Kinesiology (KN)

Courses

KN 100. Kinesiology: First Year Seminar. 2 hours.
Overview of kinesiology emphasizing the key concepts of the sub-disciplines and diverse range of careers in the field. Focuses on academic and professional preparation given the integrative nature of the discipline and current trends.

KN 110. Life Skills for Student Athletes. 2 hours.
Prepares student-athletes, and those working with student-athletes, to thrive as leaders in their community and workplace, be productive members of society, and contribute value to their own life and to those with whom they interact.

KN 130. Stress Management. 3 hours.
Introduction to stress and its effects on health, with experiential application of coping strategies and relaxation techniques. Addresses conventional and innovative approaches, with a special emphasis on holistic health and wellness.

KN 136. Techniques and Principles of Exercise. 3 hours.
Teaches students how to identify, describe, execute, and progress common resistance and aerobic exercises for optimal health, athletic performance and overall fitness. Class Schedule Information: To be properly registered, students must enroll in one Lecture-Discussion and one Laboratory.

KN 137. Personal Fitness. 1 hour.
Evaluation of each student's level of fitness, followed by participation in a group exercise program. Variable training modes. Discussion on fitness-related topics.

KN 150. The Healthy Human. 3 hours.
Using the core dimensions of wellness, this course prepares students to live healthy, proactive lifestyles by creating a personal framework to serve them in their daily lives. Emphasis will be on the holistic integration of body, mind, and spirit. *Individual and Society course*.

KN 151. Success Strategies for Anatomy and Physiology. 1 hour.
Teaches students to engage in effective study and learning strategies, with an emphasis on metacognition, for success in A&P. These metacognitive skills are transferable to other courses in the student's higher education experience. Course Information: Corequisites: Requires concurrent registration in KN 230 or KN 253.

KN 152. Introduction to Exercise Physiology and Health. 3 hours.
Provides students with the fundamental knowledge of the structure and function of the human body, particularly as it relates to the interaction between physical activity and health and disease. Course Information: Recommended background: High school chemistry, biology and/or physiology. Class Schedule Information: To be properly registered, students must enroll in one Laboratory-Discussion and one Lecture-Discussion. *Natural World - With Lab course*.

KN 194. Special Topics in Kinesiology. 1-3 hours.
Participation and study in selected activities in Kinesiology. Course Information: May be repeated if topics vary. Students may register in more than one section per term.

KN 200. Statistical Methods. 3 hours.
How to apply, interpret, and think critically about scientific data from the biological and health sciences. Extensive hands-on experience working with data to illustrate concepts and develop skills for decision making and analytical thinking. Course Information: Prerequisite(s): MATH 121. Class Schedule Information: To be properly registered, students must enroll in one Lecture and one Discussion.

KN 230. Anatomy and Physiology Lecture I. 3 hours.
The structure and function of mammalian cells and tissues and human skeletal, muscular and nervous systems are discussed. Integrating the functions of the various systems is emphasized. Course Information: Extensive computer use required. Credit for KN 230 is not given if the student has credit in KN 251 or KN 253. Prerequisite(s): Grade of C or better in BIOS 110 and cumulative undergraduate GPA of at least 2.5 (A=4.0).

KN 231. Anatomy and Physiology Lecture II. 3 hours.
The structure and function of the human endocrine, circulatory, respiratory, digestive, sensory, and reproductive systems are discussed. Integrating the functions of the various systems is emphasized. Course Information: Extensive computer use required. Prerequisite(s): KN 230. Credit for KN 231 is not given if the student has credit in KN 252 or KN 254.

KN 232. Anatomy and Physiology Laboratory I. 2 hours.
Course to complement KN 230. Includes wet and dry lab activities. Human cadavers used in instruction. Course Information: Credit for KN 232 is not given if the student has credit in KN 251 or KN 255. Prerequisite(s): Credit or concurrent registration in KN 230 or the equivalent.

KN 233. Anatomy and Physiology Laboratory II. 2 hours.
Course to complement KN 231. Includes wet and dry lab activities. Human cadavers used in instruction. Course Information: Credit for KN 233 is not given if the student has credit in KN 252 or KN 256.Prerequisite(s): Credit or concurrent registration in KN 231 or the equivalent.

KN 237. Sport and Exercise Psychology. 3 hours.
Presents the psychological basis for exercise and sport motivation and behavior. Focus on application of theoretical models of exercise and sport and psychological strategies to improve participation in exercise and improve sport performance. Course Information: Previously listed as KN 335. Credit is not given for KN 237 if the student has credit in KN 335.

KN 243. Exercise Assessment. 3 hours.
This introductory-level course addresses screening and assesses fitness components necessary to assess posture, body composition, strength, flexibility and cardio-respiratory endurance. Course Information: Extensive use of instrumentation. Prerequisite(s): KN 136. Class Schedule Information: To be properly registered, students must enroll in one Laboratory and one Lecture-Discussion.

KN 245. Exercise Programming and Instruction. 3 hours.
Emphasizes how to develop and instruct individual and group exercise programs utilizing a variety of exercise modalities. Personal training, small group instruction, and group exercise techniques are included in both lecture and lab experiences. Course Information: Credit is not given for KN 245 if the student has credit in KN 240. Prerequisite(s): KN 136 and KN 243. Course Schedule Information: To be properly registered, students must enroll in one Lecture-Discussion and one Laboratory.

KN 246. Group Exercise Instruction. 2 hours.
Focuses on group fitness fundamentals for apparently healthy exercisers. Emphasis will be on proper exercise instruction, cuing, class organization, safety, and effective exercise planning for a variety of different class types. Course Information: Prerequisite(s): KN 245. Course Schedule Information: To be properly registered, students must enroll in one Laboratory and one Lecture-Discussion.

KN 253. Human Anatomy and Physiology I. 4 hours.
The structure and function of mammalian cells and tissues and human skeletal, muscular and nervous systems are discussed. Integrating the functions of the various systems is emphasized. Course Information: Credit is not given for KN 253 if the student has credit for KN 251 or KN 230. Extensive computer use required. Prerequisite(s): Grade of C or better in BIOS 110; Cumulative GPA of at least 2.5.

KN 254. Human Anatomy and Physiology II. 4 hours.
The structure and function of the human endocrine, circulatory, respiratory, digestive, sensory, and reproductive systems. Emphasis on integrating the functions of the various systems. Course Information: Credit is not given for KN 254 if the student has credit in KN 252 or KN 231. Extensive computer use required. Prerequisite(s): KN 253; or KN 251.

KN 261. Applied Musculoskeletal Anatomy. 3 hours.
Designed to provide a foundational knowledge base regarding the structure of the human musculoskeletal system as it relates to movement and function. Course Information: Prerequisite(s): KN 251 or KN 253 or KN 230.

KN 262. Training Methods for Core Stability. 3 hours.
Students learn methods to assess and program core stability for a variety of populations in the contexts of posture, endurance, strength and flexibility. Extensive use of Pilates equipment and small apparatus. Prerequisite(s): Junior standing or above; and consent of the instructor. Recommended background: KN 261. Class Schedule Information: To be properly registered, students must enroll in one Lecture-Discussion and one Laboratory.

KN 294. Special Topics in Kinesiology. 1-3 hours.
Selected topics in Kinesiology. Course Information: May be repeated if topics vary. Students may register in more than one section per term.

KN 299. Study Abroad in Kinesiology and Nutrition. 0-18 hours.
Provides credit for study abroad. Student's proposal must have prior approval of the student's major program or department. Final determination of credit is made on the student's completion of the work. Course Information: May be repeated for a maximum of 36 hours.

KN 300. Research Methods and Inquiry in Kinesiology. 3 hours.
Introduces undergraduate students to inquiry processes and research methods applied in the field of Kinesiology. Course Information: Recommended background: KN 200 or PSCH 242.

KN 331. Sport and Exercise Injury Management. 3 hours.
Fundamental management of exercise and sport related injuries and conditions. Course Information: Prerequisite(s): KN 261. Class Schedule Information: To be properly registered, students must enroll in one Laboratory and one Lecture-Discussion.

KN 336. Health Coaching. 3 hours.
Behavior change approaches with diverse patients/clients using foundational health coaching and motivational principles. Students use communication, coaching and comportment skills to help guide others in the pursuit of healthy lifestyle habits. Course Information: Previously listed as KN 436. Credit is not given for KN 336 if the student has credit for KN 436. Prerequisite(s): KN 237.

KN 337. Psychology of Injury and Recovery. 3 hours.
Introduces the psychological, social, and emotional experiences associated with the acquisition and experience of physical injuries. Course Information: Prerequisite(s): KN 237.

KN 345. Exercise Assessment and Programming. 3 hours.
Emphasizes a variety of advanced experiences in integrating assessment and programming techniques and approaches to exercise, fitness, health and sport. Course Information: Prerequisite(s): KN 243, and KN 245, and either KN 251, or KN 230 and KN 232. Class Schedule Information: To be properly registered, students must enroll in one Laboratory and one Lecture-Discussion.

KN 350. Cadaver Dissection I. 2 or 3 hours.
Cadaver dissection using the regional approach. Dissection of the musculo-skeletal system, spinal cord and peripheral nervous system. Course Information: Prerequisite(s): Grade of C or better in KN 251 or Grade of C or better in KN 255 or Grade of C or better in KN 232; or consent of the instructor.

KN 351. Cadaver Dissection II. 2 or 3 hours.
Cadaver dissection using the regional approach method. Dissection of the brain, cardiovascular, respiratory, digestive, urinary and reproductive systems. Course Information: Prerequisite(s): Grade of B or better in KN 252 or consent of instructor.

KN 352. Physiology of Exercise. 4 hours.
The physiological responses associated with acute and chronic physical exercise; muscular, circulatory, respiratory and nervous systems. Course Information: Prerequisite(s): KN 152; and KN 231 or KN 252 or KN 254. Class Schedule Information: To be properly registered, students must enroll in one Laboratory and one Lecture-Discussion.

KN 361. Movement Biomechanics. 3 hours.
Introduces students to the science of mechanics with a particular emphasis on the application of mechanics to the analysis of normal and pathological human and animal movement. Course Information: Previously listed as KN 260. Prerequisite(s): MATH 121 and KN 261 and PHYS 131 or higher.

KN 362. Tissue Biomechanics. 3 hours.
Introduces students to the biomechanics of the tissues of the body, emphasizing the musculoskeletal system. Students will study the structure-function relationship of tissues, and how this relationship is disrupted with disease or injury. Course Information: Credit is not given for KN 362 if the student has credit in KN 465. Prerequisite(s): MATH 121; and PHYS 131.

KN 372. Motor Control and Learning. 3 hours.
Introduction to basic principles regarding the acquisition and control of human movements. Course Information: Prerequisite(s): KN 252; or KN 231 and KN 233.

KN 393. Undergraduate Internship in Kinesiology. 3 or 6 hours.
This course will provide students with a working experience at a professional job site where they can apply the knowledge, skills and abilities they have learned in the program. Course Information: Field work required. Students must provide their own transportation to and from internship sites. Prerequisite(s): Approval of the department and completion of all required courses for the chosen internship site.

KN 394. Special Topics in Kinesiology. 1-3 hours.
Flexible course structure designed to accommodate additional topics not covered in current course offerings. Topic examples include muscle physiology, psychology of physical activity, biomechanics and motor control of special populations. Course Information: May be repeated if topics vary. Students may register in more than one section per term. Prerequisite(s): Sophomore standing or above; and consent of the instructor.

KN 396. Special Project. 1-3 hours.
Selected topics in Kinesiology for individual study. Course Information: May be repeated to a maximum of 6 hours. Prerequisite(s): Approval of student project by the KN 396 instructor and supervising instructor.

KN 397. Special Project Presentation. 1 hour.
Students will prepare and present their experiential learning project in a public forum. Emphasis will be on building the competencies of scientific communication and professionalism. Course Information: Prerequisite(s): KN 396.

KN 398. Undergraduate Research. 1-3 hours.
An in-depth research analysis for the development of a research proposal in the student's area of interest. Review current literature, investigate various research methodologies, review the relevant research policies, and develop a proposed project. Course Information: Prerequisite(s): Approval of the department.

KN 399. Undergraduate Research Presentation. 1 hour.
The implementation of the proposal developed in KN 398. Data collection, analysis and interpretation will provide the basis for the written project. The project will be presented in an open forum to faculty and other students. Course Information: Prerequisite(s): KN 398.

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; or KN 231 and KN 233.

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 433. Sociocultural Perspectives in Performance, Sport and Exercise Psychology. 3 hours.
Pertinent sociological issues and theories will be examined in the scholarly pursuit of knowledge and understanding of the sociological and cultural influences in the field of performance, sport and exercise psychology. 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 434. Business Branding in Performance, Sport and Exercise Psychology. 3 hours.
Designed to help students build a coaching and/or consulting business for face-to-face and virtual clients. 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; or KN 231 and KN 233. 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. Class Schedule Information: To be properly registered, students must enroll in one Lecture and one Discussion.

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 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 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 531. Applied Performance, Sport and Exercise Psychology. 3 hours.
Applied performance, sport and exercise psychology origins, functions and aligned interventions will be explored. A historical analysis of the field will be discussed. Course Information: Acceptance into the Performance, Sport and Exercise Behavior concentration within the MS in Kinesiology or consent of 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 533. Consulting Theories and Skills. 3 hours.
Serves as a bridge between learning consulting theories and acquiring helping relationship skills. The course delivers live experience in the exploration and application of individual and group consulting and counseling techniques. 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 540. Foundations and Organization of Cardiopulmonary Rehabilitation Programs. 3 hours.
An examination of concepts, design, and implementation of cardiac and pulmonary rehabilitation programs that focuses on disease treatment and management, patient education, and lifestyle modification. Course Information: Prerequisite(s): Admission to the MS in Kinesiology concentration in Clinical Exercise Physiology or consent of instructor. Recommended background: KN 441 and KN 442.

KN 542. Advanced Electrocardiography. 2 hours.
The study of the rhythm disturbances that occur within the chambers and conducting tissue of the heart, and the analysis of electrocardiogram rhythm strips at rest, during exercise, and recovery. Course Information: Admission to the MS in Kinesiology concentration in Clinical Exercise Physiology or consent of instructor. KN 441 and KN 442 and Advanced Cardiac Life Support certification.

KN 543. Graded Exercise Testing and Interpretation. 3 hours.
Designed to examine the theoretical and practical aspects of exercise testing and interpretation in healthy and disease populations. Course Information: Prerequisite(s): Admission to the MS in Kinesiology concentration in Clinical Exercise Physiology or consent of instructor. Recommended background: KN 441 and KN 442 Advanced Cardiac Life Support certification.

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 547. Exercise Pharmacology. 2 hours.
Designed to examine the theoretical and practical aspects of the physiologic agents used in treating cardiovascular, pulmonary, and metabolic disease. Course Information: Prerequisite(s): Admission to the MS in Kinesiology concentration in Clinical Exercise Physiology or consent of instructor. Recommended background: KN 441 and KN 442 Advanced Cardiac Life Support certification.

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.