

# Kinesiology (KN)

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## 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 401. Clinical Skills in Kinesiology. 3 hours.**

Builds, reviews, and assesses the clinical proficiencies in the areas of exercise assessment, testing, and programming; strength and conditioning training; health and nutritional coaching; and basic care of musculoskeletal injuries. Course Information: Prerequisite(s): HN 296 and KN 331 and KN 335 and KN 345. Class Schedule Information: To be properly registered, students must enroll in one Lecture-Discussion and one Laboratory.

**KN 402. Worksite Health Promotion. 3 hours.**

Introduces students to evidence based worksite health promotion programs at two levels 1) program design, delivery and evaluation, 2) program management so that they develop skills and capabilities for the field of worksite health promotion. Course Information: Prerequisite(s): KN 400.

**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; and junior standing or above.

**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 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 335.

**KN 436. Health Coaching. 3 hours.**

Enables students to practice and plan alternative approaches to health coaching, and to differentiate and evaluate two different health coaching approaches. Course Information: Prerequisite(s): KN 335; and senior standing or above.

**KN 437. Motivational Interviewing Lab. 1 hour.**

Builds on the knowledge gained in KN 436 and focuses on developing proficiency in motivational interviewing. Course Information: Prerequisite(s): KN 436.

**KN 438. Exercise Adherence. 3 hours.**

Exercise behavior as it relates to habitual physical activity. Encompasses health outcomes, exercise adherence factors, intervention, strategies, and exercise settings.

**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 and junior standing or above; or consent of the instructor.

**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 448. Modifications in Exercise Programming. 3 hours.**

This course examines the criteria for exercise and fitness participation and the modifications necessary to benefit people with limiting physical conditions. Course Information: Previously listed as KN 348. Prerequisite(s): KN 345 and junior standing or above.

**KN 450. Advanced Strength and Conditioning. 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: Prerequisite(s): KN 200 and KN 252 and KN 335 and KN 345 and KN 361. Graduate Students must obtain consent of instructor.

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

Review of research in exercise physiology on topics currently addressed in the research literature. The first half of the semester will address factors affecting performance. The second half will address health and disease factors. Course Information: Prerequisite(s): KN 352; and junior standing or above and one college-level course in chemistry.

**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 252 and KN 361 and junior standing or above; or consent of the instructor.

**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 human nervous system. Emphasis is placed on the basic functional anatomical and physiological concepts relevant to the organization and execution of movement. Course Information: Prerequisite(s): KN 251 and KN 252 and KN 352 and KN 372; and junior standing or above; or consent of the instructor.

**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; and junior standing or above.

**KN 481. Workshop in Kinesiology. 1-3 hours.**

Intensified study of selected activities, topics, processes or areas in kinesiology. Topic will be announced. Course Information: May be repeated if topics vary. Students may register in more than one section per term.

**KN 489. Seminars in Kinesiology. 1-3 hours.**

Weekly seminars devoted to research in kinesiology and related fields, followed by a one-hour discussion. Course Information: Satisfactory/Unsatisfactory grading only. May be repeated. Prerequisite(s): Junior standing or above.

**KN 493. Practicum in Undergraduate Teaching. 1-2 hours.**

Peer instruction experience for undergraduate students. Course Information: May be repeated for credit. Students may register for more than one section per term. Prerequisite(s): Students must have successfully completed the course, or its equivalent, that they are teaching with a grade of B or better, in addition to obtaining consent of the instructor. Recommended Background: Junior or senior standing and an overall GPA of 3.00.

**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 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 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 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 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 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.