KINESIOLOGY AND PHYSICAL EDUCATION (KNPE)

KNPE 125 Introduction to Human Physiology Units: 3.00
This course provides an introduction to human physiology from the cellular to the systematic level with special emphasis on the systems that adapt to exercise stress. The following areas will be covered: the cell, nervous system, skeletal muscle system, respiratory system, cardiovascular system, neuroendocrine system, and renal system.
Learning Hours: 108 (36 Lecture, 72 Private Study)
Requirements: Prerequisite Registration in a HLTH or KINE Plan. Exclusion PHGY 215/3.0; PHGY 216/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Describe the basic structural and functional characteristics of types of cells (e.g. neural, muscle), organs (e.g. blood vessels, lungs) and organ systems relevant to human movement.
2. Accurately recite the conceptual framework of flow (both the equation for flow and the flow model) which will be used in this course to understand the underlying causal chain of events that constitute physiological function.
3. Apply the conceptual framework of flow to predict how physiological systems adapt in response to a disturbance in the system (i.e. human movement).

KNPE 153 Introductory Biomechanics Units: 3.00
This course will present the fundamentals of biomechanics of human movement, including forces and moments, linear and angular kinematics and kinetics, and work, power, and energy.
Learning Hours: 114 (36 Lecture, 6 Tutorial, 72 Private Study)
Requirements: Prerequisite Registration in a KINE Plan.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Define concepts governing rigid-body motion, including kinematics, forces, and moments.
2. Use Newtonian's Laws to write and solve equations of motion of rigid bodies.
3. Use the mechanical principles of rigid body motion in the context of human movement to quantify forces, moments, and resulting motion of the body as a whole, as well as its individual segments.

KNPE 167 Socio-Cultural Dimensions of Sport and Physical Activity Units: 3.00
An introduction to sociological thinking about sport and physical activity. Among the topics to be discussed are: an exploration of what constitutes sport and under what conditions; how social relations of class, race, gender, and sexuality shape sport experiences; the business of sport; and the relationship between the media and sport.
Learning Hours: 120 (36 Lecture, 12 Tutorial, 72 Private Study)
Requirements: Prerequisite Registration in a KINE Plan.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Investigate the place of sport in contemporary North American society.
2. Reflect on social and personal experiences of sport.
3. Develop critical thinking skills question in order to question aspects of sport that are commonly taken-for-granted.
4. Discuss sociological concepts and reasoning.
5. Practice identifying and constructing arguments.
6. Develop effective written and oral communication skills.
7. Apply sociological thinking in analyses of social issues in sport.
8. Identify relevant academic literature and forms of writing.

KNPE 225 Advanced Human Physiology Units: 3.00
The emphasis will be placed on understanding the concept of homeostasis and the integrated control of cellular and organ responses involved in regulation to maintain homeostasis. Special emphasis will be placed on the systems that respond to exercise stress.
Learning Hours: 120 (36 Lecture, 12 Tutorial, 72 Private Study)
Requirements: Prerequisite Level 2 or above and registration in a HLTH or KINE Plan and KNPE 125/3.0. Exclusion PHGY 215/3.0; PHGY 216/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Identify and describe what a given component in a physiological system is and does to facilitate "physiological literacy."
2. Explain and illustrate the key principles guiding physiological function and homeostatic regulation to guide building physiological system models.
3. Explain and illustrate integrated physiological models to inform their application in understanding changes in any physiological variable.
4. Develop and apply physiological models based on key principles of physiological function for several different physiological systems to solve physiological problems.

KNPE 227 Exercise Physiology Units: 3.00
An introduction to the basic components of physiology as they apply to health, fitness and exercise physiology.
Learning Hours: 108 (36 Lecture, 72 Private Study)
Requirements: Prerequisite Level 2 or above and registration in a KINE Plan and KNPE 125/3.0 and KNPE 225/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Apply your physiological literacy through continued opportunities to identify and describe what components of a physiological system do.
2. Apply physiological models and key principles of physiological function to solve physiological problems.
3. Describe responses to exercise and to solve physiological problems within the context of exercise.

KNPE 237 Child and Adolescent Motor Development Units: 3.00
This course is an exploration of behavioural and biological research on physical activity and how it relates to the psychosocial, structural, and physiological development of children between birth and approximately age 13.
Learning Hours: 108 (36 Lecture, 72 Private Study)
Requirements: Prerequisite Level 2 or above and registration in a KINE Plan.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Critically evaluate knowledge related to motor development.
2. Describe the physiological, psychosocial, and sociocultural aspects of motor development.
3. Analyze and discuss a range of approaches and techniques for the evaluation of motor development.
4. Read, synthesize, and translate research findings.
5. Evaluate experimental approaches to motor behaviour assessment.

KNPE 251 Introduction to Statistics Units: 3.00
An introduction to the analysis of data from real life situations. Covers study design, descriptive and inferential statistics. Topics include probability, t-tests, regression, Chi-square tests, analysis of variance. Emphasis is in the foundation of statistical inference and practical application of statistical methods using statistical software.
Learning Hours: 126 (12 Lecture, 18 Laboratory, 48 Online Activity, 48 Private Study)
Requirements: Prerequisite Level 2 or above and registration in a HLTH or KINE Plan. Exclusion BIOL 243/3.0; CHEE 209/3.5; COMM 162/3.0; ECON 250/3.0; GPHY 247/3.0; HSCI 190/3.0; NURS 323/3.0; POLS 285/3.0; POLS 385/3.0*; PSYC 202/3.0; SOCY 211/3.0; STAM 200/3.0; STAT 263/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Identify the features of a data set to determine how best to summarize and display it.
2. Choose the appropriate statistical test and provide the rationale for selection.
3. Compute basic parametric statistical tests to test hypotheses.
4. Interpret the results of statistical tests and data software output to draw valid conclusions.
5. Communicate results of statistical analyses with clear figures and text.
6. Apply knowledge of statistics and research design (e.g., sampling) to critically evaluate research findings.

KNPE 254 Biomechanical Analysis of Human Movement Units: 3.00
Students will use biomechanical principles that describe how forces cause movement, from whole-body motions to tissue level processes, in order to solve problems in human movement. Biomechanical techniques and tools will be discussed, with a focus on applications in clinical movement disorders and performance in sport and exercise.
Learning Hours: 117 (36 Lecture, 9 Laboratory, 72 Private Study)
Requirements: Prerequisite Level 2 or above and registration in a KINE Plan and KNPE 153/3.0. Recommended ANAT 315/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Describe fundamental mechanical principles and theories that govern human movement.
2. Use mechanical principles to interpret and solve biomechanical problems.
3. Analyze, summarize and report biomechanical data.
4. Recognize how biomechanics can be applied to other disciplines.

KNPE 255 Physical Activity, Fitness, and Health Units: 3.00
An introduction to the interrelationships between physical activity, fitness and health. Current techniques for the measurement of health related fitness components, evaluation of diet, weight loss principles, psychological aspects of fitness and suitable activities for fitness development. Concepts related to prescription of physical activity and exercise counseling are introduced.
Learning Hours: 108 (36 Lecture, 72 Private Study)
Requirements: Prerequisite Level 2 or above and registration in a KINE Plan and KNPE 225/3.0, KNPE 251/3.0, and HLTH 252/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Describe basic concepts related to physical activity, cardiorespiratory fitness, sedentary behaviour and health, and the interrelationship among these variables.
2. Describe the dose-response relationships between physical activity, cardiorespiratory fitness and selected health outcomes.
3. Describe the forms of evidence used to answer questions related to physical activity and health risk factors and health outcomes.

KNPE 261 Theory of Motor Behaviour and Motor Learning Units: 3.00
Students will understand motor skill acquisition principles and procedures available to optimize learning in physical activity programs. The principles and theories outlined in this course will provide students with a basic knowledge of sensorimotor behaviour for applications in physical education, kinesiology, and rehabilitation.
Learning Hours: 123 (36 Lecture, 15 Laboratory, 72 Private Study)
Requirements: Prerequisite Level 2 or above and registration in a KINE Plan.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Evaluate motor skill learning in a variety of contexts.
2. Identify the underlying behavioural, neural, and mechanical principles that contribute to motor skill learning.
3. Read, synthesize, and translate research findings.
4. Utilize experimental approaches to the assessment of motor behaviours.

KNPE 265 Psychology of Sport and Exercise Units: 3.00
This course will introduce both theoretical and applied/professional aspects of human social behaviour in sport and exercise settings.
Learning Hours: 108 (36 Lecture, 72 Private Study)
Requirements: Prerequisite Level 2 or above and registration in a HLTH or KINE Plan. Corequisite PSYC 100/6.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Critically evaluate knowledge related to psychological dimensions of sport and exercise.
2. Describe theories that inform the work being conducted in the field.
3. Translate the information acquired from the research to more practical situations (e.g., exercise participant adherence, arousal regulation in sport).
4. Analyze and discuss a range of approaches and techniques used to evaluate sport participation and performance (at both the individual and team levels) and exercise outcomes.
5. Use writing as a mechanism for information consolidation and learning.
6. Practice and demonstrate effective writing skills.

KNPE 300 Community-Based Practicum Units: 3.00
A community-based practicum for Kinesiology students to apply knowledge gained in theory-based courses and develop a range of professional skills. Practicum opportunities vary year to year, subject to availability of an appropriate placement in a relevant workplace setting.
NOTE Students are expected to participate in professional development workshops offered by the SKHS Student Experience Coordinator and Career Services.
NOTE Transportation and other costs directly related to the student placement (e.g., Criminal Checks, if required) are the responsibility of the student.
Learning Hours: 126 (18 Group Learning, 84 Off-Campus Activity, 24 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and a minimum cumulative GPA of 1.90 and permission of the Coordinator and Undergraduate Chair in the School of Kinesiology and Health Studies. Exclusion HLTH 300/3.0; KNPE 330/4.5; KNPE 346/4.5.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Apply professional development resources to prepare and utilize a professional cover letter and resume, as well as employ effective interview and networking skills to secure a placement opportunity.
2. Practice professional skills such as: leadership, adaptability, written and oral communication, inquiry and analysis, self-management, time management, collaboration and critical thinking through seminar and placement experience.
3. Employ knowledge gained through theory-based courses in an intensive practicum experience (relevant to the field of study), to then critically reflect on connections and/or gaps between course content, scientific literature and observations of professional practice.
4. Describe current advances, practices, organizational culture and professional etiquette used in field-related workplaces (e.g., local business, public sector, health care, and community-based settings).
5. Evaluate and critique personal performance throughout practicum experience based on individualized placement learning objectives.
6. Identify career options in the field of study, through seminar discussions around students' practicum experiences.

KNPE 303 Coaching and Leadership in Sport Units: 3.00
This course aims to introduce the theory and methods of coaching and leadership. This course addresses topics such as athlete development, skill acquisition, coaching and leadership theories, coach education, coach behaviours, interpersonal relationships, and contextual influences on coaching. This course also reflects on methodological issues related to coaching research. A central aim of this course is to encourage students to reflect on how they might apply course content to real-life situations.
Learning Hours: 108 (36 Lecture, 72 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and KNPE 265/3.0. Corequisite KNPE 261/3.0. Equivalency KNPE 203/3.0*.
Course Equivalencies: KNPE 203/3.0*, KNPE 303/3.0
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Describe and differentiate key models of coaching and leadership.
2. Observe and interpret coaching behaviours.
3. Identify factors that influence skill acquisition and athlete development.
4. Explore strategies to improve coaching effectiveness and reflect on various coaching practices.
5. Evaluate and critique coaching research.
6. Adapt course content to propose practical applications for coaches, athletes, parents, and sport practitioners.

KNPE 327 Exercise Physiology Laboratory Units: 3.00
A laboratory experience designed to establish understanding of, and technical skills in, the measurement of human physiological responses and performance capacity in exercise. Students will develop familiarity with tests of physiological function during rest and exercise in preparation for work in human performance, clinical and medical settings.

Learning Hours: 126 (24 Lecture, 36 Laboratory, 6 Individual Instruction, 12 Online Activity, 48 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and KNPE 125/3.0, KNPE 225/3.0, and KNPE 227/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Describe the physiological responses to exercise that influence performance capacity.
2. Organize and conduct human performance capacity assessments to obtain valid and reliable responses and measures.
3. Integrate knowledge of laboratory and field performance capacity assessments to distinguish the contexts and populations that are most suited for each assessment.
4. Investigate exercise physiology and exercise testing literature to explore advances in exercise testing techniques and the interpretation of physiological responses.

KNPE 330 Athletic Therapy Field Placement Units: 4.50
Under the tutelage of the Coordinator of Athletic Therapy Services, students will complete a field placement that involves assignment to a varsity team as a student trainer. Student trainers are responsible for onsite coverage of the team during competition and possibly during practices. The student trainers are also responsible for the taping needs of athletes on the team, and assisting with assessment and rehabilitation.
NOTE Students must hold valid First Aid/CPR certification and proof of completion of Athletic Therapy experience (36 hours) in second year.
Learning Hours: 177 (165 Practicum, 12 Private Study)
Requirements: Prerequisite Level 3 or above and registration in the KINE Specialization Plan and ANAT 315/3.0 and KNPE 331/3.0 and a cumulative GPA of 2.70 or higher and permission of the Course Coordinator and the Undergraduate Chair in the School of Kinesiology and Health Studies. Exclusion HLTH 300/3.0; KNPE 300/3.0; KNPE 346/4.5.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Apply knowledge gained through theory-based courses in an intensive practicum experience in athletic therapy.
2. Practice emergency care, field assessments, first aid, taping, and stretching with varsity athletes.
3. Apply the concepts of the healing cycle to high performance athletes.

KNPE 331 Care and Prevention of Athletic Injuries Units: 3.00
The care and prevention of common athletic injuries with emphasis placed on the practical portion of taping and wrapping of athletic trauma.
NOTE Lab Materials: estimated cost $15.
Learning Hours: 120 (24 Lecture, 24 Laboratory, 72 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and ANAT 315/3.0 and ANAT 316/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Identify key approaches to the prevention of athletic injuries.
2. Practice care and treatment of athletic injuries.
3. Describe rehabilitation of athletic injuries.
4. Apply preventive and supporting taping of athletic injuries.

KNPE 335 Healthy Aging Units: 3.00
This course looks at what happens to the body as we age, including an examination of the physiological, psychological and emotional changes that occur during the aging process. The role of a healthy lifestyle in achieving quality of life as we age is a key perspective.
NOTE Also offered at Bader College, UK (Learning Hours may vary).
Learning Hours: 120 (36 Lecture, 84 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a HLTH, KINE, or DIPA Plan.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Examine the diverse processes of healthy aging within community, healthcare, and long-term care contexts.
2. Identify and critically examine models and discourses of aging, and how these relate to physical health, mental health, cognitive health, and social relationships.
3. Deconstruct and describe the implications of, and interventions for, physical, mental, cognitive, and social aging.
4. Effectively discuss and critique the barriers and stereotypes to healthy aging.
5. Discuss, write, and apply theory to practice as it relates to healthy aging.
6. Recognize societal and individual implications of healthy aging.

KNPE 336 Community Field Placement in Disability and Physical Activity Units: 3.00
Students gain experience assisting adults with a disability to engage in exercise. Students develop an understanding of the nature of disability, the benefits of exercise, factors that promote exercise participation, and appropriate exercise prescription.
NOTE Students must hold valid First Aid/CPR certification and CPIC.
NOTE Field Placement Uniform: estimated cost $25.
Learning Hours: 138 (18 Seminar, 84 Practicum, 12 Online Activity, 24 Private Study)
Requirements: Prerequisite (Level 3 or above and registration in the DIPA Certificate and HLTH 200/3.0) or (Level 3 or above and registration in a KINE Plan and registration in the DIPA Certificate). Corequisite HLTH 332/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Model appropriate behaviour and communications skills when interacting with persons living with a disability in diverse settings which may include one or more of the following: an online exercise program, a telephone-based goal setting program, and/or in-person, community-based exercise program.
2. Apply knowledge of disability groups and knowledge of exercise programming when promoting exercise and recreational opportunities for persons living with a disability.
3. Conduct online and/or in-person exercise program reassessments for persons living with a disability (e.g., clinical exercise prescription).

KNPE 337 Physical Activity Promotion for Children and Youth Units: 3.00
This course explores topics such as theoretical models of motivation, interest, and interpersonal behaviours, and the design, implementation, and provision of inclusive physical activity environments for children/youth. This course emphasizes the application of theory through activity-based classroom sessions and community placements.
NOTE Transportation and other costs directly related to the student (e.g. required Criminal Checks) are the responsibility of the student.
Learning Hours: 120 (18 Lecture, 18 Laboratory, 24 Online Activity, 60 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE or HLTH Plan and (KNPE 237 or HLTH 270). Exclusion PACT 237.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Identify the factors that shape the quality of physical activity experiences and their influence on children's and youth's development.
2. Design and effectively deliver physical activity programming in a variety of settings, including classrooms, gymnasiums, and playgrounds.
3. Evaluate and critique the appropriateness of different approaches to promoting physical activity among children and youth.
4. Apply course content to practical settings.
5. Reflect on connections and/or gaps between course content and practical implementation.

KNPE 338 Field Course in Kinesiology and Health Studies Units: 3.00
This course will provide an intensive experiential learning opportunity for students. The emphasis is on hands-on application of various current topics in the fields of Kinesiology and Health Studies including but not limited to outdoor recreation, active living, health and the built environment, food systems, parasport, sport participation, fitness assessment and/or movement behaviours. Students will participate in field excursions and participate in a range of skill building activities to expose them to professional and community environments.
NOTE Field Excursions: maximum cost $75. Please contact the School of Kinesiology and Health Studies for details.
NOTE This course is repeatable for credit under different topic titles.
Learning Hours: 114 (36 Group Learning, 30 Off-Campus Activity, 48 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a HLTH Major, HLTH Joint Honours, or KINE Plan.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Apply knowledge gained through theory-based courses in an intensive experiential learning opportunity focussed on current topics in kinesiology and health studies.
2. Analyze the impact of relevant public policies and community-based programming on physical activity and/or sport participation in diverse communities.
3. Participate in skill building activities related to the fields of kinesiology and health studies in community, natural/outdoor or professional settings.
4. Apply effective written, communication and collaboration skills.

KNPE 339 Advanced Exercise Metabolism Units: 3.00
This course focuses on aspects of skeletal muscle energy metabolism related to exercise, with a particular emphasis on the regulation of carbohydrate and fat metabolism and the mechanisms regulating their use as substrates for muscle during rest and exercise.
Learning Hours: 120 (36 Lecture, 84 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and KNPE 225/3.0 and KNPE 227/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Apply advanced knowledge of mechanisms underlying classic and current topics in exercise metabolism.
2. Describe methodology used in exercise metabolism.
3. Describe results and methodologies presented in primary references from exercise metabolism: a. Utilize primary articles as a reference material; b. Efficiently extract study methodologies (subjects, experimental protocols, materials and methods); c. Interpret results within the contexts of 339, exercise metabolism, and health.
4. Develop problem statements that integrate physiological models and test speculative propositions using primary references from exercise metabolism.
5. Independently learn and integrate information on selected topics in exercise metabolism.

KNPE 345 The Science and Methodology of Sport Training Conditioning Programs Units: 3.00
This course focuses on the development of sport conditioning programs from periodization concepts to specific training components and how the components can be integrated to create a comprehensive and balanced athlete training plan. Laboratory sessions will work on skill development applicable to conducting training and conditioning programs.
Learning Hours: 126 (36 Lecture, 18 Practicum, 72 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and KNPE 227/3.0. Corequisite KNPE 254/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Apply the basic applications of the exercise sciences (Musculoskeletal, Neuromuscular, Cardiorespiratory, Bioenergetics, Endocrine and Biomechanics) within the context of a physical training program.
2. Recognize professional pathways into the fields of personal training and strength and conditioning.
3. Coach progressions and regressions of movement patterns and properly cue exercises to develop appropriate movement patterns.
4. Describe and administer the principles of sport testing, warmups, mobility, resistance training, energy system development and recovery modalities.
5. Apply programming periodization models that allow for performance planning and yearly/monthly/weekly training planning.
6. Apply the principles of velocity-based training, using the GymAware technology. This technology will allow students to bridge the gap between research and practical training with real time measurement.
7. Integrate all components of a sport training program to produce an effective and multifaceted yearly training plan.

KNPE 346 Strength and Conditioning Field Placement Units: 4.50
Under the tutelage of the Strength and Conditioning Coordinator, students will complete a field placement that involves a range of practical experiences in the area of strength and conditioning programs for elite athletes. Practical sessions will be rotated weekly in order to provide students with a variety of experiences in program delivery, training sessions, and testing.
NOTE Students must hold valid First Aid/CPR certification.
Learning Hours: 168 (120 Practicum, 24 Group Learning, 24 Private Study)
Requirements: Prerequisite Level 3 or above and registration in the KINE Specialization Plan and ANAT 315/3.0 and KNPE 345/3.0 and a cumulative GPA of 2.70 or higher and permission of the Course Coordinator and the Undergraduate Chair in the School of Kinesiology and Health Studies. Exclusion HLTH 300/3.0; KNPE 300/3.0; KNPE 330/4.5.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Apply foundational training principles while being an active coach in the daily training environment with our varsity student athletes.
2. Perform a detailed needs analysis, understanding the underpinning physical qualities required for performance and athlete development.
3. Effectively and efficiently prepare excel monitoring documents for tracking athlete development (i.e., performance and wellness monitoring).
4. Develop practical relationship building strategies and effective behaviours to create long term success in coaching and the professional world. An emphasis will be placed on the soft skills of coaching.
5. Model competence and confidence in overseeing a training session for varsity athletes. This includes overseeing the dynamic warmup, program explanation, exercise technique, adjustments based on injury status and management of the training facility.
6. Discuss the return to play process and how to integrate with sports medicine to effectively assist recovering athletes.
7. Employ appropriate training progressions and principles for speed development, COD/agility, ESD, plyometrics and return to play.

KNPE 349 Sports Nutrition Units: 3.00
This course will provide foundational knowledge of the basic physiological pathways that support energy production during endurance-type and resistance-type exercise. Students will investigate, evaluate and develop nutritional interventions to potentiate energy systems and promote post-exercise recovery.
NOTE Nutrition Software: estimated cost $75.
Learning Hours: 126 (36 Lecture, 6 Laboratory, 84 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and KNPE 227 and KNPE 255.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Critically analyze existing literature related to sports nutrition.
2. Develop and apply nutritional interventions to enhance exercise performance and recovery.
3. Identify and describe key fundamental principles underlying applied sports nutrition.
4. Identify and describe the major energy producing pathways during resistance and endurance exercise.

KNPE 352 Research Skills Development Practicum Units: 3.00
A practicum for students in Kinesiology and Physical Education working in the research labs and on research projects of SKHS faculty members. Includes a seminar series covering research topics and methodologies in: Applied Exercise Science, Epidemiology, Health Promotion, Psychology of Sport and Physical Activity, and Sociology of Sport and Health.
NOTE Students will apply for a research-based practicum at the end of their second year. Recommended for students who intend to complete KNPE 595.
Learning Hours: 140 (12 Seminar, 80 Practicum, 48 Private Study)
Requirements: Prerequisite Level 3 or above and registration in the KINE Specialization Plan and KNPE 251/3.0 and permission of the Course Coordinator or the Undergraduate Chair in the School of Kinesiology and Health Studies. Corequisite HLTH 252/3.0. Exclusion HLTH 352/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Discuss multidisciplinary research methodologies used in SKHS research labs/programs.
2. Practice various aspects of the research process including data collection/analysis, literature searches, manuscript writing, presentation skills, etc. through a research development practicum in an SKHS research lab/program.
3. Apply effective written and oral/visual communication skills.
4. Model ethical behaviour consistent with the responsible conduct of research and professional practice.

KNPE 353 Experiments in Neuromechanical Kinesiology Units: 3.00
This laboratory course will focus on advanced principles and techniques used in experiments in Neuromechanical Kinesiology, including applications in biomechanics, motor control, and neurophysiology. The objective of the course is to provide students with hands-on experience in scientific study design, human instrumentation and data collection, signal processing and data analysis, and scientific report writing. These skills are intended to prepare students interested in pursuing careers involving the collection and/or interpretation of human data, be it research, clinical, or industry settings.
Learning Hours: 120 (36 Laboratory, 84 Private Study)
Requirements: Prerequisite KNPE 153/3.0 and KNPE 254/3.0. Corequisite KNPE 261/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Describe the technologies used to investigate human neuromechanics during movement.
2. Collect, process, analyze and interpret human neuromechanical data.
3. Develop problem solving and critical thinking skills through coding and data analysis.
4. Apply teamwork skills through group laboratory work.
5. Communicate scientific findings through written lab reports.

KNPE 354 Occupational Biomechanics and Physical Ergonomics Units: 3.00
An introduction to occupational biomechanics and physical ergonomics. The course will apply principles of biomechanics to describe relationships between job demands, functional/tissue capacities and work-related injury. Demand, capacity and injury risk evaluation tools will also be presented.
Learning Hours: 120 (36 Lecture, 84 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and KNPE 254/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Describe the role of ergonomics as scientific process that can be applied to improve workplace productivity and decrease injury risks.
2. Describe the structure and function of the musculoskeletal system in the context of occupational performance and associated musculoskeletal disorders.
3. Observe and report on physical demands in the workplace.
4. Apply biomechanical methods, self-report surveys and ergonomic hazard assessment tools to evaluate the ergonomics of a workstation.
5. Analyze and interpret ergonomics and occupational biomechanics data to identify high-risk work tasks.
6. Critically review ergonomics literature.
7. Clearly and concisely communicate (oral and verbal) ergonomics information.

KNPE 355 Lifestyle and Cardiometabolic Assessment Laboratory Units: 3.00
A lecture/laboratory experience designed to help prepare students to participate in a variety of multidisciplinary clinical and/or professional environments. Concept and skill development pertaining to exercise/lifestyle for general as well as selected special populations will prepare students for experiences in clinical and medical settings.
Learning Hours: 120 (12 Lecture, 36 Laboratory, 72 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and KNPE 225/3.0 and KNPE 227/3.0. Corequisite KNPE 255/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Use effective communication skills to develop patient/client rapport and to gather essential subjective information used to establish collaborative patient/client-centred goals.
2. Construct clear and comprehensive records for patient/client interactions.
3. Organize and conduct pre-exercise screening and physical assessments using evidence-based practices.
4. Select, administer, and interpret appropriate clinical exercise testing for cardiorespiratory fitness, muscular fitness, flexibility, and balance.
5. Self-reflect on experiential learning experiences and provide and receive constructive peer feedback to improve exercise assessment skills.

KNPE 356 Exercise Prescription Units: 3.00
Students will apply their foundational knowledge of human and exercise physiology to develop skills in patient/client interactions, exercise assessments, and exercise prescriptions. Topics include communication skills, documentation, health screening and assessments, clinical exercise testing, and exercise prescription for healthy adults and specific patient populations. Through an experiential learning, case-based approach, by the end of this course, students will be able to conduct physical assessments and interpret clinical findings to create patient/client-centered exercise interventions aimed at improving health and well-being.
Learning Hours: 120 (12 Lecture, 24 Laboratory, 12 Group Learning, 72 Private Study)
Requirements: Prerequisite KNPE 355/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Use effective communication skills during clinical interviews to develop patient/client rapport and to gather essential subjective information used to establish collaborative patient/client-centered goals and exercise programs.
2. Select, administer, and interpret appropriate assessments for cardiorespiratory fitness, muscular fitness, flexibility, and balance.
3. Develop, implement, evaluate and refine patient/client-centred exercise programs for healthy adults and a diverse range of patient populations throughout the continuum of care.
4. Construct clear and comprehensive records for all patient/client interactions.
5. Self-reflect on experiential learning experiences and provide and receive constructive peer feedback aimed at improving their exercise assessment and prescription skills.
6. Investigate current literature on exercise testing and prescription for healthy adults and a diverse range of patient populations.

KNPE 363 Team Dynamics in Sport: Theory and Practice Units: 3.00
This course explores group dynamics in sport and involves the integration of theory, research, and practice. Topics include team structure (e.g., roles). it processes (e.g., communication), and emergent states (e.g., cohesion). Students will be encouraged to critically analyze the body of research and discuss relevant practical implications.
Learning Hours: 120 (36 Lecture, 84 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and KNPE 265/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Recognize the salience of groups in sport contexts and their significance in enabling productive and satisfying sport experiences.
2. Examine seminal and contemporary research related to team dynamics.
3. Identify, synthesize, and critically evaluate research pertaining to team dynamics in sport.
4. Discuss how team-related constructs are used to enhance sport experiences and performance.
5. Apply theory and research that supports practical use of team strategies in the 'real world.'

KNPE 365 Motivational Interviewing for Physical Activity Behaviour Change Units: 3.00
Study of strategies to enhance intrinsic motivation and self-regulation for physical activity and health behaviour change in clinical settings. Students will learn and practice motivational interviewing skills for behaviour change in intensive weekly tutorial sessions.
Learning Hours: 126 (18 Lecture, 24 Tutorial, 84 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a HLTH or KINE Plan and PSYC 100/6.0 and (KNPE 265/3.0 or HLTH 315/3.0).
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Recognize the processes of motivational interviewing in order to conduct responsible consultations that address health behaviour change in clinical settings.
2. Create an inclusive environment that supports the physical, emotional, and mental well-being of the individual seeking counselling services.
3. Apply motivational interviewing skills and knowledge to understand the challenges associated with physical activity and health behaviour change.
4. Critically evaluate health behaviour change theories and strategies to assess their relationship and relevance with motivational interviewing.

KNPE 366 Race, Sport, and Physical Activity Units: 3.00
This course offers a critical exploration into how the social construction of race affects sport, health, and physical activity cultures, how sport may influence our understanding of race in society. We discuss how racism exists in these sporting spaces. The end goal is to understand how sport and health practitioners can incorporate anti-racism work.
Learning Hours: 120 (36 Lecture, 12 Online Activity, 72 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a HLTH or KINE Plan and (KNPE 167/3.0 or HLTH 101/3.0). Exclusion KNPE 397/3.0 (Topic Title: Race, Sport, and Physical Cultures - Fall 2018, Fall 2020).
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Apply the theory learned in this course to sport management, sport policy, health promotion, and/or medical contexts.
2. Discuss issues around race, ethnicity, and racism as they pertain to sports and physical activity.
3. Recognize how race intersects with other forms of oppression and privilege.
4. Recognize the difference between diversity/inclusion work versus justice-oriented work.
5. Use online platforms to translate research for a public audience.

KNPE 367 Fitness, the Body, and Culture Units: 3.00
This course looks at the ways that notions of fitness are tied to historically specific ideas about the body. The course focuses on ideas about race, class, gender, ability and sexuality while addressing the politics of fitness and exercise and their relationship to social, economic, and cultural institutions.
Learning Hours: 129 (36 Lecture, 9 Laboratory, 84 Private Study)
Requirements: Prerequisite KNPE 167/3.0 or SOCY 221/6.0 or (SOCY 226/3.0 and SOCY 227/3.0).
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Reflect on the meaning of fitness and physical activity in everyday life.
2. Investigate fitness, exercise and bodies as not just physical but also complex cultural, historical, economic and political phenomena.
3. Reflect on embodiment as both concept and experience.
4. Apply the art of asking good questions.
5. Apply advanced skills in reading, writing, speaking, and analysis, especially the identification, assessment and construction of arguments.
6. Model ethical, collaborative, and professional behaviour in group work.

KNPE 397 Special Topics in Kinesiology Units: 3.00
Intensive coverage of topics that are current and/or of special interest in the area of Kinesiology. Offered periodically. NOTE This course is repeatable for credit under different topic titles.
Learning Hours: 120 (36 Lecture, 84 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Identify and describe key issues related to a special topic in the multidisciplinary field of Kinesiology.
2. Evaluate, and discuss the limitations of, existing knowledge about the special topic.
3. Practice effective oral and written communication skills.

KNPE 400 Professional Issues in Allied Health Units: 3.00
Through problem-based learning, students will gain an understanding of what it means to be an applied health care professional. Students will work collaboratively on case studies and develop critical thinking skills to prepare them as they transition to their careers as health care practitioners.
Learning Hours: 120 (24 Lecture, 12 Tutorial, 84 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the HLTH Major or KINE Specialization Plan.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Define a registered kinesiologist's scope of practice and identify how to develop collaborative relationships with other allied health professionals.
2. Compare and contrast professional associations and professional regulatory bodies to recognize the importance of each.
3. Describe the expectations and responsibilities of a kinesiologist using the applicable legislation, regulations, practice standards and practice guidelines.
4. Demonstrate an ability to reflect, evaluate and manage real, potential and perceived ethical and legal dilemmas in business and clinical practice.
5. Integrate concepts of cultural diversity, cultural humility and the process of pursuing cultural competence in clinical scenarios.

KNPE 425 Physiology of Stress Units: 3.00
An in-depth exploration of physiological responses to primarily psychological sources of stress. An emphasis is placed on understanding the interaction between stress responses and function/health and the action of selected stress management techniques.
Learning Hours: 120 (36null, 84 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the KINE Specialization Plan and KNPE 225/3.0 and KNPE 227/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Describe stress, physiological stress response activation and its short and long term consequences in order to support advanced topic discussion.
2. Apply an understanding of physiological stress responses to explain mechanisms by which stress can influence physical function and health.
3. Describe nature and physiological impact of selected stress management strategies to consider potential value as interventions.
4. Interpret, evaluate, propose and present research related to physiological responses to psychological stress in order to make evidence based arguments, generate hypotheses, answer questions and demonstrate communication skills.

KNPE 429 Skeletal Muscle Oxygen Delivery: Demand Matching in Exercise Units: 3.00
The focus of this course is to develop an advanced understanding of cardiovascular and respiratory responses in meeting oxygen demand of exercising skeletal muscle. Topics: oxygen delivery in exercising skeletal muscle metabolism/contraction; compromised exercise performance in selected diseases; mechanisms of enhancement of exercise tolerance.
Learning Hours: 132 (36 Lecture, 12 Tutorial, 12 Online Activity, 72 Private Study)
Requirements: Prerequisite Level 3 or above and registration in the KINE Specialization Plan and KNPE 125/3.0 and KNPE 225/3.0 and KNPE 227/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Explain and illustrate cardiovascular and respiratory responses to exercise, and their mechanisms in order to inform expertise in integrative cardiovascular and respiratory exercise physiology.
2. Create and apply key principle, cause-effect and physiological models to predict and interpret cardiovascular and respiratory support of exercising muscle and the mechanisms responsible.
3. Evaluate, interpret and communicate scientific literature to facilitate evidence-based understanding of advances in cardiovascular and respiratory exercise physiology related to oxygen delivery demand matching.

KNPE 430 Athletic Therapy Internship Units: 4.50
Working with the Coordinator of Athletic Therapy (AT), and building on the practical skills and knowledge acquired in KNPE 330, students will complete an Athletic Therapy internship. AT interns will be responsible for serving as a mentor to student trainers and onsite trainers in the Athletic Therapy clinic and at varsity events. They will also serve as teaching assistants in the laboratory component of KNPE 331.

NOTE Valid First Aid/CPR Certification required.
Learning Hours: 189 (165 Practicum, 24 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the KINE Specialization Plan and KNPE 330/4.5 and a cumulative GPA of 2.70 or higher and permission of the Course Coordinator and the Undergraduate Chair in the School of Kinesiology and Health Studies.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Model leadership and professional skills including initiative, responsibility, teamwork and decision making in an advanced practicum experience in athletic therapy.
2. Perform emergency care, field assessments, first aid, taping, and stretching with varsity athletes.
3. Practice clinical assessments of injuries, use of therapeutic modalities, rehabilitative exercise prescription, and safe return to sport guidelines.
4. Recognize activities involved in the operation of an athletic therapy clinic.
5. Practice effective communication skills (written, oral and/or visual).

KNPE 433 Global Sport and Disability Units: 3.00
The UN recognizes the important role of sport participation in promoting physical and mental health as well as fundamental human rights. This course will critique the use of sport and recreation on a global level as a tool for improving the lives of people with disabilities with the goal of removing barriers and enabling participation for all.
NOTE Also offered at Bader College, UK (Learning Hours may vary).
Learning Hours: 120 (36 Seminar, 84 Private Study)
Requirements: Prerequisite Level 4 or above and ([registration in a HLTH Major, Joint Honours, or KINE Specialization Plan] or [registration in the Certificate in Disability and Physical Activity and HLTH 332/3.0] or [registration at the Bader College]).
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Compare traditional and contemporary ways of understanding disability.
2. With examples, communicate how sport can be used as a tool for development in different context.
3. Critically evaluate the impact of sport for development on persons with disabilities.
4. Recognize the historical context in which sport for persons with disabilities developed and analyze the influence of its origin on contemporary global sporting events for persons with disabilities.
5. Critically evaluate the impact of global sporting events for persons with disabilities.

KNPE 436 Advanced Placement in Disability and Physical Activity Units: 3.00
Students gain leadership experience in an exercise program for adults with a disability. Students develop an understanding of the operational considerations to run an adapted exercise program including the necessary human and financial resources, and the skills to develop, implement, and evaluate exercise opportunities for persons with a disability.
NOTE Students must hold valid First Aid/CPR certification and CPIC.
NOTE Field Placement Uniform: estimated cost $25.
Learning Hours: 138 (18 Seminar, 84 Practicum, 12 Online Activity, 24 Private Study)
Requirements: Prerequisite Level 4 and or above and a minimum grade of a B on the practical assessment in KNPE 336. Registration in the Certificate in Disability and Physical Activity and permission of the Course Coordinator and the Undergraduate Chair in the School of Kinesiology and Health Studies is required.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Conduct appropriate exercise programming and reassessments for persons with a disability in an online and/or community-based exercise program.
2. Demonstrate appropriate behaviour and communication skills when interacting with persons with a disability in an online exercise setting and/or a community-based gym setting.
3. Display appropriate leadership and communication skills when providing informational and tangible support to peers and persons living with a disability.

KNPE 439 Critical Appraisal and Translation of Muscle Physiology Research Units: 3.00
In this course students will read, evaluate and discuss recent scientific literature in the areas of exercise metabolism, exercise nutrition, and performance. Students will develop a systematic approach to scientific writing and write translational literature that accurately communicates recent scientific findings to the general population.
Learning Hours: 120 (36 Seminar, 84 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the KINE Specialization Plan and KNPE 339/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Demonstrate an advanced understanding of current topics in exercise/muscle physiology and an ability to discuss these topics within the context of physiological models.
2. Discuss methodology used in muscle physiology.
3. Read and critique literature from the field of muscle physiology: Identify and evaluate problem statements; Extract and present prior literature that supports each proposition statement; Evaluate appropriateness/ strengths/weaknesses of study design and methodology; Discuss importance/significance for the general public.
4. Translate scientific articles in a form appropriate for public consumption.

KNPE 446 Strength and Conditioning Internship Units: 4.50
Building on the skills and knowledge acquired in KNPE 346, students will complete a Strength and Conditioning (SC) internship with a varsity team. SC interns will be responsible for the design and implementation of training programs, functional screening, and athlete injury management. They will also assist with the Complete Athlete program and contribute to the laboratory component of KNPE 345 as TA's. NOTE Valid First Aid/CPR Certification required.
Learning Hours: 168 (120 Practicum, 24 Group Learning, 24 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the KINE Specialization Plan and KNPE 346/4.5 and a cumulative GPA of 2.70 or higher and permission of the Course Coordinator and the Undergraduate Chair in the School of Kinesiology and Health Studies.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Assist in the development of a sport specific performance plan, considering the holistic demands of the student athlete.
2. Practice the strategies of athlete monitoring (physical, wellness, and training load).
3. Model leadership within their respective team training environments, via coaching in both the High Performance Training Centre and sport practice.
4. Model professionalism with sport coaches to employ integrated training programs to best support in-season competition.
5. Students will engage in the mentorship of younger interns to assist in their development as evolving coaches.
6. Network and build connections in the sport performance field while learning from Queen's alumni and performance specialists in multiple domains.

KNPE 447 Advanced Exercise Physiology Laboratory Units: 3.00
The physiological systems involved in exercise will be explored in weekly laboratory experiments by imposing experimental disturbances during exercise. Students will develop skills in reading and interpreting research, predicting the effects of experiment disturbances, and testing, analyzing and interpreting physiological responses in their experiments. The course format is intended to prepare students for knowledge consumption, application, and creation in the field of exercise physiology.
Learning Hours: 120 (24 Lecture, 36 Laboratory, 12 Online Activity, 48 Private Study)
Requirements: Prerequisite KNPE 225/3.0 and KNPE 227/3.0 and KNPE 327/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Understand and explain the role of physiological systems in determining exercise performance and tolerance to effectively assess physiological responses to exercise.
2. Apply conceptual understanding of physiological function to predict the effects of disturbances on physiological responses in exercise.
3. Apply measurement techniques and experimental protocol principles to obtain valid physiological response data.
4. Compose laboratory reports to effectively communicate scientific background, laboratory methods, results and their interpretation.
5. Integrate methodological and conceptual expertise developed in this course to independently develop, explore and present findings on a question about physiological function in exercise.

KNPE 449 Advanced Protein Metabolism Units: 3.00
This course will provide an understanding of the factors that regulate the size of human skeletal muscle. Emphasis will be on how nutrition and exercise affect skeletal muscle growth/loss and insight into the use of isotopic labeling and other contemporary laboratory-based techniques used to study human skeletal muscle protein turnover.
NOTE Nutrition software package: estimated cost $75.
Learning Hours: 120 (36 Seminar, 84 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the KINE Specialization Plan and (HLTH 331 or KNPE 349). Exclusion KNPE 493 (Topic Title: Advanced Protein Metabolism - Winter 2020; Winter 2021).
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Apply advanced knowledge translation skills in the form of scientific presentations.
2. Critically evaluate strengths and weaknesses of study designs related to experimental research.
3. Identify key factors affecting human skeletal muscle protein turnover and gain a cursory knowledge of experimental methods used to study skeletal muscle growth.
4. Independently develop an experimental approach to address an existing knowledge gap in the nutritional and exercise sciences.

KNPE 450 Ergonomics Units: 3.00
This is an interdisciplinary lecture/seminar course designed to provide a comprehensive overview of ergonomics emphasizing applications to product design and prevention of musculoskeletal injuries. The focus includes anthropometry, workplace design, and biomechanical and other human factors. Ergonomic assessment methodologies will be used to assess design features and possible musculoskeletal problems.
Learning Hours: 132 (36 Lecture, 24 Laboratory, 72 Private Study)
Requirements: Prerequisite Level 4 or above and registration in a HLTH Plan or the KINE Specialization Plan and (ANAT 101/3.0 or ANAT 315/3.0) and (KNPE 254/3.0 or 6.0 units in PHYS at the 100-level). Exclusion MECH 495/3.5.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Identify and describe ergonomic issues associated with systems and devices involving human interfaces, with attention to the range of abilities expected in the population.
2. Design and describe practical user-centred designs of devices and systems that incorporate current best practices in the application of ergonomic design principles, including the use of universal design methods.
3. Understanding risks involved in workplace environments from the physiological and biomechanical perspectives.
4. Experience Interdisciplinary Interaction between kinesiology and engineering students in assessment of risk for manual materials handling.
5. Effectively communicate and present ideas.

KNPE 453 Locomotor Neuromechanics Units: 3.00
The purpose of this course is to provide you with a comprehensive understanding of the mechanics, energetics, and control of human locomotion. We will explore current theories in biomechanics and motor control, as well as the foundational behavioral and sensorimotor evidence that underpin these theories. A focus will be placed on applying this understanding to the rehabilitation of movement disorders and the design and control of robotic assistive devices.
Learning Hours: 120 (36 Seminar, 84 Private Study)
Requirements: Prerequisite KNPE 254/3.0 and KNPE 261/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Describe the relationship and interplay between the mechanics of the body and the control of the nervous system.
2. Explain why metabolic energy cost is considered not only an important outcome of movement, but also a relevant control objective.
3. Discuss why the mechanics, energetics, and control of locomotion are important to consider when designing rehabilitation strategies and assistive devices.
4. Interpret, present and discuss foundational experiments in neuromechanics.
5. Propose and pilot a locomotor experiment.

KNPE 454 Clinical Biomechanics Units: 3.00
This advanced course will present experimental and analytical biomechanical techniques to quantify forces and moments within joints and muscles during movement. The applications of these methods in the context of healthy and impaired human movement will be discussed. This will be accompanied by hands-on projects where students will apply the learned techniques to experimental data on human movement.
Learning Hours: 132 (18 Lecture, 18 Seminar, 12 Laboratory, 84 Private Study)
Requirements: Prerequisite Level 3 or above and registration in the KINE Specialization Plan and KNPE 254/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Operate traditional biomechanical equipment, including motion capture systems, force platforms, and electromyography.
2. Perform traditional biomechanical analysis of human movement, including inverse kinematics and inverse dynamics using the experimental data.
3. Perform advanced musculoskeletal simulations using state-of-the-art methods to quantify muscle and joint contact forces during movement.
4. Gain an understanding of the biomechanical characteristics of some of the most common musculoskeletal disorders, including osteoarthritis, lower limb amputation, ACL injuries, balance impairment, and stroke.

KNPE 455 Advanced Physical Activity and Health Units: 3.00
Provides advanced understanding of concepts related to the use of physical activity/lifestyle as a strategy for reducing morbidity and mortality in general and selected special populations in preparation to participate in a variety of multidisciplinary clinical and/or professional health care environments.
Learning Hours: 120 (36 Lecture, 84 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and KNPE 125/3.0 and KNPE 225/3.0 and KNPE 227/3.0 and KNPE 255/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Discriminate between different strategies used to discover/search, interpret and present scientific evidence designed to answer a question specific to the application of exercise science/kinesiology in health care/clinical settings.
2. Compare and contrast the various applications of physical activity as a treatment strategy for the prevention and treatment of lifestyle-based, chronic disease and associated risk factors.
3. Describe processes involved in moving knowledge derived from high quality evidence into practice.

KNPE 456 Survey of Research and Literature in Kinesiology and Physical Education Units: 3.00
Independent study involving a critical review of the literature on an approved topic of specialization in health enhancement, disease prevention and human performance. Students must arrange for a faculty adviser approved by the School of Kinesiology and Health Studies.
Learning Hours: 126 (6 Individual Instruction, 120 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the KINE Specialization Plan and permission of the supervisor and the Undergraduate Chair in the School of Kinesiology and Health Studies.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Investigate a topic of interest at an advanced level in an area relevant to kinesiology under the supervision of a faculty supervisor.
2. Apply a systematic approach to identify, evaluate and synthesize the research literature on this topic.
3. Formulate original commentary and/or conclusions.
4. Practice scientific writing in the related disciplinary format with technical competence.

KNPE 459 Clinical Exercise Physiology Units: 3.00
An in-depth coverage of principles of health screening, exercise testing and exercise prescription for individuals with cardiovascular, metabolic and pulmonary diseases. An emphasis is placed on understanding disease pathophysiology and how this interacts with the acute response to exercise and the adaptation to training.
Learning Hours: 120 (36 Lecture, 84 Private Study)
Requirements: Prerequisite Level 3 or above and registration in a KINE Plan and KNPE 125/3.0 and KNPE 225/3.0 and KNPE 227/3.0. Recommended KNPE 255/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Identify and describe the nature and significance of particular clinical issues when examining examples of physiological data.
2. Explain the pathophysiology of selected clinical conditions and the impact of the condition on the acute exercise response.
3. Interpret and discuss evidence regarding the potential benefit of exercise in relation to selected clinical conditions.
4. Interpret, evaluate propose and present research related to exercise physiology and clinical conditions in order to make evidence based arguments, generate hypotheses, answer questions and demonstrate communication skills.

KNPE 463 Community-Based Physical Activity Promotion Units: 6.00
Program planning and evaluation for the promotion of physical activity in the community, workplace, school, and health care settings. Using a combination of lecture, group discussions, and a community-based placement, students will acquire the skills and understand the philosophies used in promoting physical activity involvement in the community.
Learning Hours: 244 (72 Seminar, 72 Practicum, 100 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the KINE Specialization Plan and KNPE 265/3.0 and a minimum GPA of 2.90 in all KNPE courses. Recommended HLTH 315/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Recognize the importance of settings to physical activity involvement.
2. Discuss the importance of social determinants to physical activity involvement.
3. Identify current programs and strategies to promote physical activity involvement in Canada, Ontario, and Kingston.
4. Describe key concepts and implications in promoting physical activity from an ecological approach.
5. Identify sources and resources to construct an organizational/community profile.
6. Identify ethical issues in promoting community physical activity involvement, including the need for developing authentic partnership with organizations and communities.

KNPE 465 Sport Participation and Performance Units: 3.00
An exploration of the theoretical and empirical work in the development of sport participation and performance. Specific discussion of the developmental aspects and learning conditions that allow individuals to maintain participation and reach high levels of excellence in sport will be included.
Learning Hours: 120 (36 Seminar, 84 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the KINE Specialization Plan and a minimum grade of B in KNPE 265/3.0. Recommended KNPE 237/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Recognize the importance and differentiate between several types of sporting activities and their influence on athletes' participation, performance, and personal development.
2. Describe the role that social agents—such as coaches, parents, and peers—have in influencing an athlete's development at different ages and stages in life.
3. Identify how different sport settings and environmental resources shape athlete development, including the roles of contextual factors, such as relative age and birthplace effects.
4. Identify, describe, and critique the appropriateness of different methodological approaches to study athlete development in and through sport.
5. Evaluate course content and propose practical applications for athletes, coaches, parents, and sport practitioners to undertake.
6. Develop quality research questions and proposals.
7. Practice writing engaging literature reviews and research proposals.

KNPE 473 Sport and Culture Units: 3.00
This course draws on critical theories to look at sport in Western cultures. It examines sport's contribution to systems of gender, race, class, sexuality and ability. Topics include sport's relationship to nationalism, media, commodification, globalization, and the environment.
Learning Hours: 120 (36 Seminar, 84 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the KINE Specialization Plan.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Apply critical approaches to pedagogy and education.
2. Discuss current social issues and relate these to our own lives.
3. Recognize sport as both a site of oppression and a tool for social change.
4. Describe the links between social issues and sport.
5. Practice advanced reading, writing and oral communication skills for academic and non-academic situations.
6. Practice strong listening skills.
7. Apply the art of asking good questions.

KNPE 475 Sport and the Environment Units: 3.00
This course is designed to deepen student understandings around sport, the built environment, and climate degradation. This seminar class prioritizes intersectional justice as a way to learn and think about human interactions with each other and with "nature."
Learning Hours: 120 (36 Seminar, 84 Private Study)
Requirements: Prerequisite Level 4 or above and registration in a KINE plan and KNPE 167/3.0. Exclusion HLTH 495/3.0 (Topic Title: Sport, Health, and the Environment - Winter 2021, Winter 2023).
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Critically assess how sport impacts our physical environment and how climate degradation is affecting sports.
2. Differentiate between environmental approaches including prevention, mitigation, and adaptation.
3. Compare and contrast colonial versus Indigenous approaches to nature.

KNPE 491 Special Project in Kinesiology Units: 3.00
This is an independent project in an area of specialization in health enhancement, disease prevention and human performance. Students must arrange for a faculty advisor approved by the School of Kinesiology and Health Studies to oversee their project.
Learning Hours: 126 (6 Individual Instruction, 120 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the KINE Specialization Plan and permission of the supervisor and the Undergraduate Chair in the School of Kinesiology and Health Studies.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Investigate a topic of interest at an advanced level in an area relevant to kinesiology under the supervision of a faculty supervisor.
2. Develop and implement, through a wide variety of options in terms of the design of the study, a project that involves the application of theoretical knowledge.
3. Practice effective oral and written communication skills in the dissemination of the project.

KNPE 493 Special Topics in Kinesiology Units: 3.00
Intensive coverage of advanced topics that are current and/or of special interest in Kinesiology. Offered periodically by visiting professors or members of faculty. Students should check with the School regarding availability of this course. NOTE This course is repeatable for credit under different topic titles.
Learning Hours: 120 (36 Seminar, 84 Private Study)
Requirements: Prerequisite Level 4 or above and registration in a KINE Plan.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Critically analyze issues related to a special topic in the multidisciplinary field of Kinesiology.
2. Discuss scholarly publications related to the special topic.
3. Apply different theoretical approaches to studying the special topic.
4. Practice advanced oral and written communication skills.

KNPE 595 Honours Thesis in Kinesiology Units: 6.00
An independent study involving a research proposal and project on an approved topic in the area of health enhancement, disease prevention, and human performance. The research proposal will be completed in the Fall Term and research project in the Winter Term. Students must arrange for a full-time faculty advisor in the School of Kinesiology and Health Studies.
Learning Hours: 252 (12 Individual Instruction, 240 Private Study)
Requirements: Prerequisite Level 4 or above and registration in the KINE Specialization Plan and a cumulative GPA of 3.50 or higher and permission of the Course Coordinator and the Undergraduate Chair in the School of Kinesiology and Health Studies. Recommended HLTH 252/3.0.
Offering Faculty: Faculty of Arts and Science
Course Learning Outcomes:

1. Investigate a topic of interest at an advanced level in an area relevant to kinesiology under the supervision of a faculty supervisor.
2. Evaluate and synthesize research literature related to the thesis topic and describe the limitations of existing knowledge.
3. Design and implement an independent research study, evaluate and examine results, and generate novel conclusions based on findings.
4. Apply an appropriate research methodology to the investigation of the thesis topic.
5. Practice advanced oral and written communication skills in the dissemination of the thesis.