

UNIVERSITY OF BRITISH COLUMBIA
SCHOOL OF KINESIOLOGY
EVIDENCE-BASED EXERCISE PRESCRIPTION IN HEALTH AND DISEASE

ACKNOWLEDGEMENT

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xwməθkwəyəm (Musqueam) people. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on in their culture, history, and traditions from one generation to the next on this site.

COURSE INFORMATION

Course Title	Course Code Number	Credit Value
EVIDENCE-BASED EXERCISE PRESCRIPTION IN HEALTH AND DISEASE	KIN 489D	3

Location: Neville Scarfe Rm. 206

Time: 11:00 am to 12:20 pm

Duration: 03 Sep 2019 to 28 Nov 2019 (No Class 03 Sep 2019 for Imagine Day)

COURSE INSTRUCTOR: CONTACT INFORMATION

Course Instructor: Dr. Darren Warburton

E-mail: darren.warburton@ubc.ca

Office Location: Indigenous Studies in Kinesiology | Rm 208, Lower Mall Research Station | 2259 Lower Mall

Office Hours: Dr. Warburton is available for questions during and following instructor-facilitated tutorials. Appointments can also be made at alternative times.

COURSE DESCRIPTION

KIN 489D is designed to determine effective, evidence-based best practice within high performance and clinical settings. Key topics will include elite endurance performance, healthy ageing, chronic disease prevention and treatment, and weight management.

RATIONALE

This course provides undergraduate students an opportunity to gain critical competencies for developing evidence-based, best practice exercise prescriptions within high performance and clinical settings. This course supports the School of Kinesiology's course offerings in Clinical Kinesiology, Exercise Physiology, and Indigenous Studies in Kinesiology. This course will appeal

to students in the Exercise and Health Sciences and those interested in working in the fields of Indigenous studies, health promotion, exercise science, and/or exercise medicine.

AIMS AND OUTCOMES

The ultimate goal of this course is to prepare students for a career in health promotion, exercise science, and/or exercise medicine. This course aims to develop a student body that has the critical competencies consistent with being considered a Qualified Exercise Professional including the core knowledge on how to develop evidence-based, best practice exercise prescriptions within high performance and clinical settings. At the end of this course students will be well prepared to work as a Qualified Exercise Professional with diverse clientele and eligible to apply for advanced health and fitness certifications (such as those offered by the American College of Sports Medicine and the Health and Fitness Federation of Canada).

COURSE LEARNING OBJECTIVES

Each lesson has specific learning objectives, which are clearly outlined for the student. The general learning outcomes of the course are listed below.

Upon completion of this course, successful students will be able to, at an advanced level:

1. Critically evaluate peer-reviewed literature to determine evidence-based best practice within high performance and clinical settings.
2. Develop evidence-based exercise prescriptions for use in high performance and clinical settings.
3. Demonstrate problem-solving and critical thinking skills in an applied manner.
4. Demonstrate the ability to work in a collaborative group setting.

COURSE STRUCTURE

This course incorporates self-directed learning techniques, and as such requires that the students have completed their recommended readings before each class and that they take an active role in the in-person lectures/tutorials, online lectures, and group-based discussions. We provide a series of recommended readings for students; however, it is anticipated that students will make use of extensive resources outside of these readings.

Students will gather to learn on Tuesdays and Thursdays of each week starting on 05 Sep 2019 and ending on 28 Nov 2019. This course will follow recent innovations in blended learning including a series of online and in-person lectures/tutorials. Many of the case studies will be provided in an online blended learning (virtual) manner. Students may complete the online

modules at their own pace. However, related quizzes will be completed according to the outlined course schedule.

Students are advised to pay close attention to the course schedule and online announcements on Canvas (<https://canvas.ubc.ca/courses/14437>) prior to each lecture/tutorial. It is important to highlight that the schedule is likely to vary slightly throughout the term based on the needs of the class (i.e., some case studies may require a greater time of discussion). Students will be required to complete many readings/modules online and then attend in-class summary discussions. Success in this class is highly reliant on students completing all readings and online lectures prior to the in-class discussions.

The course will be based on a series of case studies. Individual case studies and related learning objectives and readings will be placed on Canvas (<https://canvas.ubc.ca/courses/14437>) prior to each lecture.

Throughout the course, students will be required to complete an online quiz regarding one or more topics (e.g., cases) that have recently been discussed in class. Key points to remember regarding the online quizzes include:

- Quizzes will be completed on individual basis.
- Students missing lectures will still have the opportunity to complete individual quizzes for the respective case study. They will be responsible for conducting the background research and problem solving required for the case-related questions.
- Students will be given at least 24 hr after the case study to complete the individual quizzes on Canvas.
- There will be 5 quizzes for marks based on the case studies. Each quiz will be worth 4% of the final grade.
- Students are required to complete individual assignments from distinct IP addresses to ensure that the quizzes are done in a fair manner.
- Students must complete individual assignments on their own to avoid instances of academic misconduct.

POLICIES AND EXPECTATIONS

There are several policies by which a student should adhere to:

- Attendance to all lectures is recommended highly, owing to the integrated nature of the course material. Absence from lectures has the potential to impair the ability of students to integrate course content. Students are required to participate in eight (8) or more case studies throughout the term. Individual quizzes will be created on each case study presented in class. Students are required to complete independently 5 online quizzes.
- Students are required to complete the online virtual learning modules (including laboratories and lectures). Virtual learning modules can be completed at each student's own pace. All online modules and related questions must be completed before the final exam period.
- Students should familiarize themselves with the university and departmental policies regarding special accommodation, academic concession, illness, and/or disability. For more information please see: <http://students.ubc.ca/calendar/>

COURSE SCHEDULE

Owing to the interactive nature of this course, the areas covered are subject to change depending on the requirements and/or requests of the class. The dates provided for the recommended readings and related learning modules are approximate and may change depending on the needs and pace of the class. The course is designed such that inclass tutorial discussions follow the online tutorials. Generally, the first day of classes each week (i.e., Tuesday) is used for the in-class tutorial sessions. The following day (i.e., Thursday) of classes is used for the completion of the online learning modules. *Online tutorials (blended learning) will be used extensively from the start of the course. This will generally involve the online tutorials being completed on a Thursday with follow-up instructor-facilitated discussion on the following Tuesday. * Highlighted dates represent anticipated online learning modules. Students may complete these at home and at their own pace. Some students will elect to meet with other students during this class time to go through these modules together, while others will opt to do these independently.

Individual case studies and related learning objectives will be placed on Canvas prior to the upcoming lecture to allow students to prepare in advance. Often the presentation of case studies will require mini-introductory lectures. These presentations will be posted following the respective lecture incorporating the feedback that was provided during the group discussions. This course will make extensive use of readings from the recommended course textbooks and related peer-reviewed scientific literature.

The group discussions in KIN 489D will be conducted at a pace that requires students to be familiar with key concepts surrounding the measurement of energy expenditure, pulmonary structure and function, gas exchange and transport, dynamics of pulmonary ventilation, and cardiovascular function, regulation and integration. If students have not taken KIN 275 or KIN 375 it is highly recommended that they refer to basic exercise physiology texts to assist in their understanding of these key concepts.

With the exception of course assessments, this schedule is subject to change depending on the needs and aspirations of the class. Changes in schedule will be updated on the course calendar (found on Canvas), as well as identified in class. By the end of the semester, all course content will be disseminated; however, the timing of its delivery will be adjusted to meet the pace and individual learning needs of the class.

The course content is that of the recommended readings, and information (including handouts) derived from the lectures and discussions. Below is a general overview of the topics to be covered in this course. Approximately 8-10 case studies will be used throughout the year.

Case Study Topics	Recommended Readings	Key Dates
<ul style="list-style-type: none"> • Introduction to the Course and Presentation of Syllabus • Introduction to Blended and Problem-based Learning 		Sept 3
<ul style="list-style-type: none"> • Case Study: VO₂max relationship with endurance performance in elite athletics and the Vancouver Marathon. 	Maximal Aerobic Power (scientific literature or other relevant text)	Sept 5, 10
<ul style="list-style-type: none"> • Case Study: Lactic acidosis and fatigue. 	Lactic Acidosis (scientific literature or other relevant text)	Sept 12*, 17
QUIZ NUMBER ONE: DUE SEPTEMBER 24 BY 10 PM (PST)		
<ul style="list-style-type: none"> • Case Study: Aerobic Training for 200 and 400 m Runners 	Aerobic Training (scientific literature or other relevant text)	Sept 19*, 24
<ul style="list-style-type: none"> • Case Study: Intersex Athletes in the Olympics 	Popular Media and Scientific Literature	Sept 26*, Oct 1
QUIZ NUMBER TWO: DUE OCTOBER 8 BY 10 PM (PST)		
<ul style="list-style-type: none"> • Case Study: Physical Activity and Healthy Ageing 	Physical Activity, Health, and Ageing (DuManoir Chapter 16 and relevant scientific literature)	Oct 3*, 8
<ul style="list-style-type: none"> • Case Study: Health-related exercise prescription for chronic disease prevention. 	General Principles of Exercise Testing and Prescription for Health (Warburton Chapter 8 and relevant scientific literature)	Oct 10*, 15
QUIZ NUMBER THREE: DUE OCTOBER 15 BY 10 PM (PST)		
<ul style="list-style-type: none"> • Case Study: Clinical Exercise Rehabilitation for CVD 	Clinical Exercise Physiology for Cardiovascular Rehabilitation (CACR Chapters 4, 5, 9, 10 and relevant scientific literature)	Oct 17*, 22
<ul style="list-style-type: none"> • Case Study: Clinical Exercise Rehabilitation for Breast Cancer 	Clinical Exercise Physiology for Cancer Rehabilitation (CACR Chapters 4, 5, 9, 10 and relevant scientific literature)	Oct 24*, 29
QUIZ NUMBER FOUR: DUE OCTOBER 29 BY 10 PM (PST)		
<ul style="list-style-type: none"> • Case Study: Clinical Exercise Rehabilitation for Spinal Cord Injury 	Clinical Exercise Physiology for Spinal Cord Injury and Special Conditions (CACR Chapter 14 and relevant scientific literature)	Oct 31*, Nov 5
<ul style="list-style-type: none"> • Case Study: Contemporary Issues in Indigenous Health (Reducing Cardiometabolic Disease Risk) • Video Vignette and Group Report/Presentation Discussion 	Indigenous Health and Cardiometabolic Conditions (Foulds Chapter 18 and relevant scientific literature)	Nov 7*, 12

QUIZ NUMBER FIVE: DUE NOVEMBER 12 BY 10 PM (PST)	Nov 12
DEDICATED TIME TO WORK ON VIDEO VIGNETTES AND GROUP PROJECTS/PRESENTATIONS	Nov 14
VIDEO VIGNETTES (INDIVIDUAL) AND GROUP PRESENTATIONS: DUE NOVEMBER 17 BY 10 PM (PST)	Nov 17
PRESENTATION OF VIDEO VIGNETTES AND GROUP PROJECTS	Nov 19, 21, 26, & Nov 28 (if required)
FINAL GROUP REPORT: DUE DECEMBER 5, 2019 BY 10 PM (PST)	Dec 5

LEARNING ACTIVITIES

This course relies heavily on self-directed learning; therefore, students must take responsibility for their learning including (but not exclusive to) incorporating information not provided in the course text and laboratory manual. The marks may be scaled to maintain the normal average and distribution for this course.

This course will involve extensive student centred-learning, similar to what is now currently employed in many undergraduate medicine programs. Students who complete this course will be well prepared for other programs that use problem-based learning. In this course we will follow the principals of Barrows (1996) wherein student learning occurs in smaller student groups (4-6 students per group), and original problems provide the basis for learning and the development of critical thinking and self-directed learning skills. The role of the instructor is to help students learn through self-discovery. The instructor therefore serves as the facilitator in each lecture rather than providing traditional lectures.

Real-life problems will be used as a stimulus for the development of problem solving and critical thinking skills. Generally, cases will be presented and discussed over a one-week period. The first allocated time period will include the introduction and general discussion of the topic. This will generally involve an online learning module that students may complete on their own or in class. In-class time will be provided for students to complete these modules; however, to enhance the flexibility for student learning students may also complete these online learning modules at their preferred location and time.

Students are asked to write down questions and submit these online through Canvas for the rest of the class to consider prior to the next discussion period. The second day will include the synopsis of opinions regarding the case, and the re-analysis of the problem allowing for a better understanding of the topic.

Students are required to be active participants in the discovery of information and the solution of the cases. Thus, unlike traditional lectures, in this course students will have an active engagement with course content. Students must come to class well prepared including the completion of the recommended readings and online learning modules for the course. Students are expected to build upon the information from previous case studies and other courses in

their undergraduate education. The skills learned from various fields (such as the humanities, biological sciences, etc.) can be used effectively in tackling the various problems presented. Students should welcome individuals from diverse backgrounds as their experiences and expertise will bring a fresh approach to each case study. In the past, the most successful students are those that are active participants in each discussion and are able to develop the skills necessary for continual life long learning.

Importantly, the classroom is meant to be an environment that is welcoming to others, conducive to learning, challenges the learner, and encourages intellectual curiosity. As such, students should feel comfortable, supported, and respected in the classroom environment. Any behaviours compromising the environment and/or well-being of others will not be tolerated.

While attendance is not formally taken during the semester, full attendance and participation during the class is a standard expectation. Moreover, students are responsible for all material and information disseminated during the course (including any changes to course content), whether one is in attendance or not. Students who plan to be absent for varsity athletics, family obligations, and/or other similar commitments cannot assume they will be accommodated, and should discuss their commitments with the instructor before the withdrawal date of the course.

LEARNING MATERIALS

Our course utilizes Canvas, as an in-line learning management system. When permissible, resources will be posted directly to Canvas OR links provided, which allows students to access the required learning materials. The following required texts are used in this course:

Warburton, D.E.R. (Ed.). (2018). *Health-related Exercise Prescription for the Qualified Exercise Professional* (Eighth ed.). Vancouver, BC: Health & Fitness Society of BC. ISBN: 978-0-9916794-0-9 Select readings available in class (second month of term).

Stone, J.A. (Ed.) (2009). *Guidelines for Cardiac Rehabilitation and Cardiovascular Disease Prevention: Translating Knowledge into Action*. Third Edition, Canadian Association of Cardiac Rehabilitation, 2010. ISBN: 9780968585139 Available for direct purchase from CACPR (<http://www.cacpr.ca/resources/guidelines.cfm>). Please select the Student Rate. Please purchase this text as soon as possible from the CACPR, as shipment times can vary.

ASSESSMENTS OF LEARNING

The assessment of the course learning objectives will be conducted using a variety of methods, including: individual and group participation tasks and individual case study quizzes.

EVALUATION PROCEDURES

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| 1. Group Presentation and Report | 40% |
| 2. Individual Case Study Quizzes (5 quizzes x 6%) | 30% |
| 3. Virtual Learning Presentation | 30% |

EVALUATION PROCEDURES

1) GROUP PRESENTATION AND FINAL REPORT (40%)

At the start of term (approximately week two), students currently enrolled in the course will be randomly assigned (via Canvas) to a Learning Group (traditionally consisting of 4-6 members).

Each student will be responsible for contributing to a group project presentation (15 min oral) and related final report related to a pre-approved topic. Each learning group is to seek the formal approval for their group presentation and report directly from the course facilitator (Dr. Warburton).

Students will be marked as a group and as individuals on the project in-person (15 min oral) and paper presentation. Peer assessment will be used in the overall assessment for both the group presentation and final report. As part of this component, students will be required to demonstrate that they have participated in the pre- and post-learning modules self-evaluations and the online and group discussions related to each learning module.

The final report should be a brief summary of the group project including extensive usage of informative Infographics. This final report should have at least one 1-page Infographic and a brief summary of the findings (up to 1000 words). Interested students will have the opportunity to submit their work to a peer-reviewed journal for consideration for publication.

2) Individual Case Study Quizzes (30%)

Each student will be required to complete 5 quizzes (worth 6% each) throughout the course related to the case studies. Students are to complete these quizzes individually. Students will be provided 120 min to complete each quiz. The date of each quiz will be announced in lecture and posted online. Students are responsible for completing each quiz prior to the established deadline.

3) Virtual Learning Video (30%)

Each student will be responsible for completing a short video vignette for the effective evidence-based presentation related to his/her pre-approved group project. It is envisioned that each group member will create a short video vignette that complements the larger group project work (including in-person presentation).

Further instructions regarding these video vignettes will be provided in class. However, it is important to follow these key principles:

- BE CREATIVE
- HAVE FUN
- CREATE SOMETHING THAT YOU AND YOUR FRIENDS/FAMILY WOULD ENJOY VIEWING
- MAKE AN EVIDENCE-BASED STATEMENT

- BE RESPECTFUL OF OTHERS
- CREATE A VIDEO THAT WOULD BE APPROPRIATE FOR SOCIAL MARKETING CAMPAIGNS
- USE YOUR OWN WORDS AND IMAGES TO AVOID ANY COPYRIGHT INFRINGEMENTS

UNIVERSITY POLICIES

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.

Details of the policies and how to access support are available on [the UBC Senate website](#).

OTHER COURSE POLICIES

1. LEARNING ANALYTICS

Learning analytics includes the collection and analysis of data about learners to improve teaching and learning. This course will be using the following learning technology: Canvas, UBC Qualtrics. These tools will capture data about your activity and provide information that can be used to improve quality of course teaching and learning, as well as curriculum development. In this course, analytics data will be used to: (a) View overall class progress; (b) Review statistics on course content being accessed to support improvements in the course ; (c) Track participation in discussion forums; (d) Assess participation in the course; and (d)

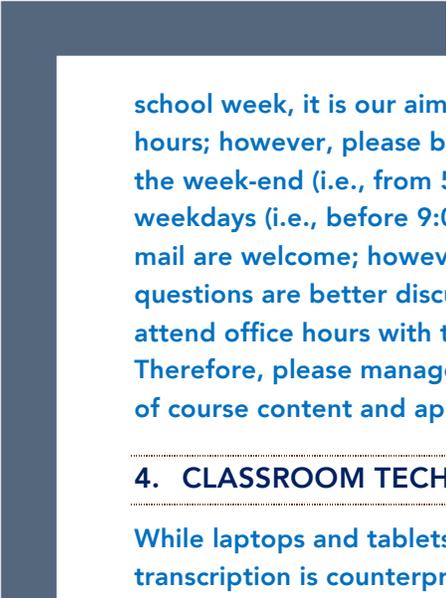
2. COPYRIGHT

All materials of this course (e.g., course study guides, lecture slides, workbooks, assessments, course readings, ...) are the intellectual property of the Course Instructor or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline.

Recording and/or use of photography during class lectures is not permitted except in extenuating circumstances, which must be discussed and pre-arranged with the Course instructor.

3. CORRESPONDENCE

When corresponding with the course instructor and/or teaching assistant(s) over e-mail, please use your UBC e-mail account and include 'KIN 140' or 'KIN 284' in the subject heading. Use appropriate salutations and professional grammar in all e-mail correspondence. During the



school week, it is our aim as your course teaching unit to respond to your e-mail within 12 hours; however, please be aware that e-mails may not be checked and/or responded to over the week-end (i.e., from 5:00 pm Friday until 9:00 am Monday) or after business hours on weekdays (i.e., before 9:00 am or after 5:00 pm). Asking course content questions through e-mail are welcome; however, question quantity should be limited in nature. In fact, many questions are better discussed in person and you may be directed to make an appointment or attend office hours with the course instructor and/or teaching assistant(s) if this is the case. Therefore, please manage your time appropriately throughout the semester and keep abreast of course content and approaching course deadlines.

4. CLASSROOM TECHNOLOGY

While laptops and tablets are permitted in the lecture hall, use of such devices for verbatim transcription is counterproductive to learning and highly discouraged. Surfing the web and checking/sending e-mails is strictly prohibited during class time. Students may be asked to turn off their computer or leave the room if their computer use is a distraction for the instructor, teaching assistant(s), and/or other students.

Cell phones are only permitted inside the lecture hall for use in the event of an emergency. Therefore, cell phones should not be visible and phone operations must be placed in a mode that cannot be discerned by others. An exception to cell phone visibility/use is if it is needed for medical purposes.

Recording of class lectures (via video and/or audio methods) or photographing class materials is prohibited except in extenuating circumstances, which must be discussed and pre-arranged with the course instructor.

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