Acknowledgement of Indigenous Peoples and Traditional Territories: York University recognizes that many Indigenous nations have longstanding relationships with the territories upon which our campuses are located that precede the establishment of York University. We acknowledge our presence on the traditional territories of the Mississaugas of Credit First Nation, the Huron-Wendat, the Haudenosaunee Confederacy and the Métis Nation of Ontario

YORK UNIVERSITY FACULTY OF HEALTH SCHOOL OF KINESIOLOGY AND HEALTH SCIENCE

HH/KINE 3640 3.0 A - Epidemiology of Physical Activity, Fitness, and Health

WINTER 2021 COURSE OUTLINE

Course Director: Akinkunle Oye-Şomefun (Ph.D. Candidate) Email: akinoyes@yorku.ca

Course consultation: office hours (by appointment)

Email Policy:

Questions regarding course material can be posted on the discussion board on eClass (http://eclass.yorku.ca). Emails sent to the Course Director will be answered within 24 hours, between 9 am and 5 pm, Monday to Friday. Emails must include "3640" in the subject heading and should be professional and limit use of short form text.

Lectures: Tues/Thurs 1:00-2:30pm [zoom link***: on eClass]

*** Please note that this is a course that depends on remote delivery until the 31st of January 2022, with in-person delivery expected to resume on February 1, 2022. All times in the course outline or elsewhere related to this course are in local Toronto time. ***

Take Care of Yourself:

We are all dealing with a tremendous amount of stress, anxiety, fear, and uncertainty as a consequence of the COVID-19 pandemic. Please be kind and gentle with yourselves and others during this difficult period of time. There are a number of online free resources available to help support you. If you need help, the following list of websites (this is not an exhaustive list) may be a good place for you to start:

https://good2talk.ca/ https://counselling.students.yorku.ca/ https://coronavirus.info.yorku.ca/ https://yorkinternational.yorku.ca/ **Expanded Course Description:** This course provides an overview of the epidemiology of physical activity, fitness and health. General concepts of epidemiological study will be introduced and the relationships among physical activity, sedentary time, fitness, and disease will be discussed with current research issues / population health statistics, and case studies. Weekly lecture topic recordings will be made available every week. Evaluations will be based on a midterm, methodological paper, and a final exam.

<u>Course Prerequisites:</u> There are no course prerequisites; however, it is highly recommended that you have taken KINE 1020 *and* KINE 2050. Concepts in this course assume a strong understanding of fitness measures covered in depth in KINE 1020, and build upon statistical concepts in KINE 2050. Course petitions from students who elect to enroll in the course without these core courses will not be supported.

Course Learning Objectives

(1) Purpose:

The purpose of this course is to assist students in the development of critical appraisal skills and to develop an understanding for the use of epidemiological methods in the area of exercise science. At completion of the course, students will be able to: i) identify appropriate sources of epidemiological data for physical activity and disease surveillance; ii) identify measures of disease frequency; iii) interpret physical activity trends, and; iv) discuss the inter-relationship between physical activity, sedentary time, and health.

(2) Students will demonstrate the capacity to:

- Identify appropriate sources of population-level surveillance for physical activity trends, physical fitness, and chronic diseases in Canada
- *Identify appropriate measures of disease frequency*
- Describe the evolution of physical activity and sedentary time guidelines in Canada
- Contrast the feasibility and validity of a range of methods for assessing physical activity and physical fitness at the population level
- Understand the general relationship between physical activity, health-related fitness, and major chronic diseases
- Apply epidemiologic and exercise science theory to critically evaluate the strengths and limitations of various epidemiological study designs (i.e. bias, validity and reliability)
- Develop their ability to discuss and write about current trends and issues in physical activity and physical fitness surveillance

Organization of the Course

Lectures:

Lecture material will be posted on eClass, and students are responsible for all recorded lectures, activities and other materials posted. The official "class time" is Tuesday/Thursday from 1:00 - 2:20 pm. Lecture recordings will be posted after scheduled lecture days.

All tests will be held in-person in the 1:00 - 2:20 pm time slot.

Course Materials:

Readings:

There is no required text for this course. Outlines of lecture notes will be provided on a weekly basis. Assigned readings can be accessed through the electronic library holdings of York University.

NOTE: The main focus of the assigned readings will be current journal articles as suggested by the course director on the eClass reference list. Additional readings may be assigned or recommended during the course.

<u>Note:</u> Beware of using course notes from a past semester or obtained elsewhere online. Course content will vary this semester.

Technical requirements for taking the course:

A computer or smart device with a camera and microphone is required for this course.

Please review this syllabus carefully to determine how the course content will be delivered, how office hours will be conducted and how assignments will be submitted.

Students must make every effort to arrange adequate internet connection. If a student has any concerns about their internet connection, they should communicate their concerns to the course director well in advance. Students are responsible for being actively involved in the course, and for checking eClass regularly and frequently to ensure you have the latest information about the course. "I did not know because I was not online" or "because I did not check eClass" are not excuses that will be accepted under any circumstances for the course

Useful links describing computing information, resources and help for students:

Student guide to eClass	https://lthelp.yorku.ca/student-guide-to-moodle	
Computing for Students Website	https://student.computing.yorku.ca/	
Student Guide to eLearning at York	http://elearning-guide.apps01.yorku.ca/	
University		
Learning Skills Services	https://www.yorku.ca/scld/learning-skills/	
Zoom@YorkU User Reference Guide	http://staff.computing.yorku.ca/wp-	
	content/uploads/sites/3/2012/02/Zoom@YorkU-	
	User-Reference-Guide.pdf	

Zoom@YorkU Best Practices	https://staff.computing.yorku.ca/wp- content/uploads/sites/3/2020/03/Zoom@YorkU-
	Best-Practicesv2.pdf
Technical requirements for eClass	https://lthelp.yorku.ca/95440-student-fag

Overview of Course Topics and Readings:

Date	Content	Reading*		
SECTION 1: EPIDEMIOLOGICAL METHODS				
Jan. 11	Introduction: Course Overview and Review	No Reading		
Jan. 13	 The Case for Chronic Disease Epidemiology Epidemiology Defined Tools in Epidemiology (survey, administrative data, GIS, etc.) Epidemiologic Transition 	Franco et al., <i>BMJ</i> (2013).		
Jan. 18-20	 Methods in Epidemiology Overview of Types of Epidemiological Studies Descriptive Studies vs Inferential Studies 	Paffenbarger RS. <i>Med Sci Sports</i> <i>Exerc</i> (1988).		
Jan. 25	 Topic 1: Epidemiology in Practice Hill's Cause and Effect Criteria Working Example: Correct and Incorrect Presentation of Data Topic 2: Overview of Assignment Critiquing Research Media Release vs Research Summary 	No Reading [Practice Example: Media Release – TBD]		
	SECTION 2: PHYSICAL ACTIVITY MEASUREMEN	NT AND TRENDS		
Jan. 27	 Measurement of Physical Activity, Sedentary Time, and Physical Fitness Should we promote the harms of inactivity or the benefits of activity? 	[Homework: Complete IPAQ S-F, EPAQ-2, RPAQ, and SITQ-7 questionnaires and 7 day Pedometer Counts] – see eClass for direct links Hills et al., <i>Frontiers Research</i> (2014).		
Feb. 1	Relationship between Physical Activity and Fitness Individual Variation (HERITAGE Family Study) Exercise Resistance / Non-Responders 	Bouchard et al., PLoS One (2012).		

	 [In Class Activity – Report Back on Class PA] 	
Feb. 3	 Correlates of Physical Activity Correlate vs Predictor vs Determinant What makes people active? Do predictors of PA vary across the lifespan? How well does PA track? 	Bauman et al., <i>Lancet</i> . (2012).
Feb. 8	 Physical Activity Trends [Adults] Canadian and Global Patterns Is there variation by Subgroup? Leisure time versus Occupational Activity Physical Activity Trends [Children] What we do and do not know 	Church et al., <i>PLoS One</i> (2011). Hallal et al., <i>Lancet</i> (2012).
	SECTION 3: BURDEN OF DISEASE ASSOCIATED	WITH INACTIVITY
Feb. 10	 Physical Activity, Fitness, and All-Cause Mortality Case Study / Examples: Statistically Adjusting for Confounders and Covariates Dose-Response Relationships Independent and Joint Effects of Inactivity and Sedentary Time Weekend Warrior vs Dispersed Activity 	Koster et al., <i>PLOSONE</i> (2012).
Wed. Feb. 9	ASSIGNMENT DUE on or before 6:00 pm (to be posted	to <u>eClass</u>)
Feb.15	 PA and Coronary Heart Disease General Trends and Early Intervention Opportunities Is There a Benefit of Higher Intensity when PA Volume is Below Recommended Levels? Evidence for Contraindications with Statin Use Can There be Too Much of a Good Thing? Volume vs Intensity differences (i.e. running vs. walking) and J-shape Phenomenon Overview of midterm structure 	Chomistek et al., <i>JACC</i> (2013).
Feb. 17	MIDTERM [1:00-2:20pm]	
Feb. 22, 24	No Class-Reading Week	
Mar. 1	 PA and Non-Communicable Disease Measurement and Quantification of Health Risks using Population Attributable Risk Assignment <u>Returned</u> on eClass 	Lee et al., Lancet (2012).
Mar. 3	 PA Influences on Stroke and Blood Pressure Variation by Stroke Subtype 	Martinez-Gomez, (2009).

		Hu et al., <i>JAMA</i> (2000).
Mar. 8	 Measurement Issues in Overweight and Obesity Measurement and Controversies: Anthropometrics and Obesity Staging BMI, Morbidity, and Mortality 	Sharma and Kushner, <i>Int J Obes</i> (2009).
Mar. 10	Overweight and Obesity Trends Canadian and Global Patterns High-Risk Subgroups and Predictors Midterm Exam Returned	No Reading
Mar. 15	 Physical Activity and Obesity Current Recommendations Experimental vs Epidemiological Literature (Cross-Sectional and Longitudinal / Intervention Studies) 	Davidson et al. <i>Arch Intern Med</i> (2009).
Mar. 17	Fit-Fat Paradox • Controversies and Limitations to Research: Epidemiological vs Experimental Studies and Different Disease States	Lee et al., Am J Clin Nutr (1999).
Mar. 22	 Physical Activity and Metabolic Syndrome Risk Factor Clusters and Patterns 	Saunders et al., <i>PLOSONE</i> (2013).
Mar. 24	 Physical Activity and Diabetes Controversies in the Role of Obesity vs Physical Activity Sedentary vs. MVPA 	Weinstein et al., <i>JAMA</i> (2004). Healy et al., <i>Diabetes Care</i> (2007).
Mar. 29	 Physical Activity and Cancer Mechanisms and potential influences on prevention and management Dose-response relationships 	No Reading
Mar. 31	Cognition and Aging-Related Disease • Cognition and Aging [Dementia and Alzheimer's] • Association between PA and quality of life	Kesse-Guyot et al., <i>PLOSONE</i> (2005).
April 5	 PA at the Interface of Global Health Challenges to PA promotion (PA vs injury; chronic disease vs infectious disease, etc.) Lessons Learned 	No Reading
April 7	Exam Review FINAL EXAM [DURING EXAM PERIOD: Apr	No Reading

*All readings must be accessed through eJournal holdings at York University. Resource citations are provided on the course eClass site, but students must log-in through the Library page in order to download them. Note: the topics listed here are tentative, and are subject to change depending on current research, class interest, and timing.

Evaluation of Academic Performance *

Note: * All exams cover material from the lectures and assigned readings. *

Midterm: Covers lectures and readings from January 11th to February 15th (inclusive).

Final Exam: All material, with a focus on material covered from March 1st to April 5rd

Note: Final course grades may be adjusted to conform to Program or Faculty grades distribution profiles.

Written Assignment:

A list of articles (and library links) are available on eClass under the heading "Assignment 1 Articles". Students must select an article from this list to review / critique. Please use the following subheadings as a guideline for your assignment:

- 1. Write a "lay summary" of 200 words or less. This summary should be written in non-technical language (grade 10 level with non-technical terms see instructions on course eClass site) and describe the study background, objective, study design and population, main study finding, and interpretation of results.
- 2. Identify potential sources of bias in the study (including those that may not have been identified in the original study).
- 3. Conclude with a general critique of the study strengths and limitations and <u>two (2)</u> future directions or remaining research gaps.

<u>Note:</u> Assignments can be done on your own, <u>or</u> with another classmate. This is *your* choice. If you chose to complete the assignment with another student, <u>you will receive the same grade, regardless of any potential differences in opinion in each other's contribution to the collective work.</u> The assignment should be a maximum of two pages using standard formatting (Times New Roman; 12 font; 1.5 spacing). Material beyond 2 pages in length will not be graded. Please provide a title page with student number and article reference. Articles must be selected from the list of eligible articles found on eClass.

- Paper due on Wednesday February 9^h, 2022. Assignments must be uploaded to eClass by <u>6pm</u> (EST). NO EXTENSIONS will be given.
- **Twenty** percent (20%) per day will be deducted for late papers.
- Students will be marked on grammar and content of their critique.

Grading, Assignment Submission, Lateness Penalties and Missed Tests

There are no make-up assignments in the course.

Students have 1 week after the posting of exam results or assignments to contact the instructor about marking concerns. Any request for remarking must be made in writing, and include a statement of the reason for the request and any supporting documentation; a "re-grading request form" is available in eClass. <u>Note</u>: for consistency, such a request will involve re-evaluation of the entire exam or assignment, and not an individual question in isolation. Grades can therefore increase, decrease, or remain unchanged after re-marking.

Grading: The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A + = 9, A = 8, B + -7, C + = 5, etc.). Assignments and tests will bear either a letter grade designation or a corresponding number grade (e.g. A + = 90.0 to 100, A = 80.0 to 89.9, B + = 75.0 to 79.9, etc.)

(For a full description of York grading system see the York University Undergraduate Calendar - http://calendars.registrar.yorku.ca/pdfs/ug2004cal/calug04_5_acadinfo.pdf)

Students may take a limited number of courses for degree credit on an ungraded (pass/fail) basis. For full information on this option see Alternative Grading Option in the Faculty of Health section of the Undergraduate Calendar (<u>http://www.registrar.yorku.ca/enrol/passfail/</u>):

Assignment Submission: Proper academic performance depends on students doing their work not only well, but on time. Accordingly, assignments for this course must be received on the due date specified for the assignment.

Lateness Penalty: Assignments received later than the due date will be penalized **20%** per day that the assignment is late. Exceptions to the lateness penalty for valid reasons such as illness, compassionate grounds, etc., may be entertained by the Course Instructor but will require supporting documentation.

Missed Tests: Students with a documented reason for missing a course test, such as illness, compassionate grounds, etc., which is confirmed by supporting documentation (e.g., doctor's letter) may request accommodation from the Course Instructor. Such students will be given the opportunity to <u>add</u> the weight of the missed evaluation component to their final exam (i.e. there are no make-ups for the <u>midterm exam</u>). Further extensions or accommodation will require students to submit a formal petition to the Faculty.

IMPORTANT COURSE INFORMATION FOR STUDENTS

Course syllabus, readings, and regular postings will be included on the course website (eclass.yorku.ca). All students are expected to familiarize themselves with the following information, available on the Senate Committee on Curriculum & Academic Standards webpage (see Reports, Initiatives, Documents) - http://www.yorku.ca/secretariat/senate_cte_main_pages/ccas.htm

- York's Academic Honesty Policy and Procedures/Academic Integrity Website
- Ethics Review Process for research involving human participants
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities
- Student Conduct Standards
- Religious Observance Accommodation

*If you have not done so in the last 12 months, students must complete the on-line academic integrity tutorial (<u>https://spark.library.yorku.ca/academic-integrity-what-is-academic-integrity/</u>). The on-line tutorial will take approximately 30 minutes.

Academic Integrity

For full documentation of the Senate Policy on Academic Honesty please see: <u>https://www.yorku.ca/secretariat/policies/policies/academic-honesty-senate-policy-on/</u>

<u>Access</u>

Student Accessibility Services: see http://accessibility.students.yorku.ca/)

York provides services for student accommodation due to physical, medical, learning and psychiatric health to support teaching and evaluation methods and materials.

It is the student's responsibility to register with Student Accessibility Services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. Please advise the instructor(s) as soon as possible as to any Academic Accommodation that is required. You are encouraged to schedule a time early in the term to meet with the Instructor to discuss the necessary accommodation; failure to make these arrangements may jeopardize your opportunity to receive academic accommodations.

For Senate policies for accommodations, please see: <u>http://www.yorku.ca/secretariat/policies/</u>.

Religious Observance Accommodation

York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. To arrange an alternative date or time for the final exam scheduled during the formal examination period (April 12th-29th), students must complete an Examination Accommodation Form (https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs).

Student Conduct

Students and instructors are expected to maintain a professional relationship characterized by mutual respect and courtesy. A statement of the policy and procedures governing disruptive and/or harassing behaviour by students in academic situations can be found at: https://oscr.students.yorku.ca/student-conduct.

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Evaluation:

There is one midterm test and one final exam in this course. All tests are mandatory and will be completed in-person – to be consistent with in-person delivery of courses.

Midterm Test and Final Exam: These will assess your knowledge of material from lectures and will include questions related to critique of study methods, results, or other population data. These are closed-book tests, meaning students are not permitted to use notes or other assistive resources during a test. **Midterm and Final Exams are to be taken by the student and no one else.**

Communication: Several modes of communication with the instructor and other students have been set up to maximize communication and a sense of community.

Communicating with Instructors: akinoyes@yorku.ca

If you have questions related to course content, or general course questions please post them in the discussion forums on eClass.

Communicating with other students: You are highly encouraged to communicate with your fellow students through the discussion forums on eClass. You are welcome to post course-related questions, as well as study tips or helpful websites/apps.

Test Viewing:

Students may book an office hours appointment to view/discuss their tests, and tests will not be returned due to the risk of questions becoming available unfairly to those who have not completed the tests. Please be aware that the instructor and TA will review all test questions together, after the completion of the midterm and final exam to ensure that no issues exist with respect to grading or question clarity. If any issues are identified, student grades will be automatically corrected.

Email communication:

All electronic communication with the Course Instructor through email (<u>akinoyes@yorku.ca</u>) or eClass discussion forums. When emailing, please <u>INCLUDE YOUR FIRST AND LAST NAME AND</u> <u>STUDENT ID</u>. Emails are a form of communication and the spelling, grammar and tone will reflect your communication skills. Emails should be written using professional language.

Student Code of Conduct:

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect and to refrain from actions disruptive to such a relationship. Moreover, it is the responsibility of the instructor to maintain an appropriate academic environment, and the responsibility of the student to cooperate in that endeavor. Students must conduct themselves in accordance with York University's Student Code of Conduct. This includes all aspects of the course, including online environments. A statement of the policy and procedures involving disruptive and/or harassing behaviour by students in academic situations in available at: https://oscr.students.yorku.ca/student-conduct.

Student Code of Rights and Responsibilities:

This code is intended to be educative and promote accountability among students toward their peers and other members of the York community. This code identifies those behaviours that are disruptive to the educational purposes of the University, make the campus less safe, diminish the dignity of individuals and groups, and the enjoyment of their rights. It applies specifically to students because the behaviours of non-student members of the University community are held to comparable standards of account by provincial laws, University policies, and their unions' collective agreements. Information about how to address a concern or a complaint regarding a faculty or staff member can be found at: http://oscr.students.yorku.ca/.

Academic Integrity:

Students are expected to maintain the highest standards of academic integrity related to issues such as cheating, enabling cheating, plagiarism, authentic documentation, etc. Breaches of academic integrity will not be tolerated.

The School of Kinesiology and Health Science takes academic dishonesty very seriously and will abide by York University's Senate Policy of Academic Honesty to adjudicate all cases. Students are expected to make efforts to discourage any and all (un)intentional breaches from their course work. Students are expected to complete their own work without assistance, in part or whole, on assignments and tests. Students are expected to act in accordance with the Senate Policy of Academic Honesty and are responsible for familiarizing themselves with these guidelines. Breaches of academic integrity will be handled under the disciplinary proceedings as outlined in:

https://spark.library.yorku.ca/academic-integrity-breach-of-policy-on-academic-honesty/

Online course material and notes:

The offering for sale of, buying of, and attempting to sell or buy course material, videos, or any course specific test questions/answers is not permitted in the Faculty of Health. Any student found to be manipulating videos, posting course content to third-party sites or outside of eClass may be considered to have breached the <u>Senate Policy on Academic Honesty</u>. In particular, buying and attempting to sell test questions and/or answers may be considered as "Cheating in an attempt to gain an improper advantage in an academic evaluation" (article 2.1.1 from the Senate Policy) and/or "encouraging, enabling or causing others" (article 2.1.10 from the Senate Policy) to cheat.

Accessibility:

York University provides services for students with accessibility concerns (including physical, medical, learning, and psychiatric), who require accommodation related to teaching and evaluation methods/materials. It is the <u>student's responsibility</u> to register with Student Accessibility Services <u>as</u> <u>early as possible</u> to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to email a copy of your accommodation letter to your instructors as early as possible in the semester, and to schedule a time early in the term to meet with your instructor to discuss your accommodation needs. Failure to make these arrangements may jeopardize your opportunity to receive academic accommodations. Requiring accommodation does not relieve students from following course policies. Student Accessibility Services can be accessed here: https://accessibility.students.yorku.ca/.

Several platforms may be used in this course (e.g., eClass, Zoom, etc.) through which students will interact with the course materials, the course director / TA, as well as with one another. Please review the syllabus to determine how the class meets (in whole or in part), and how office hours and presentations will be conducted.

Students shall note the following:

 \cdot Zoom is hosted on servers in the U.S. This includes recordings done through Zoom.

 \cdot The system is configured in a way that all participants are automatically notified when a session is being recorded. In other words, a session cannot be recorded without you knowing about it. Note: lectures on January 11-20 (inclusive) will be recorded.

Technology requirements and FAQs for eClass can be found here -

https://lthelp.yorku.ca/95440-student-faq

Important Resources

Library Help: if you are having issues accessing Pictures, please refer to the help and tutorial links in eClass. If you having trouble with other library content, please go to the York Library website and click on "Chat Is Online", <u>https://www.library.yorku.ca/web/</u>.

Learning Commons: Your York home for study help and workshops, <u>http://learningcommons.yorku.ca/</u>.

Computing Help: This site has answers to many frequently asked questions, <u>http://student.computing.yorku.ca/</u>. In addition, on the right-hand side you can chat directly with someone at the help desk or submit a ticket for more detailed help if necessary.

Student Accessibility Services: If you need assistance with anything related to equity or accessibility, this is a great place to start: <u>https://accessibility.students.yorku.ca/</u>.