COURSE SYLLABUS

ACKNOWLEDGEMENT OF MUSQUEAM FIRST NATION PEOPLE AND LAND

UBC's Point Grey Campus is located on the traditional, ancestral, occupied, unceded. And stolen lands of the xwməθkwəy̓əm (Musqueam) people. The land UBC 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. As UBC students, employees, and faculty, the majority of us have settled on these lands, whether as descendants of early settlers during the early stages of colonization or as immigrants in the 20th or 21st centuries. We have access to privileges in society that historically have rarely been afforded to the original Peoples of these lands, and we can all do our best to support ways to provide access to privileges to all people living on these lands.

Course Code and Title:	KIN459 Psychobiology of Physical Activity (Previously listed as KIN489X)
Class Meeting time(s):	Monday, Wednesday 11:00am to 12:30pm
Class location:	Friedman Building, 2177 Wesbrook Mall, Room 153
Instructor Name:	Eli Puterman, PhD, School of Kinesiology
Contact Information:	eli.puterman@ubc.ca or 604.822.2854
Office Hours:	By appointment, location: Zoom or 104-2176 Health Sciences Mall
Teaching Assistants:	Boaz Injege: boaz.injege@ubc.ca Brook Haight: brook.haight@ubc.ca

Email Communication: For personal messages: use email and indicate "KIN 459" in the subject field. Response time to email inquiries is within 72 hours (weekends excluded).

COURSE DESCRIPTION

This course offers an in-depth exploration of the effects of exercise and physical activity on psychiatric disorders, well-being, and brain structures, functions, and processes that mediate these effects. There will be an in-depth examination of difference types of research designs, from observational cross-sectional and longitudinal studies to lab-based experiments and randomized controlled trials, to understand what each one of these types of studies can reveal about the benefits of physical activity and exercise on mental health and underlying brain structures, functions, and processes. This course evaluates human studies primarily from the fields of health psychology and behavioural medicine to provide a comprehensive examination of the psychobiological effects of physical activity and exercise.

RATIONALE

In 2019, 23% of Canadians reported their lives to be quite or extremely stressful (Statistics Canada). Over 10% were at risk for depression at some point in their lifetime. With the emergence of COVID-19, depression, anxiety, and general stress levels have tripled or quadrupled nationally and internationally. While some of these trends have dissipated in the past year, they remain particularly high in some groups of adults.

A wide literature has identified how depressed mood and stress gets 'under our skin', through poor engagement in healthy behaviours and by way of the biological 'stress response.' The question then is, what if those who are depressed or experiencing long-term stress become physically active? What psychological, social, and biological response processes are altered following exercise? Also, in the general population, what cognitive, emotional, and neurobiological effects does engaging in exercise have?

To better understand and appreciate the full extent to which physical activity and exercise improve health and well-being, it is necessary to have a fundamental understanding of the psychobiological processes that are modified by physical activity.

AIMS

The aim of the course is for students to be confident in their understanding of the psychiatric and neurobiological effects of physical activity and exercise, and the varied conceptual and research methods utilized to scientifically frame and examine the psychobiological effects of physical activity and exercise.

Of particular importance is that this course is meant to support learners in their emerging capacities as 'evaluators' of evidence. Through in-depth exploration of peer-reviewed manuscripts, learners will continue to develop their capacities in reading research articles, evaluating them appropriately, and linking them to similar topics.

Educational outcomes

- Understand the effects of physical activity on depression, anxiety, and other mood states, and vice versa.
- Understand the effects of physical activity on psychobiological brain structures and functions
- Understand the stress response system, including psychological and neurobiological processes
- Appreciate the role the biological stress response system plays in disease development and progression
- Be familiar with the scientific methods used human research to discover the effects of physical activity and exercise on the varied psychobiological processes examined
- Understand the biological underpinnings of stress, threat, and challenge and how they may impact engagement in physical activity and exercise

- Develop skills in presenting research ideas and results in written assignments and in front of an audience

It is important for students in kinesiology to have knowledge of the psychobiological effects of physical activity and exercise. Many patients in hospital and clinic settings either come from backgrounds with high adversity or the experience of a disease diagnosis causes high levels of stress. In either circumstance, it is essential to understand how physical activity can directly improve their disease status and what pathways are corrected.

Specific Learning Objectives:

Upon completion of the course, students will be able to

- Describe different methods for designing research trials for behavioural interventions
- Describe features of an exercise program that are needed to consider when planning an intervention trial
- Describe the symptoms of depression, its prevalence, impact on health
- Describe impact of exercise on depression levels in healthy adults and adults with depression
- Gain proficiency in evaluating trials for bias
- Describe different ways to assess mood and affect
- Describe the role of both acute and chronic effects of physical activity and exercise on mood and affect
- Describe strengths and weaknesses of experimental laboratory studies and naturalistic studies
- Describe areas of the brain impacted by physical activity
- Describe some of the neurotransmitters affected by physical activity
- Describe effects on the structure and function of brain regions following intervention trials
- Describe the hypothalamic-pituitary-adrenal axis and sympathetic adrenal medullary pathway and their relationships to health
- Describe the different observational, laboratory, and daily process methods to assess the psychobiological impacts of stress and physical activity
- Describe how stress impacts engaging in a physically active lifestyle
- Describe the differences between threat and challenge and how they differentially impact performance, including exercise performance
- Conduct literature searches in Pubmed, Web of Science, and other online databases
- Consolidate and present concepts and results from the extant literature in written and oral forms
- Design a research study based on the existing literature and write up the design

CLASS FORMAT AND PROCEDURES:

This course is held on Mondays and Wednesdays at 11:00 – 12:30 pm.

The course is structured as a lecture/seminar. The course will include weekly readings of review articles and meta-analyses, professor-led discussions, and student participation. It is strongly encouraged that all students come to class prepared to discuss the weekly readings.

TEACHING/LEARNING METHODS

Lectures. Each class will have a lecture format, presented by the course instructor or an invited guest lecturer. The lectures will provide students with an overview of the core topics in this course. Lectures are used to present an overview of key information and will include individual and interactive group activities where students can practice applying theory to practical situations.

Individual Study. There will be several individual experiences in the class. The independent learning experiences include independent readings, quizzes completed in class on required readings, and summaries and rigorous evaluation of assigned peer-reviewed manuscripts.

Group Work. The group work will require in-class participation with your group members and completion of a set of questions. You will be working throughout the course in a group of 5 students. You can form your own groups or I will assign you to a group on September January 15th 2024. Since the sessions will be completed in-class, you are expected to attend class.

READINGS AND RESOURCES

There is no course textbook. All readings will be provided in advance of the course through the UBC library. There is a range of core readings supporting each session - Students are expected to study the required readings each week**, and there will be 8 quizzes throughout the term (see Course Schedule below) on these required readings**. On classes without required readings, there are still suggested readings. These are suggested, since your knowledge of them will not be tested but will supplement your knowledge in the course. Further independent reading will be required as directed by the Reading Group Assignment scheme. Support will be available throughout the course in terms of group work, and appointments can also be booked on an individual basis.

For classes with class slides, class slides will be made available in pdf file-format through the course website on CANVAS. Students are encouraged to bring these slides. Slides will be posted within 24-hours prior to each class. Please keep in mind that these notes provide an overview of what will be covered and do not contain information related to discussions, in-class assignments, or detailed examples, which will be covered in class. The instructor will not make a full set of notes available online.

Copyright

All materials of this course (course handouts, lecture slides, assessments, course readings, instructor recorded videos 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 classes or take photographs during class unless they are granted prior permission from the instructor.

UNIVERSITY POLICIES

It is your responsibility to become familiar with the University of British Columbia's Academic Honesty and Plagiarism Policies, as well as the Student Declaration and the consequences of violating these 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 and cultural 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 here (https://senate.ubc.ca/policiesresources-support-student-success).

POLICIES AND EXPECTATIONS

Absences due to Illness: If you are sick, it is important that you stay home. Complete a self-assessment for COVID-19 symptoms here: https://bc.thrive.health/covid19/en. In this course, the schedule can be accommodated so that you can prioritize your health and still succeed. It is imperative that you take care of your health!

Class Attendance

While you are not graded on attendance, you should attend all lectures as there will be 8 quizzes, 4 in-class group sessions, and 10 individual assignments completed in class throughout the term . You are responsible for all material covered in class and any information given whether in attendance or not. You are also responsible for getting your own notes from class, as well as information pertaining to changes in the course outline, readings, and assignments.

Academic Accommodation for Students with Disabilities

The University's goal is to ensure fair and consistent treatment of all students, including students with a disability, in accordance with their distinct needs and in a manner consistent with academic principles. Students with a disability who wish to have an academic accommodation should contact Access and Diversity without delay. The Instructor should be informed of any accommodations.

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 in person. Please seek clarification on course material in class, during breaks, after class, or by scheduling an office visit with the instructor or teaching assistants. E-mail should be used for a limited number of reasons, including: scheduling a time to meet, in cases of emergency that may cause you to miss an assignment, or situations otherwise detailed in class. It may take up to 72 hours to respond to your email during the week and we do not check my email on weekends, nor will your teaching assistants. Please keep this in mind around the time your assignments are due. Please include "KIN 459" in the subject line of emails.

Academic Integrity

All UBC students are expected to behave as honest and responsible members of an academic community. Breach of those expectations or failure to follow the appropriate policies, principles, rules, and guidelines of the University with respect to academic honesty may result in disciplinary action. It is your responsibility to become familiar with the University of British Columbia's Academic Honesty and Plagiarism Policies, as well as the Student Declaration and the consequences of violating these policies.

From the School of Kinesiology Academic Advising Office:

Any cases of academic misconduct are passed on to the Dean of the Faculty of Education or Dean of Graduate and Postdoctoral Studies at UBC. The first course of action is typically a "0" for the coursework or exam where academic misconduct was observed. However, cases of misconduct are all investigated and can be forwarded to the President's Advisory Committee on Academic Misconduct. This can result in anything from failing a course to expulsion. It is an ugly process to be accused of academic misconduct, so please advise the students to adhere to UBC policies on academic integrity.

Please review UBC's content on academic integrity. https://academicintegrity.ubc.ca/.

From the website: "At UBC, you have an incredible opportunity to learn and grow with a global community of students. Over the course of your program, you will cement knowledge, competencies, skills, as well as personal values and principles that will guide your decisions for the rest of your life. Learning with integrity will set the stage for being an ethical professional after you graduate. Breaching integrity at UBC or in your

professional life can have irreversible consequences such as a course mark of zero, suspension, or expulsion from the university."

"Using someone else's work without permission or having someone else do the work means that students are not contributing what is expected of them."

"Types of Academic Misconduct"

From the page: https://academicintegrity.ubc.ca/regulation-process/academic-misconduct/

"Academic misconduct includes any conduct by which a student gains or attempts to gain an unfair academic advantage or benefit thereby compromising the integrity of the academic process, or helping or attempting to help another person commit an act of academic misconduct or gain, or attempt to gain, an unfair academic advantage.

1. **Falsification**
2. **Cheating**
3. **Plagiarism and patchwriting**
4. **Self-plagiarism**
5. **Impersonation**
6. **Contract cheating**

Statement on Diversity and Inclusivity

Education is a multidisciplinary field that brings together faculty, students and others from diverse academic and personal backgrounds. UBC's Faculty of Education is committed to creating a respectful workplace and learning environment that supports inclusion based on the principles of equity, diversity and social justice in order to create an environment that supports its community members' full participation. The Faculty of Education is committed to providing accessible, usable, and welcoming spaces for faculty, staff, students, and visitors who have disabilities, are members of racialized communities, Indigenous, transgender, two-spirit and gender-diverse people, regardless of their age, sexual orientation, social status, religion, ethno- linguistic, nationality and/or citizenship status.

Faculty of Education courses take place in learning environments that are inclusive of gender identity, gender expression, sex, race, ethnicity, class, sexual orientation, ability, age, etc. Learners and educators expect to be treated respectfully at all times and in all interactions. Non-sexist, non-racist, non-homophobic, non-transphobic, and non-

heterosexist language is expected in Faculty of Education classes, course content, discussions, and assignments.

Please feel welcome to e-mail your instructor your name and pronoun and how you would like these to be used.

Course Content Warning

The classroom provides an open space for the critical and civil exchange of ideas. Some readings and other content in this course will include topics that some students may find difficult. I'll aim to forewarn students about potentially disturbing content and I ask all students to help to create an atmosphere of mutual respect and sensitivity.

Artificial Intelligence (AI)

This section on AI is adapted from samples provided by UBC's Centre for Teaching, Learning and Technology. Recently ChatGPT and related AI have become widely available, making it easy to generate text-based answers to pretty much any question. The quality of those answers varies considerably, depending on many factors. There are notable risks involved in allowing the use of AI tools in your assignments. Please carefully consider these:

First, it is important to note that AI tools are susceptible to errors and may incorporate discriminatory ideas in their output. Citations are often made up or used incorrectly – these errors are still relatively easy to identify. As a student, it is your responsibility to ensure the quality and appropriateness of the work you submit in this course. Second, there is a risk of inadvertently plagiarizing when using these tools. Many AI chatbots and image generators create content based on existing bodies of work without proper citation. UBC's plagiarism policy will apply to all assignment submissions, and "AI did it!" will not excuse any plagiarism. Third, be aware of the dangers of becoming overly dependent on these tools. While they can be incredibly useful, relying on them too much can diminish your own critical thinking and writing skills – for this course at least, this will likely be reflected in your final written exam.

If you use ChatGPT (or a similar tool) to get ideas and/or to generate any text for a draft or final version of any part of an assignment, you must declare that you have used it, with a couple of sentences describing the extent to which it was used, and you must save any generated text from this tool in case it is requested. You will not be penalized for using this tool, but a TA or myself may ask you to provide the generated text in order to help with grading decisions. In this case, your (or your group's) original contributions will be evaluated. Failure to fully declare the use of this tool will be considered "unauthorized" and be deemed plagiarism.

Policy on text-matching software

UBC subscribes to Turnitin, an online system that compares written material with the

Web and with other material submitted to its database. Faculty, staff and students can upload submissions and check for duplication of material in other sources and possible plagiarism.

COURSE EVALUATION

The breakdown of marking for the course is as follows:

1. **Eight (8) In-Class Quizzes (Best 6 of 8): 4 points each; Total 24% of final grade**
2. **Four (4) Individual Response from Group Reading Assignments: 4 point each; Total 16% of final grade**
3. **Four (4) Reading Group Assignments: 4 points each; Total 16% of final grade**
4. **Self & Others' Assessments: 5 points of final grade**
5. **Five (5) Minute-Papers (Best 4 of 5): 2 points each; Total 8% of final grade**
6. **Five (5) Statement Corrections (Best 4 of 5): 4 points each; Total 16% of final grade**
7. **Final In-Class Individual Assignment: 15% of final grade**

Evaluation	**Points/ Assignment**	**# of assignments**	**# assignments towards final grade**	**Total**
In-class quiz	4	8	6	24
Group reading assignment				
Individual response	4	4	4	16
In-class group session	4	4	4	16
Self & others' assessment	5	1	1	5
Minute papers	2	5	4	8
Statement corrections	4	5	4	16
Final individual assignment	15	1	1	15
Total Course				100

Descriptions of Assignments

1. **In-Class Quiz: 24% of final grade (each 4%)**

Eight in-class quizzes of 10 questions each will be completed at the beginning of 8 selected classes (see Course Schedule below). These quizzes will be on the Required Reading for that particular day. Quizzes will be graded as follows: 1 point for completion of the quiz and 0.3 points per correct question (3 points for all 10 correct) for a total 4 points/quiz. Best of 6 will be selected.

2. **Group Reading Assignments: 37% of final grade (includes 16% from Individual Response; 16% from Group Assignment; 5% from Self and Others' Assessment)**

There will be four (4) Group Reading Assignments throughout the term (see Course Schedule below). Students in the class will be assigned to groups of 5. All groups are assigned 5 readings, one per student in the group. There are three components to the evaluation for the Group Reading Assignments.

a. ***Individual Response (16% of final grade).*** One-week prior to each of the four (4) In-Class Group Session, students will assign one (1) of the readings to each member of the group so that each student reads one (1) paper over the week prior to the In-Class Group Session. Students will prepare a 1-page Individual Response to their assigned reading. The synopsis will include a written 1/2-page summary of the Purpose, Methods, Results, and Discussion of the reading. The synopsis will also include 4 additional limitations (1/2-page) not discussed in the reading. More information for the assignment and its grading rubric is provided in the XXX Section of the Canvas Page. Each Individual Response is scored in the following way:
    i. 1 point for completion/submission of the assignment prior to the In-Class Group Session;
    ii. 2 points for the content of the synopsis
    iii. 1 point for identified and well-articulated limitations.

    A total of 4 points will be assigned to each Individual Response for a total of 16% of the final grade.

b. ***In-Class Group Session (16% of final grade).*** There will be four (4) In-Class Group Sessions, where students spend the lecture time meeting as a group to discuss and present their Individual Response for their assigned reading. Once each student completes presenting their summaries (5-8 minutes per student), students will work together to respond to 4 questions that help students to consolidate the information across the five readings. More information on the grading rubric for these In-Class Group Session Assignments is provided in the XXX section of the canvas page.

    A total of 4 points will be assigned to each Group Assignment for a total of 16% of the final grade.

c. ***Self and Others' Assessment (5% of final grade).*** At the end of the term, students will be asked to grade themselves and their 4 other group members on their participation in the Group Reading Assignments. More information on the grading rubric for these assessments is provided in the XXX section of the canvas page

3. **Minute Papers: 10% of final grade (each 2%).** At the end of six (6) classes, students will be allocated 20 minutes to complete a series of questions based on the day's and previous recent lectures. Papers will be graded as follows: 1 point for completion of the paper and 1 point for coherent responses for a total of 2 points each. Best of 5 will be selected.

4. **Statement Corrections: 16% of final grade (each 4%).** At the end of four (4) classes, students will be allocated 30 minutes to correct ChatGPT statements. The purpose of this assignment is to review content created by ChatGPT on (1) its accuracy in

summarizing research content and (2) its accuracy in referencing. For each class, students will be asked to review two of the statements created by ChatGPT, and determine whether the content is accurate, and to correct any inaccurate information. More information on the grading rubric for these assessments is provided in the XXX section of the canvas page.

5. **Final Individual Response Assignment: 15% of final grade.** In the last week of class, students will be asked to review ONE peer-reviewed manuscript. Students will prepare a 1-page Individual Response to this reading. The synopsis will include a written 1/2-page summary of the Purpose, Methods, Results, and Discussion of the reading. The synopsis will also include 4 additional limitations (1/2-page) not discussed in the reading. More information for the assignment and its grading rubric is provided in the XXX Section of the Canvas Page. The Individual Response is scored in the following way:
    i. 7 points for the content of the synopsis
    ii. 8 points for identified and well-articulated and referenced limitations.

MISSED ASSIGNMENTS

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.

Missing an assignment completely will lead to losing the total grade for that assignment. If you do not contact your instructor, you will be given a score of zero on the assessment.

Grading

All assignments and assessments will be given a score on 100, and then scaled appropriately to their weight of the final course grade.

The final written assignment is due no later than April 18, 2022, unless negotiated with the instructor. Late Final Assessments will be penalized by a loss of 5 points per day of the grade (based on a 100) of the assignment.

Policy on Text-Matching Software:

UBC subscribes to Turnitin, an online system that compares written material with the Web and with other material submitted to its database. The instructor will scan submissions and check for duplication of material in other sources and possible plagiarism.

THE PSYCHOBIOLOGY OF PHYSICAL ACTIVITY KIN 459 COURSE SCHEDULE

The topics and assigned readings for each class are listed below, although this may be subject to change.

Week 1	
Monday, January 8 · Course Outline and Introduction · Intro to reading group scheme · Intro to group project	Wednesday, January 10 *Topic:* Global rates of mental health; focus on depression *Suggested Reading*: 1. Malhi, Mann (2018). Depression. *The Lancet*, 392: 2299–2312.
Week 2	

Monday, January 15 ***Evaluation: Quiz 1*** *Topic:* Impact of long-term exercise on mental health; focus on depression *Required Reading:* Smith, Blumenthal (2013). Exercise and physical activity in the prevention and treatment of depression. In Cook, Ekkekakis, Craft, Culos-Reed, Etnier, Hamer, Ginis, Reed, Smits, Ussher (eds). Routledge Handbook of Physical Activity and Mental Health, Chapter 8, pages 145-160.	Wednesday, January 17 ***Class Activity #1: Minute Paper*** Topic: Exercise interventions and mental health; focus on depression and psychological mediators *Suggested Reading:* Craft (2013). Potential psychological mechanisms underlying the exercise and depression relationship. In Cook, Ekkekakis, Craft, Culos-Reed, Etnier, Hamer, Martin-Ginis, Reed, Smits, Ussher (eds). Routledge Handbook of Physical Activity and Mental Health, Chapter 9, pages 161-168.
Week 3	

Monday, January 22 ***Evaluation: Quiz 2*** *Topic:* Impact of long-term exercise on mental health; focus on anxiety *Required Reading:* Utshig, Otto, Powers, Smits (2013). The relationship between physical activity and anxiety and its disorders. In Cook, Ekkekakis, Craft, Culos-Reed, Etnier, Hamer, Ginis, Reed, Smits, Ussher (eds). Routledge Handbook of Physical Activity and Mental Health, Chapter 5, pages 105-116.	Wednesday, January 24 **Evaluation: Reading Group Session 1: Physical Activity and Mental Health**
Week 4	

Monday, January 29 ***Evaluation: Quiz 3*** *Topic:* Introduction to mood, cognitions, and stress *Required Reading:* Epel, Crosswell, Mayer, Prather, Slavich, Puterman, Berry Mendes (2018). More than a feeling: A unified view of stress measurement for population science. *Frontiers in Neuroendocrinology, 49,* 146-169.	Wednesday, January 31 ***Class Activity #2: Statement Correction*** *Topic:* Effects of long-term exercise on mood, cognitions, and stress. *Suggested Reading:* Buecker, Simacek, Ingwersen, Terwiel, Simonsmeier (2021). Physical activity and subjective wellbeing in health individuals: a meta-analytic review. *Health Psychology Review, 15,* 574-592.
Week 5	

Monday, February 5 ***Evaluation: Quiz 4*** *Topic:* Effects of short-term exercise on incidental affect, cognitions, and stress *Required Readings:* 1. Liao, Shonkoff, Dunton (23 December 2015). The acute relationships between affect, physical feeling states, and physical activity in daily life: A review of current evidence. Frontiers in Psychology. Online Only. Pages 1-7. 2. Ekkekakis, Brand (2019). Affective responses to and autonomic affective valuations of physical activity: Fifty years of progress on the seminal question in exercise psychology. *Psychology of Sport and Exercise, 42,* 130-137.	Wednesday, February 7 ***Class Activity #3: Minute Paper*** *Topic:* Effects of acute exercise and integral affect, and role of affect in motivation Suggested Reading: Stevens, Baldwin, Bryan, Conner, Rhodes, Williams. (2020). Affective determinants of physic al activity: A conceptual framework and narrative review. *Frontiers in Psychology, 11,* 1-19.
Week 6	

Monday, February 12 **Reading Group Session 2: Exercise, affect, cognitions, and stress**	Wednesday, February 14 ***Class Activity #4: Statement Correction*** *Topic:* Introduction to exercise effects on brain function and structure
Week 7	
READING WEEK (NO CLASSES)	
Week 8	

Monday, February 26 ***Evaluation: Quiz 5*** *Topic:* Exercise, brain health, and cognitive decline *Required Reading:* Tyndall, Clark, Anderson, Hogan, Hill, Longman, Poulin (2018). Protective effects of exercise on cognition and brain health in older adults. *Exercise and Sport Sciences Reviews, 46,* 215-223.	Wednesday, February 28 ***Class Activity #5: Minute Paper*** *Topic:* Evaluating exercise interventions on brain health Suggested Reading: Voss, Nagamatsu, Liu-Ambrose, Kramer (2011). Exercise, brain, and cognition across the life span. *Journal of Applied Physiology, 111,* 1505-1513.
Week 9	

Monday, March 4 **Reading Group 3: Exercise and brain health**	Wednesday, March 6 ***Class Activity #6: Statement Correction*** *Topic:* Neuroscience of exercise *Suggested Reading:* Matta Mello, Cevada, Monteiro-Junior, Teixeira Guimarães, Rubini, Lattari, Blois, Camaz Deslandes (2013). Neuroscience of exercise: From neurobiology mechanisms to mental health. *Neuropsychobiology*, *68*, 1-14.
Week 10	

Monday, March 11 ***Evaluation: Quiz 6*** *Topic:* Neurobiological mediators of exercise effects on mental health Neurobiological mediators of exercise effects on brain health *Required Reading:* Berchtold, Cotman (2013). Exercise and Cognitive function: Neurobiological mediators. In Cook, Ekkekakis, Craft, Culos-Reed, Etnier, Hamer, Ginis, Reed, Smits, Ussher (eds). Routledge Handbook of Physical Activity and Mental Health, Chapter 19, pages 287-299.	Wednesday, March 13 ***Class Activity #7: Minute Paper*** *Topic:* Neurobiological mediators of exercise effects on mental health Suggested Reading: Ross, VanDerwerker, Saladin, Gregory (2023). The role of exercise in the treatment of depression: Biological underpinnings and clinical outcomes. *Molecular Psychiatry, 28,* 298-328.
Week 11	

Monday, March 18 **Reading Group 4: Exercise and neurobiological mechanisms**	Wednesday, March 20 *Documentary Viewing:* ***Class Activity #8: Minute Paper*** *Suggested Reading:* Allen, Kennedy, Cryan, Dinan, Clarke (2014). Biological and psychological markers of stress in humans: Focus on the Trier Social Stress Test. *Neuroscience and Biobehavioral Reviews, 38,* 94-124.
Week 12	

Monday, March 25 ***Evaluation: Quiz 7*** Required Reading: Mücke, Ludyga, Colledge, Gerber (2018). Influence of regular physical activity and fitness on stress reactivity as measured with the Trier Social Stress Test Protocol: A systematic review. *Sports Medicine, 48,* 2607-2018.	Wednesday, March 27 ***Class Activity #9: Statement Correction*** Suggested Review: Hadwen, Pila, Thornton (2022). The associations between adverse childhood experiences, physical and mental health, and physical activity: A scoping review. *Journal of Physical Activity and Health, 19,* 847-854.
Week 13	
Monday, April 1 ***Evaluation: Quiz 8*** Required Reading: Donofry, Stillman, Hanson, Sheridan, Sun, Loucks, Erickson (2021). Promoting brain health through physical activity among adults exposed to early life adversity: Potential mechanisms and theoretical framework. *Neuroscience and Biobehavioral Reviews, 131,* 688-703.	Wednesday, April 3 ***Class Activity #10: Statement Correction***

Week 14	
Monday, April 8 ***In-Class Evaluation of Manuscript***	Wednesday, April 10 Wrap-up

READING SCHEME STUDY GUIDE

What I must do?

Every two weeks, I must read ONE article and write a ONE page synopsis.

What's in it for me?
Working in a reading group . . . .

- **Will allow me to cover a larger range of material**
- **Will give me the opportunity to critically examine research with my colleagues**
- **Will give me a one page synopsis of five articles every two weeks which will help me prepare for the exam**

SETTING UP

1) Form into groups of 5. Give yourself a name and elect a team leader. The team leader must email me (guy.faulkner@ubc.ca) with the names of those in the group and a group name before September 16th. Groups will be confirmed on this date based on numbers enrolled in the course.
2) A week before the designated sessions are due to meet in class time you will meet as a group to coordinate which reading each person will do (other than the identified core reading) from the list of five articles in each topic. Each person then conducts a critical reading of their chosen article and writes a 1-page synopsis. The articles are available through the electronic collections of the library.
3) This synopsis, with your name on it, and the name of your group, must be posted on canvas the day before the identified class period (for example, you must post your first synopsis on September 20th) and your group response to set questions the day

after (September 22nd in the first example). This will allow for monitoring. Additionally, you will be able to access the synopses of your colleagues. Failure to post a completed synopsis when required will result in a 2% reduction from your final grade. Further information will be provided in class about this process.

4) Your group will meet in class to review the synopses and answer set questions. You will share with your group your key interpretations of each reading and discuss any issues that were raised.
5) Focus questions will be provided that you must answer as a group based on the readings. The Thursday sessions will provide further opportunities for discussion of the focus questions, and potential implications for the group project.

Writing a Synopsis

It is difficult to lay down any specific structure to help you develop your notes or a 1-page/300 word synopsis of each paper you read. If you have a personal preference already, stick with that, otherwise, consider some of the following ideas. First, to work as a group, each person must develop a synopsis that is of the quality you would personally want to receive from your colleagues, and that would personally help you in the exam. As such, you need to:

WRITE YOUR NAME and GROUP NAME

Clearly identify the author (date) and all publishing details as used in the course outline

1. Introduction (why?)
a) what are the authors trying to settle, prove or demolish? What are they asking?
b) How did this issue come up?
c) Why bother in the first place – SO WHAT?

2. Methods (how?)
a) what was assessed
b) how did they do this?

3. Results (what?)
a) briefly summarise key results

4. Discussion (general)
a) what is discussed? (what theoretical and/or applied implications are derived, what limitations are noted, what recommendations are made for future research?)

FINALLY:

Separate from your synopsis, try to identify and list a few criticisms you may have of the research undertaken. What might have you done differently?

FEEDBACK SUGGESTION:

Don’t read the abstract at first! Write your synopsis and compare it with the original abstract of the paper. Your synopsis will be slightly different in that the focus is on being critical of the paper but the original abstract will give you feedback as to whether you are picking up the important elements of the study. This will help prepare you for the exam.