the supervision of a graduate advisor. Course Information: Satisfactory/Unsatisfactory grading only. May be repeated. Prerequisite(s): KN 500 and consent of the advisor and director of graduate studies.

**KN 599. Ph.D. Thesis Research. 0-16 hours.**

Independent research by the student under the supervision of the thesis advisor. Course Information: Satisfactory/Unsatisfactory grading only. May be repeated.