

**KIN 570: Research Methods in Kinesiology****Syllabus****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
Research Methods in Kinesiology	KIN 570	3 Credits

**COURSE DESCRIPTION**

Research methods applied to the study of sport and physical activity, the nature of scientific inquiry, the design of experiments, (including the survey as a research medium), introduction to meta-research (science of science), presenting science and academic writing.

**CONTACTS**

Course Instructor(s)	Contact Details	Office Location	Office Hours
Prof. Karim Khan, MD, PhD, MBA	karim.khan@ubc.ca	--	By appointment, after class*

\*If you would like to discuss course material more in-depth, please schedule a 15- or 30-minute appointment. These appointments give you the opportunity to discuss your own research or the concepts covered in this course. If you have other questions, please contact me to establish a time to discuss.

**COURSE INSTRUCTOR BIOGRAPHICAL STATEMENT**

Dr. Karim Khan is a professor in the Department of Family Practice and School of Kinesiology at the UBC, where he has taught since 2000. He is also the Scientific Director of the Canadian Institutes of Health Research-Institute for Musculoskeletal Health and Arthritis (CIHR-IMHA).

Dr. Khan is internationally recognized for research in the field of tendon injuries, osteoporosis, fall prevention and exercise promotion for health. He has published over 350 peer-reviewed publications. From 2008-2020 he was the editor-in-chief of the *British Journal of Sports Medicine (BJSM)*. Dr. Khan is passionate about knowledge translation and patient engagement, and was responsible for establishing the BJSM's social media accounts, podcast and blog that have reached >10 million viewers and listeners. He is also the co-author of the best-selling textbook *Bruckner & Khan's Clinical Sports Medicine* (all 5 Editions, 1993-2019). For services to Sport and Exercise Medicine, he has been made an Officer of the Order of Australia (AO) and received honorary doctorates from the National Sports University (Oslo, Norway) and the University of Edinburgh (Scotland).

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Dr. Khan earned his medical degree (1984) and PhD (1998) at the University of Melbourne, and his MBA (2011) at the University of British Columbia. Dr. Khan, whose parents were Afghan and German, is a dual-citizen of Australia and Canada. He immigrated to Canada in 1997.

### OTHER INSTRUCTIONAL STAFF

This course will host several guest speakers with expertise in research methods, particularly in the areas of: academic writing/research writing, graduate studies success, science ethics, quantitative study design, patient engagement in research and implementation science.

### COURSE STRUCTURE

Some of the weekly lectures may be recorded and posted to Canvas prior to our in-person meetings each week. You will be alerted to those and you should view those lectures before coming to class.

Our weekly **in-person** meeting time will be **Mondays, 1:05pm – 4pm PST in UBC Swing Space 109**. This is the time that you should plan to be available each week.

I will be available for informal and brief consultation with students immediately after our class discussion (until 430 pm). You can sign up for individual 15-minute appointments on our Canvas page. (These will be by zoom to save travel time). See also **Office Hours** below.

### SCHEDULE OF TOPICS

You will be notified if there are any changes made to the following schedule:

Date	Class Content	Assessment	Text Chapter
#1. Jan. 8	<p>Introduction to the course, principles of how the course will run.</p> <p>Why are you doing Research? What's the difference between this Research Methods course and 'stats course'?</p> <p>Getting to know each other's work, discussing own research areas of interest</p> <p>Identify areas of interest for the Group Presentation</p>		No pre-reading
#2. Jan. 15	<p><b>Philosophy of research and world view.</b> Complementary nature of qualitative and quantitative research. How research is part of everyday life decisions. What do you trust? How do you consider different types of evidence? The concept of 'levels of evidence'. How 'study design' differs and is related to 'levels of evidence'. (Introduction to these concepts of LoE, we will drill down more step by step)</p> <p>Distinguishing among: Research Topic, Research Problem, and Research Question. Why does it matter? Distinguishing theory and framework.</p>	<b>Quiz 1 will be posted and due before Jan 23rd</b>	1 & 2

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#3. Jan. 22	<p>Close off on <b>research question and introduce Prof Lingard's problem-gap-hook</b> by discussing your favourite paper. Do we need to cover framework and theory?</p> <p>What do you love about your favourite research paper? How does it advance the field? Compare two papers that come to different conclusions. Why has that happened? Have you read any 'terrible' papers? What makes it terrible?</p> <p>Ethics (and TCPS 2 module); Responsible conduct of Research: Questions from Ch 3</p> <p>Equity, Diversity &amp; Inclusion in research. Why are all the journal editors men? Why are women not studied? Why are racialized populations not studied? How do funding agencies decide how to apportion funds to basic science vs. global health?</p> <p>Introduction to Presentation Principles (BOPPPS): Time to finalise the topics/scope of the Group Presentations</p> <p><b>Guest lecture: Dr Anne Lasinsky</b></p>	Pre-reading & in class multiple choice and short answer test #1	3
#4. Jan. 29	<p>Drilling deeper into Quantitative Study Design for various study designs; Focus on your own study—compare 3 key studies in your field and drill into the methods. What is strong and what could have been done better. Be able to define the key categories/terms and be able to identify study design from papers. Be able to explain the relative utility and merit/limitations</p> <p>What is Research Impact? The difficult issue of causality itself and the language around causality (Bradford Hill). Research in screening and the Wilson-Junger criteria to decide whether to implement screening</p> <p>Time to develop your Group presentation (with help); do you have the content covered?</p>	<b>Quiz 2 will be posted and due before Feb 6</b>	4
#5. Feb. 5	<p>Practical workshop examining a small series of papers that we build as a class. Why do studies have different outcomes? (Topic/content area to be provided by class members)</p> <p>Time to advance your Group presentation (with help); do you have the format covered (participation activity, BOPPPS elements)</p>		4 & 5
#6. Feb. 12	<p>What's a trustworthy Quantitative Research Study? Quantitative Data Analysis (Chapter 5). What about the process of gaining consensus unless already covered. What's your favourite consensus statement?</p>		5 & 6
	<b>Feb 19 Family Day &amp; break week</b>		

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#7. Feb. 26	<p>What is Open Science? Guest Lecture: Dr Kelly Cobey What is Team Science?</p> <p>Scientific writing: (support material provided) Preparation for your Research Proposal /</p> <p>Close off on Chapter 6</p>	<p><b>*Pre-reading assignment for in class multiple choice test #2</b></p> <p><b>*Quiz 3 will be posted and due before Mar 6th</b></p>	6
#8. Mar. 4	<p><b>Guest Lecture Dr Clare Ardern:</b> Evidence synthesis—Looking at a body of research and making sense of it.</p> <p>Knowing whom and what to trust. Fraud in science. Data Analysis &amp; data visualization. Validity</p> <p><b>Groups 1 &amp; 2 Presentation</b></p>		2 & 6
#9. Mar. 11	<p><b>Groups 3 &amp; 4 Presentation</b></p> <p><b>Guest Lecture: Dr David Wright:</b> Laboratory science including animal models</p> <p>Career development—how to win a scholarship, how to get good reference letters, what volunteering is valuable volunteering; How to differentiate your research; When you are being interviewed</p>		
#10. Mar.18	<p><b>Guest Lecture: Dr Bill Sheel</b></p> <p><b>Group 5 &amp; 6 presentations</b></p> <p>Feedback on presentations</p> <p>Brief close out on problem, gap and hook. How much significance should there be in hook?</p>	<p><b>Quiz 4 will be posted 23<sup>rd</sup> and due before April 1<sup>st</sup> (i.e by Friday 31<sup>st</sup> 11:59 pm)</b></p>	11, 12
#11. Mar.25	<p>1 pm. Patient engagement in research (<b>Guest lecture: Dr Dawn Richards, tbd*</b>) background material is <a href="#">CIHR Patient Engagment Modules</a></p> <p>A focus on mixed methods</p>	<p><b>Multiple choice and short answer test #3 in class</b></p>	10



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	Selected topics (that have come up in the course) including: statistical issues, journal peer-review process and impact factors, causal inference		
Apr 1st	<b>Easter Monday</b>		
#12. Apr. 8	<b>Prepare for the final assignment;</b> Ask me anything relating to research proposals. Items from Quiz 4.	<b>Research Assignment</b>	

### LEARNING OUTCOMES

At the completion of KIN 570, you will be able to:

- Critically analyze the components of quantitative research study ethics, design, methods, analysis, interpretation and writing for publication
- Discuss the challenges and opportunities in research such as the need to improve methods and the need for research to be more equitable
- Consider the many stakeholders in public research, and how to incorporate patient engagement and equity, diversity and inclusion into study design and knowledge translation
- Discuss the broad range of quantitative (and qualitative) research in kinesiology—a dynamic and diverse study of human movement
- Transfer and apply concepts discussed in class to you own research projects, writing and presenting.

### LEARNING ACTIVITIES

- Completing the on-line ethics certificate. Certificate needed for approval (5%)

All graduate researchers are required to complete an ethics' tutorial before submitting a request for an ethical review. The aim of this tutorial is to help you appreciate ethical principles and ethical conduct. This will help you apply to the BREB (Behavioural Research Ethics Board) or CREB (clinical) REBs. If you have already completed the TCPS (Tri-Council Policy Statement), then I will accept your certificate of completion. If you want a refresher or have not completed the ethics tutorial, then the new tutorial (TCPS2 2014) can be accessed through the Office of Research Services' website:

<https://ethics.research.ubc.ca/education-training/online-tutorials-training>

You will need to register with an email and password. It can take from 1 to 3 hours to complete. It is an interesting, informative and fun tutorial. Please present the certificate for approval by 11:59 pm January 31st, 2023 (please give a copy to your research supervisor).

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**LEARNING MATERIALS**

**Required Textbook:** Kowalski, K. C., McHugh, T. L. F., Ferguson, L., & Sabiston, C. *Research methods in kinesiology*. Oxford University Press. 2<sup>nd</sup> edition. 2022

- PRINT ISBN

9780199037643, 0199037647

- E-TEXT ISBN

9780199037698, 0199037698

**Canvas:** Information about this course, lectures, and important reminders will be made available on the course website. This information can be accessed on Canvas, so please check the site regularly. *You are responsible for obtaining the information posted to Canvas.*

Class PPT notes will be made available through Canvas. Please keep in mind that these notes and lectures do not contain information related to discussions or detailed examples, which will be covered in our class sessions. **You should complete all assigned readings prior to attending our weekly class session.**

**ASSESSMENTS OF LEARNING**

The breakdown of marking for the course is as follows:

<b>Pre-Assessments:</b>	<b>10% (4 x 2.5%)</b>
<b>Multiple choice &amp; short answer <u>in class</u> test:</b>	<b>10% (4 x 2.5%)</b>
<b>Written Quizzes:</b>	<b>40% (4 x 10%)</b>
<b>Ethics cert:</b>	<b>5%</b>
<b>Group presentation:</b>	<b>15% (4 students per group. tbc)</b>
<b>Research proposal (written, individual):</b>	<b>10%</b>
<b>Participation:</b>	<b>10%</b>

If you anticipate that you won't be able to complete an assessment, please contact me **before you miss the assessment**. Assessments will not be rescheduled for any reason other than self-declared medical circumstances, compassionate grounds, religious observation or conflicting responsibilities. Please review those policies here: <https://kin.educ.ubc.ca/undergraduate/bkin/academic-concession/>.

**PRE-ASSESSMENTS**

Prior to our class sessions on Mondays, you will be asked to complete a pre-assessment of your knowledge. This will be a series of several multiple-choice questions and will be conducted as a Canvas quiz. Collectively, these will make up 10% of your overall mark.

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**WRITTEN QUIZZES**

There will be four written (short, less than 2 pages) quizzes in the course. Quiz style will vary depending on the material. Quizzes will be open during a relevant window (outside of class time); there may or may not be a time limit for quizzes and you will be informed of that in class. Quizzes will be conducted through Canvas. Each quiz is worth ten percent of your overall mark for the course. Quizzes will be based on our lecture content and the information in your text. Missed quizzes are subject to the policies outlined in the section titled "Course Evaluation." In some circumstances, the value of a missed quiz may be re-weighted onto the other quizzes, but only in the case of self-declared conflicts. The content that is examined in the quizzes is not cumulative.

**PARTICIPATION**

At the end of this term, you will be asked to assign yourself a mark for participation in the course. Asking you to assess yourself is a step toward viewing the learning experience as a more collaborative endeavour, in which your own self-evaluation is valued as part of your course mark. You will assign yourself a grade that encompasses the extent to which you participated in class discussions, peer feedback, and online discussion threads.

**UNIVERSITY POLICIES**

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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**

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**EMAIL**

Attempting to teach or explain material over e-mail can be difficult and ineffective. If you have questions about course material or concepts those questions should be addressed face-to-face during or after class or via the scheduled zoom appointments mentioned above. E-mail should be used for a limited number of reasons, including: scheduling a time to meet during office hours, in cases of emergency that may cause you to miss a quiz, or situations otherwise detailed in class. It may take up to 24 hours to respond to your email during the week. Weekend emails will be answered on Mondays. Please include "KIN 570" in the subject line of emails. Karim.Khan@ubc.ca



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### ATTENDANCE

You should plan to attend our session each week. You are responsible for all material covered in our session and any information given whether you are present or not. You are also responsible for all of the content covered in our recorded lecture videos.

If you miss a quiz or exam without advanced notice and proper declaration, you cannot make up that assessment and will be given a mark of zero. If you have a reasonable academic concession request (medical issue, compassionate grounds, religious observation, etc.), you should self-declare that, using the procedures outlined in the COURSE EVALUATION section of this course outline.

### IN CASE OF EMERGENCY

In the event that we experience circumstances which could prevent us from joining in person (COVID-related restrictions, inclement weather, travel restrictions, disruptions to public transit, etc.), we will move our weekly class session to Zoom. A link to that meeting and an Announcement that we are pivoting will be provided in advance.

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### LEARNING ANALYTICS

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Learning analytics includes the collection and analysis of data about learners to improve teaching and learning. This course will be using the following learning technologies: Canvas, WordPress, edX, iPeer, Piazza. Many of these tools capture data about your activity and provide information that can be used to improve the quality of teaching and learning. In this course, I plan to use analytics data to:

- View overall class progress
- Track your progress so that I can provide personalized feedback
- Review statistics on course content being accessed so I can continue to improve the course
- Track participation in discussion forums

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### COPYRIGHT

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All materials of this course (course handouts, lecture slides, assessments, course readings, etc.) 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.

Students are not permitted to record this course without explicit permission.