APPLIED PHYSIOLOGY AND KINESIOLOGY

APK 5102 Kinetic Anatomy 3 Credits
Grading Scheme: Letter Grade
Will provide in-depth coverage of musculoskeletal anatomy as a foundation for learning components of simple and complex motor tasks, with an emphasis on proper execution and analysis of joint movement and common exercises.

APK 5127 Assessment in Exercise Science 3 Credits
Grading Scheme: Letter Grade
Techniques and methodologies to assess health and physical fitness.
Prerequisite: PET 3351C or equivalent.

APK 5404 Sport Psychology 3 Credits
Grading Scheme: Letter Grade
Survey of current research, learning processes, motivation, performance intervention, strategies, group dynamics, history of sport psychology, and other topics.
Prerequisite: Consent of instructor.

APK 6116C Psychological Bases of Exercise and Sport Sciences 3 Credits
Grading Scheme: Letter Grade
Applying fundamental concepts of human physiology to programs of physical education and sports. Recent research developments in sports physiology.

APK 6118 Neuromuscular Adaptation to Exercise 3 Credits
Grading Scheme: Letter Grade
Research developments; and describing neural and muscular function and adaptation to acute and chronic exercise.
Prerequisite: APK 6110C.

APK 6126 Cardiopulmonary Pathologies 3 Credits
Grading Scheme: Letter Grade
Lecture and laboratory study of anatomy, physiology, and pathophysiology of cardiac and pulmonary systems. Attention to cardiopulmonary function in diseased and stressed states. Emphasizes dysfunction, clinical assessment, and rehabilitation of cardiopulmonary patients.
Prerequisite: PET 3350C, 3351C or equivalent.

APK 6128 EKG Interpretation 3 Credits
Grading Scheme: Letter Grade
Basic and intermediate electrocardiography including cardiac function, lead systems, rate, axis, infarction, ischemia, hypertrophy, and effects of cardiovascular drugs and exercise on EKG. Particular attention to EKGs of diseased populations during exercise.
Prerequisite: PET 2350C and 3351C.

APK 6145 Movement Disorders 3 Credits
Grading Scheme: Letter Grade
Covers the sensory and motor systems of the nervous system responsible for regulating movement in movement disorders. We cover movement disorders including Parkinson's disease, tics, Huntington's disease, dystonia, tremor, spinal cord injury, spasticity, cerebellar disorders, and speech and language disorders.

APK 6167 Nutrition Aspects of Human Performance 3 Credits
Grading Scheme: Letter Grade
Offers an overview of the roles nutrient selection, metabolism, and timing play in supporting and improving physical performance. Evidence-based strategies and recommendations are applied to industry specific examples. Course concepts aid in preparation for certification exams within the exercise sciences that include nutrition as a component.
Prerequisite: HUN 2201 or APK 3163 or equivalent or instructor permission

APK 6170 Advanced Exercise Physiology 3 Credits
Grading Scheme: Letter Grade
Covers advanced concepts in integrative physiology and exercise focusing on metabolism and endocrine exercise physiology, skeletal muscle contraction and fatigue, cardiovascular and hemodynamics regulations, and respiratory exercise physiology. The course emphasizes acute responses to exercise and environmental challenges in both health and disease.
Prerequisite: APK4112 or APK6116C or equivalent or instructor approval

APK 6176 Strength and Conditioning 3 Credits
Grading Scheme: Letter Grade
Addresses the principles of designing training programs of varying duration aimed at improving muscular strength, power, speed, agility, endurance, balance, stability, and hypertrophy. Application to typical athletic populations, tactical athletic populations, and special athletic populations will be emphasized.

APK 6205C Nature and Bases of Motor Performance 3 Credits
Grading Scheme: Letter Grade
Principles of motor skill development, and conditions affecting motor skill development and retention in physical education activities.

APK 6206 Planning Motor Actions 3 Credits
Grading Scheme: Letter Grade
Processes and mechanisms involved in planning voluntary human motor actions. Variables that influence movement planning and initiation.
Prerequisite: consent of instructor.

APK 6225 Biomechanical Instrumentation 3 Credits
Grading Scheme: Letter Grade
Overview of data collection and analysis tools. Hands-on experience conducting projects using EMG, videography, and force transducer technology.
Prerequisite: APK 6220C.

APK 6226C Biomechanics of Human Motion 3 Credits
Grading Scheme: Letter Grade
Applying the principles of statics, kinematics, and kinetics to kinesiological systems of the human body in movement and sports skills.
Prerequisite: PET 2320C; MGF 1202 or MAC 1142.

APK 6406 Exercise Psychology 3 Credits
Grading Scheme: Letter Grade
Overview, examining research evidence on psychological factors associated with adapting and maintaining an exercise program.

APK 6408 Performance Enhancement 3 Credits
Grading Scheme: Letter Grade
Mental and psychological techniques and strategies to improve performance and achievement in sport and exercise.
Prerequisite: APK 5400.

APK 6900 Directed Independent Study 1-5 Credits, Max 12 Credits
Grading Scheme: Letter Grade
Individual research projects under faculty guidance.
APK 6940 Advanced Practicum in Exercise and Sport Science 1-5 Credits, Max 5 Credits
Grading Scheme: Letter Grade
On-site practical experience in exercise and sport science.

APK 7107 Cardiovascular Exercise Physiology 3 Credits
Grading Scheme: Letter Grade
Basic mechanisms of cardiovascular dynamics at rest and in response to exercise.
Prerequisite: APK 6110C/6356L or equivalent.

APK 7108 Environmental Stress Exercise Physiology 3 Credits
Grading Scheme: Letter Grade
Energetics of environmental stress on cardiovascular, respiratory, metabolic, and muscle physiology as they pertain to physical performance.
Prerequisite: APK 6110C/6356L or equivalent.

APK 7117 Exercise Metabolism 3 Credits
Grading Scheme: Letter Grade
Principles of metabolic regulation during exercise; effects of chronic exercise on muscle metabolism.
Prerequisite: APK 6110C or equivalent.

ATR 6124 Clinical Anatomy for the Exercise Sciences 3 Credits
Grading Scheme: Letter Grade
Cadaver dissection and lectures. Appreciation of clinical applications of anatomical knowledge for those pursuing careers in exercise science fields.
Prerequisite: PET 2320C, 2350C, 3351C.

ATR 6145 Human Pathophysiology for the Exercise Sciences 3 Credits
Grading Scheme: Letter Grade
Macrotraumatic and microtraumatic inflammatory processes, factors affecting inflammation and healing, and the role of exercise in controlling the onset or course of an inflammatory response.
Prerequisite: PET 2320C, 2350C, 3351C.

ATR 6215 Evidence-Based Orthopedic Exam I: Upper-Extremity 3 Credits
Grading Scheme: Letter Grade
Identifying, evaluating, and managing acute athletic injuries.
Prerequisite: for students who are BOC-certified athletic trainers.

ATR 6216 Evidence-Based Orthopedic Exam II: Lower-Extremity 3 Credits
Grading Scheme: Letter Grade
Orthopedic and biomechanical assessment of lower-extremity function and dysfunction. Students develop skills and study the principles and procedures used in advanced evaluation techniques. Students examine components of lower-extremity function from biomechanical, neuromuscular and anatomical perspectives. Topics include advanced orthopedic special tests, 3-dimensional kinematics, interpreting contemporary diagnostic tests and treatment of lower-extremity pathology/dysfunction and critical reviews of related research.
Prerequisite: ATR 6215

ATR 6304 Rehabilitation and Modalities of Athletic Injuries 3 Credits
Grading Scheme: Letter Grade
Rehabilitation and therapeutic modalities in the field of athletic training.

ATR 6624 Athletic Training Research and Technology I 3 Credits
Grading Scheme: Letter Grade
Current theory and practical application of techniques (cardiovascular testing, isokinetic strength testing, and EMG testing) for understanding and designing research projects related to athletic training and sports medicine.

ATR 6625 Athletic Training Research and Technology II 3 Credits
Grading Scheme: Letter Grade
Current theory and practical application of techniques (modalities in research, proprioception testing, and force plate and balance testing) for understanding and designing research projects related to athletic training and sports medicine.
Prerequisite: NATA certified or eligible, or related degree or certification.

ATR 6934 Seminar in Athletic Training 3 Credits, Max 5 Credits
Grading Scheme: Letter Grade
Research topics or contemporary issues in athletic training.
Prerequisite: NATA certification.

ATR 7108C Clinical Management in Athletic Training 3 Credits
Grading Scheme: Letter Grade
Designed to enhance the independent clinical practice of new athletic training practitioners. Content focuses on creating effective, comprehensive policy and procedures (e.g., emergency management, pre-participation evaluation and clearance) for appropriate clinical management of traumatic and environmental conditions. Appropriate documentation, practice standards and communication skills discussed and practiced.
Prerequisite: Admission into the Doctor of Athletic Training Program

ATR 7128C Advanced Cadaveric Dissection 3 Credits
Grading Scheme: Letter Grade
Advanced clinical anatomy course, employing human cadaver dissection as a means to learn the major musculoskeletal, vascular, and nervous structures relevant to the field and practice of Athletic Training. Students will be responsible for dissecting the human cadaver and discussing applications of gross anatomy knowledge.
Prerequisite: Admission into the Doctor of Athletic Training Program

ATR 7209C Movement Screening and Assessment 3 Credits
Grading Scheme: Letter Grade
Athletic Trainers will advance foundational knowledge to effectively implement and interpret screening tools for injury prevention, management and comprehensive therapeutic intervention programming.
Prerequisite: Admission into the Doctor of Athletic Training Program

ATR 7210C Evidence Based Musculoskeletal Examination I 3 Credits
Grading Scheme: Letter Grade
Evidence Based Musculoskeletal Examination I
Prerequisite: ATR 7108c Clinical Management in Athletic Training

ATR 7211C Evidence Based Musculoskeletal Examination II 3 Credits
Grading Scheme: Letter Grade
Evidence Based Musculoskeletal Examination II
Prerequisite: ATR 7210c Evidence Based Musculoskeletal Examination I

ATR 7229C Diagnostic Imaging for Athletic Trainers 3 Credits
Grading Scheme: Letter Grade
Provides Athletic Trainers background information on the physics, physiology, appropriate use and appraisal of diagnostic imaging techniques used in sports medicine including: radiography, magnetic resonance imaging, ultrasonography and nuclear medicine. Athletic Trainers develop skills interpreting diagnostic imaging and analyze the principles and procedures used in each technique.
Prerequisite: Admission into the Doctor of Athletic Training Program

ATR 7300C Evidence Based Therapeutic Intervention 3 Credits
Grading Scheme: Letter Grade
Evidence Based Therapeutic Intervention
Prerequisite: Admission into the Doctor of Athletic Training Program
ATR 7318C Sport Performance and Intervention 3 Credits  
**Grading Scheme:** Letter Grade  
Furthers the Athletic Trainers’ therapeutic and functional performance knowledge and advances clinical skills in the design and implementation of exercise and nutrition programs for the prevention, management and enhancement of activity/performance.  
**Prerequisite:** ATR 7300C.

ATR 7438C Clinical Techniques and Pharmacology for Athletic Trainers I 3 Credits  
**Grading Scheme:** Letter Grade  
Clinical Techniques and Pharmacology for Athletic Trainers I  
**Prerequisite:** Admission into the Doctor of Athletic Training Program

ATR 7439C Clinical Techniques and Pharmacology for Athletic Trainers II 3 Credits  
**Grading Scheme:** Letter Grade  
Provides the Athletic Trainer with advanced clinical diagnostic skills to assess patients using medical evaluation procedures and employ appropriate and culturally sensitive therapeutic intervention or referral strategies for injury, illness and emergent conditions.  
**Prerequisite:** ATR7438c Clinical Techniques and Pharmacology for Athletic Trainers I

ATR 7509 Leadership and Mentoring in AT Clinical Practice 3 Credits  
**Grading Scheme:** Letter Grade  
Leadership and Mentoring in AT Clinical Practice  
**Prerequisite:** Admission into the Doctor of Athletic Training Program

ATR 7519 Administration in Athletic Training 3 Credits  
**Grading Scheme:** Letter Grade  
Offers Athletic Trainers an in-depth examination of the standards, policies and practices of a healthcare organization; allowing for safe, effective and quality patient care. Discussions will include current topics related to professional development, credentialing and legislative issues.  
**Prerequisite:** Admission into the Doctor of Athletic Training Program

ATR 7628 Clinical Research in Athletic Training I 3 Credits  
**Grading Scheme:** Letter Grade  
Clinical Research in Athletic Training I  
**Prerequisite:** Admission into the Doctor of Athletic Training Program

ATR 7629 Clinical Research in Athletic Training II 3 Credits  
**Grading Scheme:** Letter Grade  
Clinical Research in Athletic Training II  
**Prerequisite:** ATR 7628 Clinical Research in Athletic Training I

ATR 7818C Advanced Clinical Experience I 3 Credits  
**Grading Scheme:** Letter Grade  
Allows Athletic Trainers to develop a specialized body of knowledge and skills through scholarly appraisal, seminar attendance, clinical experiences; designed to promote integration and synthesis of cognitive and psychomotor skills learned in previous semesters. One of a series of courses affording didactic and clinical integration of content within the specialty.  
**Prerequisite:** ATR 7108c Clinical Management in Athletic Training

ATR 7828C Advanced Clinical Experience II 3 Credits  
**Grading Scheme:** Letter Grade  
Advanced Clinical Experience II  
**Prerequisite:** ATR 7818c Advanced Clinical Experience I

ATR 7838C Advanced Clinical Experience III 3 Credits  
**Grading Scheme:** Letter Grade  
Advanced Clinical Experience III  
**Prerequisite:** ATR 7828c Advanced Clinical Experience II

ATR 7848C Advanced Clinical Experience IV 3 Credits  
**Grading Scheme:** Letter Grade  
Advanced Clinical Experience IV  
**Prerequisite:** ATR 7838c Advanced Clinical Experience III

HLP 6515 Evaluation Procedures in Health and Human Performance 3 Credits  
**Grading Scheme:** Letter Grade  
Evaluation and interpretation of tests and analysis of research data.  
**Prerequisite:** adviser’s approval.

HLP 6535 Research Methods in Health and Human Performance 3 Credits  
**Grading Scheme:** Letter Grade  
Introduction to research methodology and design.  
**Prerequisite:** PET 6910 Supervised Research

HLP 6911 Research Seminar 1 Credit  
**Grading Scheme:** S/U  
Research presentations by graduate students and faculty in the College.  
**Prerequisite:** Admission into the Doctor of Athletic Training Program

HLP 7939 HHP PhD Professional Development Seminar 3 Credits  
**Grading Scheme:** Letter Grade  
Designed to complement the scholarly emphases of the HHP PhD program by providing insight into key considerations for professional development and personal growth. Best practices will be shared for developing professional aptitude and the skills necessary for successful matriculation through graduate studies and future professional careers.  
**Prerequisite:** admission into the Doctor of Athletic Training Program

HLP 7979 Advanced Research in Health and Human Performance 1-12 Credits  
**Grading Scheme:** S/U  
Research for doctoral students before admission to candidacy. Designed for students with a master's degree in the field, or for students who have been accepted for a doctoral program. Not appropriate for students who have been admitted to candidacy.  
**Prerequisite:** admission into the Doctor of Athletic Training Program

HLP 7980 Research for Doctoral Dissertation 1-15 Credits  
**Grading Scheme:** S/U  
Research for Doctoral Dissertation  
**Prerequisite:** PET 5936 Special Topics/Seminars 1-3 Credits  
**Grading Scheme:** Letter Grade  
Special Topics/Seminars  
**Prerequisite:** admission into the Doctor of Athletic Training Program

PET 6910 Supervised Research 1-5 Credits, Max 5 Credits  
**Grading Scheme:** S/U  
Supervised Research  
**Prerequisite:** PET 5936 Special Topics/Seminars 1-3 Credits  
**Grading Scheme:** Letter Grade  
Special Topics/Seminars  
**Prerequisite:** PET 6910 Supervised Research 1-5 Credits, Max 5 Credits  
**Grading Scheme:** S/U  
Supervised Research  
**Prerequisite:** PET 6947 Graduate Internship in Exercise and Sport Sciences 3-9 Credits, Max 9 Credits  
**Grading Scheme:** S/U  
On-site full-time practical experience in field of study.  
**Prerequisite:** completion of 2 terms of course work applicable to specialization; permission of adviser, written application, and site approval.  
**Prerequisite:** Admission into the Doctor of Athletic Training Program

PET 6971 Research for Master's Thesis 1-15 Credits  
**Grading Scheme:** S/U  
Research for Master’s Thesis  
**Prerequisite:** admission into the Doctor of Athletic Training Program

ATR 7108c Clinical Management in Athletic Training 1-15 Credits  
**Grading Scheme:** S/U  
On-site full-time practical experience in field of study.  
**Prerequisite:** admission into the Doctor of Athletic Training Program

HLP 7980 Research for Doctoral Dissertation 1-15 Credits  
**Grading Scheme:** S/U  
Research for Doctoral Dissertation  
**Prerequisite:** PET 5936 Special Topics/Seminars 1-3 Credits  
**Grading Scheme:** Letter Grade  
Special Topics/Seminars  
**Prerequisite:** PET 6910 Supervised Research 1-5 Credits, Max 5 Credits  
**Grading Scheme:** S/U  
Supervised Research  
**Prerequisite:** PET 6947 Graduate Internship in Exercise and Sport Sciences 3-9 Credits, Max 9 Credits  
**Grading Scheme:** S/U  
On-site full-time practical experience in field of study.  
**Prerequisite:** completion of 2 terms of course work applicable to specialization; permission of adviser, written application, and site approval.  
**Prerequisite:** Admission into the Doctor of Athletic Training Program

PET 6971 Research for Master's Thesis 1-15 Credits  
**Grading Scheme:** S/U  
Research for Master’s Thesis  
**Prerequisite:** admission into the Doctor of Athletic Training Program
SPM 5206 Sport Ethics 3 Credits  
**Grading Scheme:** Letter Grade  
Self-evaluating, examining, and developing philosophy on ethical issues related to sport. Research and discuss major moral and ethical issues related to sport. Opportunities for ethical decision making, using critical analysis.  
**Prerequisite:** 7 or 8 HH/SPM or consent of instructor.

SPM 5309 Sport Marketing 3 Credits  
**Grading Scheme:** Letter Grade  
Marketing information systems, pricing strategies, media relations, promotional methods, and endorsements as they relate to marketing theories. Practical applications and principles.

SPM 5506 Sport Finance 3 Credits  
**Grading Scheme:** Letter Grade  
Financial theories and practical applications of sport income and expenditures. Principles and procedures of marketing sports in today's society.

SPM 6036 Research Seminar in Sport Management 3 Credits  
**Grading Scheme:** Letter Grade  
Theoretical and practical research information in sport and exercise program management.

SPM 6106 Management and Planning of Sport and Physical Activity Facilities 3 Credits  
**Grading Scheme:** Letter Grade  
Administrative tasks involved in managing, planning, renovating, and maintaining facilities. Effect on program selection and scheduling in sport and fitness.

SPM 6158 Management and Leadership in Sport 3 Credits  
**Grading Scheme:** Letter Grade  
Principles of leadership and management for sport settings.  
**Prerequisite:** 7 or 8 HH/SPM or consent of instructor.

SPM 6726 Issues in Sport Law 3 Credits  
**Grading Scheme:** Letter Grade  
Legal effects of regulating and managing amateur and professional sports and wellness programs: injury liability, risk management, constitutional rights of athletes, and contract negotiation.  
**Prerequisite:** 7 or 8 HH/SPM or consent of instructor.