APK: Applied Kinesiology Courses

Courses

APK 2100C  Applied Human Anatomy with Laboratory
4 sh (may not be repeated for credit)
Study of detailed 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. Designed for students interested in pursuing study in the health professions.

APK 2105C  Applied Human Physiology with Laboratory
4 sh (may not be repeated for credit)
Prerequisite: APK 2100C
Detailed examination of 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.

APK 3110  Exercise Physiology
3 sh (may not be repeated for credit)
Prerequisite: ((CHM 2045/L AND MAC 1105)) AND (APK 2105C OR BSC 1085/L OR MAC 1140 OR MAC 2311)
Co-requisite: APK 3110L
Application of physiological principles to the study of human physical performance related to health, sports, and leisure activities.

APK 3110L  Exercise Physiology Laboratory
1 sh (may not be repeated for credit)
Co-requisite: APK 3110
Student shall become familiar with instruments and test procedures used to gather data on the physiology of exercise. Material and Supply fee will be assessed.

APK 3220  Biomechanical Basis of Movement
3 sh (may not be repeated for credit)
Prerequisite: APK 3110/L AND ATR 3132
Co-requisite: APK 3220L
The fundamentals of engineering (kinematics and kinetics) related to motor skills and human performance are introduced. Basic college mathematics and physics knowledge will be applied to problem solving in a classroom setting. Experimental procedures and sport research techniques will be applied in the laboratory setting.

APK 3220C  Biomechanical Basis of Movement
4 sh (may not be repeated for credit)
Prerequisite: (APK 3110/L AND (MAC 1105 OR MAC 1114 OR MAC 1140 OR MAC 2233 OR MAC 2311 OR MAC 2312 OR MAC 1106 OR MAC 1107 OR MAC 2023))
The fundamentals of engineering (kinematics and kinetics) related to motor skills and human performance are introduced. Basic college mathematics and physics knowledge will be applied to problem solving in a classroom setting. Experimental procedures and sport research techniques will be applied in the laboratory setting. Prerequisites: APK 3110/L and either MAC 1105 or completion of General Education Mathematics minimum grade C.

APK 3220L  Biomechanical Basis of Movement Laboratory
1 sh (may not be repeated for credit)
Prerequisite: APK 3110/L
Co-requisite: APK 3220
As a co-requisite to the lecture course APK 3220, the laboratory section allows for hands-on experiences relative to human movement. Students will interact with biomechanical data collection systems, including three-dimensional motion capture, electromyography, accelerometry, and force plates. Students will gather data necessary to complete a condensed research project.

APK 3232  Measurement and Evaluation in Health, Leisure, and Sports
3 sh (may not be repeated for credit)
Prerequisite: APK 3110/L
Application of measurement and evaluation principles to study of man and human performance related to health, leisure and sports activities. Instructional designs of physical fitness, sport skills and knowledge testing are examined.

APK 4144C  Physiological Basis of Strength Development
3 sh (may not be repeated for credit)
Prerequisite: (APK 3220C OR PET 4310C) AND (APK 4163)
Knowledge and understanding of the physiological functions of skeletal muscle and the dynamics of strength development.

APK 4119  Exercise Testing for Special Populations
3 sh (may not be repeated for credit)
Prerequisite: APK 4125/L
Designed of exercise programs for individuals with special medical conditions such as rheumatoid arthritis, osteoporosis, spinal disorders, diabetes, obesity, heart disease, hypertension, and pregnancy. Credit may not be earned in both PET 4552 and PET 4691.

APK 4125  Exercise Testing and Prescription
3 sh (may not be repeated for credit)
Prerequisite: APK 3110/L
Co-requisite: APK 4125L
Physiological theory, administrative principles and techniques of exercise testing and prescription. Includes health appraisal, risk stratification, and goal setting. Students are required to complete an exercise prescription assignment outside of class.

APK 4125L  Exercise Testing and Prescription Laboratory
1 sh (may not be repeated for credit)
Prerequisite: APK 3110/L
Provides practical experience in body fat analysis, flexibility testing, basic exercise stress testing, the PWC - 170 Submaximal Aerobic Capacity test, and performance testing for 7 fitness parameters.

APK 4163  Sport Nutrition and Weight Control
3 sh (may not be repeated for credit)
Prerequisite: APK 3110/L
The relationship between physical activity and nutrition; their combined effects on optimal health, fitness, and sport performance.
APK 4200  Motor Development and Skill Learning  
3 sh (may not be repeated for credit)  
Prerequisite: APK 3232  
Human motor development and the learning of motor skills are surveyed and discussed. Emphasis is placed upon factors affecting these processes and the design and selection of activities appropriate to the various stages of development and learning. Material and supply fee will be assessed.  

APK 4234C  Electrocardiogram Interpretation and Graded Exercise Testing  
3 sh (may not be repeated for credit)  
Prerequisite: APK 4119  
The acquisition and interpretation of both resting and exercise electrocardiograms is covered, as well as an overview of heart anatomy, function and electrophysiology. Students are taught to identify various cardiac dysrhythmias and to administer a graded exercise test according to the American College of Sports Medicine guidelines. Students will engage in laboratory hands-on assignments that will include prepping of subjects, conduction and interpretation of a resting and graded exercise test. Department Permission is required.  

APK 4409  Success in Sports  
3 sh (may not be repeated for credit)  
Success in Sports (SIS) is an integration of cross-boundary research documenting the determinants of success in sports. Special emphasis will be placed on elite athletic performance. Will be organized round theoretical accounts for the attainment of elite performance. In addition, the themes of Who in which profiles characteristics of elite athletes will be presented. Why in which inherited and acquired capacities responsible for elite performance will be presented, and How in which selected techniques to maximize training effects will be examined.  

APK 4600C  Aging and Physical Performance  
3 sh (may not be repeated for credit)  
Prerequisite: APK 4119 AND APK 4200  
Provides an overview of the aging process and its effects on physical performance, and the major effects of regular exercise on the aging process. Emphasis will be placed on the understanding of the physiological, psychological and social factors which affect movement capabilities, the assessment of physical performance, and the development of activity programs for the aging.  

APK 4603C  Balance and Mobility Training for Older Adults  
3 sh (may not be repeated for credit)  
Prerequisite: APK 3110/L  
Physical activity instruction for older adults. Emphasis will be on balance and mobility training. Topics include screening and assessment, core program principles and training methods, program design, leadership, and risk management.  

APK 4941C  Senior Capstone Experience in Exercise Science  
1-6 sh (may be repeated for up to 6 sh of credit)  
Prerequisite: APK 3220C AND APK 4114C AND APK 4119  
As a capstone experience for Exercise Science students, this 6-credit course will provide opportunities for students to put theory into practice through active participation in on-the-job related participation. Students are supervised by practitioners in an Exercise Science relevant field and by faculty academic support. Additionally, students are required to attend a series of five (5) online lectures on topics related to professionalism, management, legal and health behavior in the health and fitness industry. Departmental permission, attendance to initial internship meeting, and online lectures are mandatory.  

APK 5116C  Applied Physiology in Muscular Development  
3 sh (may not be repeated for credit)  
Knowledge and understanding of the physiological functions of skeletal muscle and the dynamics of strength development.  

APK 5204  Applied Motor Learning/Control in Exercise Science  
3 sh (may not be repeated for credit)  

APK 5407  Elite Performance in Sports  
3 sh (may not be repeated for credit)  
Success in Sports (SIS) is an integration of research documenting the determinants of successful sport performance. Special emphasis will be placed on the attainment of elite athletic performance. The course will be organized around theoretical accounts for the attainment of elite performance.  

APK 5601  Preventative Health in the Aging Population  
3 sh (may not be repeated for credit)  
Provides an overview of the aging process and its effects on physical performance, and the major effects of regular exercise on the aging process. Emphasis will be placed on the understanding of physiological, psychological, and social factors affecting movement capabilities, the assessment of physical performance, and the development of activity programs for the aging population.  

APK 6111C  Advanced Exercise Physiology  
3 sh (may not be repeated for credit)  
Research and problems in exercise physiology; advanced study of reactions of the human body under stress and during exercise. Material and supply fee will be assessed.  

APK 6127C  Clinical Exercise Testing and Interpretation  
3 sh (may not be repeated for credit)  
Physiological theory, administrative principles and techniques of exercise testing and prescription. Includes health appraisal, risk stratification, and goal setting. Students are required to complete an exercise prescription assignment outside of class. Course includes hands on experience in exercise testing with advanced equipment including hydrostatic weighing, environmental conditions, and blood glucose and lactate analysis. Course concludes with a student presentation of an exercise prescription based on testing results, medical and exercise history and risk stratification. Material and Supply fee will be assessed.
APK 6167C   Advanced Human Nutrition and Metabolism
3 sh (may not be repeated for credit)
An advanced study of the role of nutrition as a means to enhance performance in exercise and sport. Topics include principles of energy metabolism, nutrients in their use during exercise, regulation of metabolism by macro and micro nutrients and their role in weight control with athletes. The validity and safety of proposed ergogenic aids are also explored. This course will evaluate the role of nutrition and supplementation vis-à-vis exercise. Topics include: fat, carbohydrate, protein, vitamin, mineral and water needs of the active person; energy metabolism; nutritional and body composition issues; nutritional concerns for special groups; sports supplements; body composition issues. Prerequisites: An undergraduate exercise physiology class.

APK 6226   Analysis of Human Movement
3 sh (may not be repeated for credit)
The course will provide students with the tools necessary to collect and analyze characteristics of human movement using current neuromechanical technologies. Students will engage in neuromechanical study design, implementation, analysis, and dissemination within the laboratory setting.