

APPLIED PHYSIOLOGY AND KINESIOLOGY

Not all courses are offered every semester. Refer to the schedule of courses for each term's specific offerings.

More Info (<https://one.ufl.edu/soc/>)

Unless otherwise indicated in the course description, all courses at the University of Florida are taught in English, with the exception of specific foreign language courses.

Department Information

The Department of Applied Physiology & Kinesiology (APK) studies the immediate and lasting effects of exercise and its use in performance enhancement and disease prevention and rehabilitation.

More Info (<http://hhp.ufl.edu/about/departments/apk/>)

Curriculum

- Applied Physiology and Kinesiology

Courses

APK 1002 Body Basics: An Introduction to Human Anatomy and Physiology 3 Credits

Grading Scheme: Letter Grade

This introductory integrated anatomy and physiology course covers a broad range of basic biological and physiology concepts in the context of the human body. The presented concepts provide a basis for understanding the relations between structure and function from the chemical to organismal levels.

APK 2093 Career Perspectives in Applied Physiology and Kinesiology 1 Credit

Grading Scheme: Letter Grade

Explore careers in industry related to applied physiology and kinesiology. Refine skills such as professional networking, scientific communication, and global/international engagement while incorporating artificial intelligence to create documents and prepare for interviews. Students will leave the class with a portfolio that comprises a personal statement, resume, letter of recommendation, headshot, and sample slides demonstrating effective scientific communication.

APK 2100C Applied Human Anatomy with Laboratory 4 Credits

Grading Scheme: Letter Grade

Study of general anatomy of the human body from a systematic approach. Understanding anatomical terminology, gross structures, and locations of different body structures are primary concerns. Cells, tissues, and organs of the integumentary, skeletal, muscular, nervous, circulatory, respiratory, digestive, urinary and reproductive systems are emphasized. This course affords students the ability to critically examine and evaluate the principles of the scientific method, model construction, and use the scientific method to explain natural experiences and phenomena.

Attributes: General Education - Biological Science

APK 2105C Applied Human Physiology with Laboratory 4 Credits

Grading Scheme: Letter Grade

Introduction to body functions at the cellular, tissue, organ and systems level with emphasis on the mechanisms of operation. Designed for students interested in pursuing study in the health professions. This course affords students the ability to critically examine and evaluate the principles of the scientific method, model construction, and use the scientific method to explain natural experiences and phenomena.

Prerequisite: Sophomore standing or higher.

Attributes: General Education - Biological Science

APK 2322 Exercise as Medicine 3 Credits

Grading Scheme: Letter Grade

This Quest 2 course utilizes the disciplines of applied physiology, health education, medicine, healthcare economics, and government/public policy to explore the challenges associated with exercise as an everyday lifestyle among Americans. In this class, we will identify and investigate the role various entities play in fostering exercise behavior.

Attributes: Quest 2, General Education - Social Science, Satisfies 4000 Words of Writing Requirement

APK 3110C Physiology of Exercise and Training 3 Credits

Grading Scheme: Letter Grade

Survey in exercise physiology which provides an overview of the acute and chronic responses to exercise. Particular attention is placed on understanding muscle bioenergetics and metabolism as well as the cardiopulmonary responses to exercise. Special topics include exercise testing, training technologies and exercise in hot and cold environments.

Prerequisite: APK 2105C or (BSC X094+L or BSC X086+L or PET X322+L or PCB 3703C) with minimum grades of C; junior standing or above; Applied Physiology & Kinesiology majors only.

APK 3113C Principles of Strength and Conditioning 3 Credits

Grading Scheme: Letter Grade

For those interested in becoming certified personal trainers (NSCA-PT) or certified strength and conditioning specialists (CSCS) through the National Strength and Conditioning Association.

Prerequisite: APK 2100C and (APK 2105C or BSC X094+L or BSC X086+L or PET X322+L or ZOO 3733C and PCB 3703C) with minimum grades of C.

APK 3163 Sport Nutrition 3 Credits

Grading Scheme: Letter Grade

Addresses the aspects of nutrition that are related to exercise performance. Emphasis is on bioenergetic systems, nutrient components, nutritional and body composition assessments, ergogenic aids and diet modifications for physically active individuals and athletes.

Prerequisite: HUN 2201 and (APK 2105C or BSC X094+L or BSC X086+L or PET X322+L or PCB 3703C).

APK 3200 Motor Learning 3 Credits

Grading Scheme: Letter Grade

Provides background for understanding, analyzing and teaching skills in sports and dance. Attention to specific aspects of psychomotor developments and theoretical models of skill acquisition.

Prerequisite: junior standing or higher and Applied Physiology and Kinesiology major.

APK 3220C Biomechanical Basis of Movement 3 Credits

Grading Scheme: Letter Grade

Fundamentals of kinematics and kinetics related to human movement. Basics of biomechanics applied to the concepts of injury prevention and performance improvement. Overview of various biomechanical data collection and analysis.

Prerequisite: ((APK 2100C or BSC X094+L or BSC X086+L or PET X322+L or ZOO 3733X) and MAC 1140 or MAC 1147 or MAC 2311 or MAC 2312 with a minimum grade of C) OR (PHY 2048 or PHY 2053 with a minimum grade of C).

APK 3400 Introduction to Sport Psychology 3 Credits

Grading Scheme: Letter Grade

Provides an understanding of the science and practice of sport psychology from both a theoretical and applied perspective. The primary emphasis is on the educational and performance enhancement roles of the field with little discussion of clinical issues.

Prerequisite: Junior standing or higher.

APK 3405 Exercise Psychology 3 Credits

Grading Scheme: Letter Grade

Introduces exercise psychology. Topics include the effects of exercise on psychological well-being, exercise adherence and intervention from both theoretical and applied perspectives.

Prerequisite: Junior standing or higher.

APK 4050 Research Methods 3 Credits

Grading Scheme: Letter Grade

Provides an understanding of basic research methods and techniques used in applied physiology and kinesiology. Students will demonstrate their knowledge of the course materials by analyzing, interpreting and summarizing research writing in professional journals and by planning a research study.

Prerequisite: APK major with 3, 4, 6 or 7 classification.

APK 4101 Fundamentals of Skeletal Muscle 3 Credits

Grading Scheme: Letter Grade

Provides a comprehensive background of skeletal muscle properties, focusing on key aspects of function at the protein, cellular, and whole organ level. Major topics include muscle contraction and force generation, fuel sources and energy utilization, growth and development, and an introduction to pathology.

Prerequisite: (APK 2105C or BSC X094+L or BSC X086+L or PET X322+L or PCB 3703C with a minimum grade of B) and junior standing or higher.

APK 4103C Kinetic Anatomy 3 Credits

Grading Scheme: Letter Grade

Provides in-depth coverage of musculoskeletal anatomy as a foundation for learning components of simple and complex motor tasks; emphasizes proper execution and analysis of joint movement and common exercises.

Prerequisite: APK 2100C (or equivalent).

APK 4106C Clinical Anatomy for the Exercise Sciences 3 Credits

Grading Scheme: Letter Grade

The course is designed for students to learn advanced dissection skills from a whole systems approach with the intent of practical application.

The primary focus will involve human cadaver dissection. The role of anatomical structures as they relate to musculoskeletal injury mechanisms, evaluation, and rehabilitation will be emphasized.

Prerequisite: (APK_BS) & (APK2100C or equivalent)

APK 4112 Advanced Exercise Physiology 3 Credits**Grading Scheme:** Letter Grade

Provides a detailed understanding of acute and chronic responses to exercise. Particular attention is placed upon understanding the physiological responses to exercise at both a systems and cellular level. Emphasis is placed on muscle contractile properties, muscle bioenergetics and the endocrine responses to exercise.

Prerequisite: APK 3110C with minimum grade of C.**APK 4115 Neuromuscular Aspects of Exercise 3 Credits****Grading Scheme:** Letter Grade

Provides an in-depth analysis of muscle structure and function; how muscles produce movement; adaptation of muscle to resistance training, endurance training and various manipulations used in rehabilitations; adaptation of muscle to disuse; and muscle responses to injury.

Prerequisite: APK 3110C with minimum grade of C.**APK 4120 Clinical Exercise Physiology 3 Credits****Grading Scheme:** Letter Grade

Provides an understanding of recent advances in exercise physiology and exercise prescription for clinical populations. Particular attention is placed upon the study of acute and chronic responses to exercise in patients with cardiac, pulmonary, metabolic and musculoskeletal diseases.

Prerequisite: APK 3110C with minimum grade of C.**APK 4125C Physical Fitness Assessment and Exercise Prescription 3 Credits****Grading Scheme:** Letter Grade

Techniques of assessing physical fitness using traditional and state of the art processes. Techniques of prescribing exercise programs based upon assessments of physical parameters. Supervised practical lab experiences in assessment and prescription in a clinical setting.

Prerequisite: APK 3110C with minimum grade of C and Health and Human Performance major.**APK 4144 Movement Neuroscience 3 Credits****Grading Scheme:** Letter Grade

Covers both anatomical and physiological aspects of movement-related components of the nervous system from a functional perspective. Topics include: neuronal signaling; somatosensation; proprioception; nociception; vision and eye movements; audition; lower vs. upper motor neurons; cortical, basal ganglia and cerebellar regulation of movement; and posture.

Prerequisite: (APK 2100C and APK 2105C or BSCX094+L or BSCX086+L or PETX322+L or ZOO 3733c and PCB 3703c with minimum grades of C) and (sophomore standing or higher) and Applied Physiology and Kinesiology major.

APK 4720 Artificial Intelligence for Movement Sciences 3 Credits**Grading Scheme:** Letter Grade

Apply AI technologies to the study of movement in healthy and diseased human populations. Utilize programming and data visualization while covering classical concepts of machine learning (e.g. linear regression and classification, ensemble-based algorithm, clustering, and neural networks) and modern machine learning methods for images and video processing (e.g. convolutional neural networks and transformers).

Prerequisite: (MAC 1147 or MAC 2311 or STA 2023 or APK 3220C or BME 3219 (or obtain instructor permission) or EEL 3872) and PHI 3681.**Attributes:** Artificial Intelligence**APK 4721 AI in Action: Problem Solving in Health, Fitness and Human Performance 3 Credits****Grading Scheme:** Letter Grade

In this classroom-based undergraduate research experience (CURE) course, students will collaborate on a research project addressing real-world challenges found in the industry-related roles in Applied Physiology and Kinesiology. Using AI to develop innovative solutions, students will gain practical experience and industry-relevant skills for careers in health, fitness, and human performance fields.

Prerequisite: APK4050 Research Methods.**Attributes:** Artificial Intelligence**APK 4905C Variable Topics in Exercise and Sport Sciences 1-6 Credits****Grading Scheme:** Letter Grade

Offered upon request to meet special interests that are not adequately provided in other courses.

Prerequisite: department chair permission.**APK 4912 Undergraduate Research 0-5 Credits****Grading Scheme:** S/U

Provides APK students the opportunity for involvement in supervised research experiences. "Research" is operationally defined here as mentored, but self-directed work that enables students to explore an issue of interest to them and to communicate the results to others.

APK 4940C Internship 6-12 Credits**Grading Scheme:** S/U

Internship in applied physiology and kinesiology.

Prerequisite: APK 2105C or (BSC X094+L or BSC X086+L or PET X322+L or PCB 3703C) with minimum grades of C; junior standing or above; Applied Physiology & Kinesiology majors only.

APK 4943 Teaching Experience in APK 0-1 Credits

Grading Scheme: S/U

Experience teaching as an undergraduate assistant; responsibilities meet the needs of the particular course and instructor, including, but not limited to, giving short lectures, holding study/discussion sections, grading, and helping with exam/quiz/assignment preparation and proctoring.

Prerequisite: instructor permission.

ATR 2010C Prevention and Care of Athletic Injuries 3 Credits

Grading Scheme: Letter Grade

Prevention of athletic injuries, including protective equipment, safe facilities and proper supervision of practice and contests. Recognition, referral and follow-up of injuries in athletics. Legal implications of athletic training.

Prerequisite: APK 2100C or BSCX094+L or BSCX086+L or PETX322+L or ZOO 3733c and Applied Physiology and Kinesiology major.

ATR 3102 Principles of Athletic Training 4 Credits

Grading Scheme: Letter Grade

Provides the student with knowledge of basic principles of athletic training, including prevention, recognition and treatment of athletic injuries.

Addresses the proper application of protective equipment, bracing/wrapping/taping techniques utilized by athletic trainers and introduces emergency management skills appropriate for sport.

Prerequisite: admission to the athletic training specialization.

ATR 4018 Professionalism and Communication in Sports Healthcare 3 Credits

Grading Scheme: Letter Grade

Foundational knowledge in professionalism, inter-professional cooperation, cultural competence, client interactions, and basic legal concepts related to sport and exercise.

Prerequisite: APK majors with junior standing.

ATR 4112C Emergency Management of Athletic Trauma 3 Credits

Grading Scheme: Letter Grade

Learn to recognize, assess, treat, and refer traumatic injury and acute emergent illness.

Prerequisite: Athletic Training major.

ATR 4212C Athletic Injury Assessment: Upper Extremity 4 Credits

Grading Scheme: Letter Grade

Provides background information to conduct a thorough initial evaluation of upper extremity injuries commonly sustained by the physically active population.

Prerequisite: ATR 3102 with minimum grade of C and admission to the athletic training specialization.

ATR 4213C Athlete Injury Assessment: Lower Extremity 4 Credits

Grading Scheme: Letter Grade

Provides background information to conduct a thorough initial evaluation of lower extremity injuries commonly sustained by the physically active population.

Prerequisite: ATR 4212C with minimum grade of C.

ATR 4302C Therapeutic Modalities in Athletic Training 4 Credits

Grading Scheme: Letter Grade

Introduces physiological principles, concepts and operational procedures of contemporary therapeutic modalities as they relate to the care and treatment of athletic injuries.

Prerequisite: ATR 3102 with minimum grade of C and admission to the athletic training specialization.

ATR 4314C Rehabilitation Techniques in Athletic Training 4 Credits

Grading Scheme: Letter Grade

Introduces the concepts and principles of a comprehensive rehabilitation program including determination of therapeutic goals and objectives, selection of therapeutic exercises, methods of evaluating and recording rehabilitation progress, development of criteria for progress and return to competition and the physiological effects of trauma/wound healing and inactivity/immobilization.

Prerequisite: ATR 4302C with minimum grade of C.

ATR 4315 Functional Sport Conditioning 3 Credits

Grading Scheme: Letter Grade

Enhances knowledge in design and implementation of functional exercise techniques as it relates to injury rehabilitation. Nutritional considerations for the injured athlete and proper design of the pre and post event meal planning for optimal performance and recovery are also covered.

Prerequisite: ATR 4314C.

ATR 4432 Clinical Pathology and Pharmacology 3 Credits

Grading Scheme: Letter Grade

Provides a thorough understanding of injury, illness and/or disease of various body systems; addresses specific understanding of medical diagnostics, interventions (including pharmacology) and participation considerations for the athletic population.

Prerequisite: ATR 4822 with minimum grade of C.

ATR 4512 Athletic Training Administration 3 Credits**Grading Scheme:** Letter Grade

In-depth background of the standards, policies and practices of organization, supervision and administration of athletic training programs.

Prerequisite: ATR 4832 with minimum grade of C; athletic training seniors only.**ATR 4812 Athletic Training Clinical Experience 1 4 Credits****Grading Scheme:** Letter Grade

Provides the student with the opportunity necessary to grow both clinically and professionally within the field of athletic training through attendance at seminars, and the integration and synthesis of cognitive and psychomotor skills learned in previous semesters.

Prerequisite: ATR 3102 with minimum grade of C and admission to the athletic training specialization.**ATR 4822 Athletic Training Clinical Experience 2 4 Credits****Grading Scheme:** Letter Grade

Provides the student with the opportunity necessary to grow both clinically and professionally within the field of athletic training through attendance at seminars, and the integration and synthesis of cognitive and psychomotor skills learned in previous semesters.

Prerequisite: ATR 4812 with minimum grade of C.**ATR 4832 Athletic Training Clinical Experience 3 4 Credits****Grading Scheme:** Letter Grade

Provides the student with the opportunity necessary to grow both clinically and professionally within the field of athletic training through attendance at seminars, and the integration and synthesis of cognitive and psychomotor skills learned in previous semesters.

Prerequisite: ATR 4822 with minimum grade of C.**ATR 4842 Athletic Training Clinical Experience 4 4 Credits****Grading Scheme:** Letter Grade

Provides the student with the opportunity necessary to grow both clinically and professionally within the field of athletic training through attendance at seminars, and the integration and synthesis of cognitive and psychomotor skills learned in previous semesters.

Prerequisite: ATR 4832 with minimum grade of C.**BSC 3096 Human Physiology 3 Credits****Grading Scheme:** Letter Grade

Functioning of human tissues, organs and organ systems, emphasizing the physical, chemical and mechanistic bases of normal physiology and the integrated function of the human body. Also introduces pathophysiological changes associated with human diseases.

Prerequisite: (CHM 1031 or CHM 2046 or CHM 2047) and BSC 2011.**HLP 4933 Variable International Topics 1-6 Credits****Grading Scheme:** Letter Grade

Provides the opportunity to study in a wide range of cultural settings.

PET 4948C Practicum in Exercise and Sport Sciences 1-5 Credits**Grading Scheme:** Letter Grade

Practical experience in such specialty areas as adult fitness programs, health clubs, exercise testing laboratories, clinical laboratories and athletic training rooms. May include senior thesis with oral defense.

Prerequisite: department chair permission.