Graduate Certificate in High Performance
Curriculum

Certificate Core Courses

**Total required certificate hours:** 15 hours

Students must enroll in each of the following 4 courses:

**KHP 690 – Applied Foundations of High Performance** (3 credits; Fall term course)
Prerequisite: Graduate level course in Exercise Physiology (e.g., KHP 620) or consent of instructor.

This course evaluates physiological responses to exercise stimuli including a detailed examination of neuromuscular, metabolic and morphological skeletal muscle adaptations. In addition, factors that affect power development, advanced periodization, concurrent training, and recovery strategies are examined. Finally, a variety of applied training strategies and evaluations are discussed and performed.

**KHP 691 – Analytics in High Performance** (3 credits; Spring term course)
This course examines the use of athlete monitoring systems and other metrics to evaluate the stress-response relationship. Functional systems theory and other stress-response theories are discussed and applied to training and recovery strategies to optimize athlete performance. An emphasis is placed on data analytics and visualization of data trends.

**KHP 547 - Psychology of Sport and Physical Activity** (3 credits; Fall/Spring term course) Instructor: Dr. Marc Cormier

The field of sport psychology is an interdisciplinary science that explores the relationship between various psychological factors and participation in sport and/or physical activity. This course is designed to provide an in depth overview of the psychological aspects of sport. Throughout the course, participants will explore, sport psychology theory, research, and various psychological methods of sport- and exercise-related performance enhancement. Additionally, specific ethical and legal aspects of providing sport performance enhancement services to various clientele (e.g., athletes, coaches, parents, etc.). Specific course objectives include the following: To establish a solid theoretical foundation related to applied sport psychology; To understand the impact of psychological factors on performance in sport and physical activity; To acquire the necessary skills and knowledge about applied sport psychology that can be applied in various personal and professional situations.

**KHP 683 - Leadership, Theory, and Practice** (Spring term course; 3 credits)
The course examines the trends in leadership in varied segments and businesses in the sports industry. The focus is on effective leadership styles, principles, models, and practices as they relate to sport organizations. This includes leadership and ethical behavior, inter- and intra-organizational leadership strategies, management theory and practice, and organizational culture.
Elective Courses (Take 3 credits from the following courses)

**KHP 695 – Independent Study** (Offered Summer, Fall, & Spring terms; 3 credits)
Instructor: Certificate faculty or other approved faculty.

This course is designed to allow the student to work directly with an athletic team to assist them in meeting their needs. Based on the circumstances, the student may be required to provide a literature review on a relevant topic; propose a plan that meets the team’s needs; collect, analyze, and interpret data as appropriate; and provide a written and oral presentation to the instructor and the team.

**KHP 577 – Practicum in Exercise Science** (3-6 credits)
Extensive practical work experiences with qualified practitioners and KHP faculty.
Repeatable up to 6 credit hours. Prereq: KINE, HEPR, KHPR majors only

**KHP 550 – Principles of Resistance Training** (3 credits; Fall & Spring term course)
Instructor: Dr. Mark Abel

This course is designed to cover the physiological basis of strength and cardiovascular conditioning along with the fundamentals of designing comprehensive training programs for improving human performance. Students will learn how to evaluate and apply kinesiology-based concepts to exercise technique. Furthermore, students will gain a greater understanding of the theories and parameters underlying resistance training, cardiovascular training, plyometric training, flexibility training, and sport specific training for injury prevention. Techniques for gathering performance measurements, generating computerized statistical analyses of performance, and strategies for establishing programs are skills emphasized throughout the course. The learning objectives of this course are designed to prepare students for certifications (i.e., Certified Strength and Conditioning Specialist [CSCS] and Certified Personal Trainer [CPT]) offered by the National Strength and Conditioning Association (NSCA).

**KHP 580 – Group Dynamics in Sport and Physical Activity** (3 credits; Fall & Spring term course)
This course provides a comprehensive analysis of sport and physical activity from both social psychological and group dynamics perspectives. Sport and physical activity are highly social environments that can have a wide and far-reaching influence upon those who participate in them. This class will focus on and provide an overview of the major social and group dynamic factors that affect those involved in sport. In-depth group discussions will occur and students will be given practical assignments to ensure that they are able to apply this information in real world settings.

**CNU 605 – Wellness in Sports Nutrition** (3 credits; Fall term)
Emphasis is directed toward nutrition as applied to prevention of disease through lifestyle management and the application of nutrition in exercise and sport. Targeted focus areas are: body composition and energy expenditure, the metabolic basis of weight management, nutrient needs throughout the lifecycle, the metabolic changes associated with obesity, behavioral management of obesity, nutrient metabolism and exercise, water and electrolyte balance during exercise, nutritional ergogenic aids, nutrition-strength and performance enhancement. Prereq: PGY 412G, and BCH 401G or equivalent or consent of instructor. (Same as NS/PT 605.)
KHP 720 – Sports Medicine (3 credits; Fall term)
A study of the basic areas covered in sports medicine with readings and discussions of current international trends in the research and practice in this field. Prereq: Twelve semester hours; credit in the field of biological sciences; consent of instructor. (Same as AT 720.)

AT 700 – Muscle Mechanics (3 credits; Spring term)
This is an advanced athletic training course encompassing a wide range of topics related to all aspects of skeletal muscle form and function. The primary focus of this course will be on the mechanics properties of skeletal muscle, and translational aspects of basic science research and clinical care.

STA 671 – Regression and Correlation (2 credits; Fall, Spring, & Summer terms)
Simple linear regression, elementary matrix algebra and its application to simple linear regression; general linear model, multiple regression, analysis of variance tables, testing of subhypotheses, nonlinear regression, step-wise regression; partial and multiple correlation. Emphasis upon use of computer library routines; other special topics according to the interests of the class. Lecture, three hours per week; laboratory, two hours per week for seven and one half weeks. Offered the first or second half of each semester. Prereq: STA 570 or STA 580.

STA 672 – Design and Analysis of Experiments (2 credits; Fall, Spring, & Summer terms)
Review of one-way analysis of variance; planned and unplanned individual comparisons, including contrasts and orthogonal polynomials; factorial experiments; completely randomized, randomized block, Latin square, and split-plot designs: relative efficiency, expected mean squares; multiple regression analysis for balanced and unbalanced experiments, analysis of covariance. Lecture, three hours per week; laboratory, two hours per week for seven and a half weeks. Offered the first or second half of each semester. Prereq: STA 671.