DEPARTMENT OF KINESIOLOGY AND HEALTH SCIENCES

COURSE OUTLINE – Winter 2024

PE2190 (A3): Research Methods in Kinesiology– 3 (3-0-0) 45 HRS, 15 WKS.

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTOR:	Dr. Alexander Villafranca	**PHONE:**	780-539-2971
OFFICE:	K220	**E-MAIL:**	avillafranca@nwpolytech.ca
OFFICE HOURS:	By appointment		

CALENDAR DESCRIPTION: This course will provide an introduction to research methods used in the field of Kinesiology. Emphasis will be placed on the application of research techniques commonly used in the discipline.

PREREQUISITE: PE1090

REQUIRED TEXT/RESOURCE MATERIALS:
Readings and resources will be available on D2L.

DELIVERY MODES: This course will involve lectures, case studies, online activities, tests, and group discussion. All students should have a computer or smartphone for classroom activities. In class use of an NWP laptop can be arranged in advance, if required. Technological support is available through helpdesk@nwpolytech.ca.

LEARNING OUTCOMES:
By the end of the course, students will be able to:

- Critically appraise original research articles based on criteria such as rigor, internal consistency, novelty, relevance, and ethical considerations.
- Differentiate between research paradigms (such as qualitative, quantitative, and mixed methods) and understand their relationship to research design.
- Conduct thorough and rigorous literature reviews.

- Identify research ideas and transform them into clear and specific research questions.
- Evaluate the source, content, and empirical basis of a scientific claim.
- Recognize the importance of research ethics and research integrity.

TRANSFERABILITY:

Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at the Alberta Transfer Guide main page http://www.transferalberta.alberta.ca.

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability.

EVALUATIONS:

Activity	Due date/ date of occurrence	Weighting on final grade
In class activities (including group discussion)	Ongoing	8%
Completion of TCPS 2 tutorial course on research ethics (https://tcps2core.ca/register)	March 30th	5%
Completion of fake news tutorial (https://www.getbadnews.com/)	March 30th	1%
Critical appraisal of a quantitative article (groups of 2)- Part 1- Evaluating the article source and impact	Feb 1st	12%
Critical appraisal of a quantitative article (same groups)- Part 2- Evaluating the study design	March 12th	12%
Critical appraisal of a quantitative article (same groups)- Part 3- Evaluating the study analysis and interpretation	April 15th	12%
Midterm (open book, take-home)	Due Feb 25th	20%
Final Exam	TBD	30%
	Total	100%

GRADING CRITERIA:

Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	95-100		C+	2.3	67-69

A	4.0	85-94	C	2.0	63-66
A-	3.7	80-84	C-	1.7	60-62
B+	3.3	77-79	D+	1.3	55-59
B	3.0	73-76	D	1.0	50-54
B-	2.7	70-72	F	0.0	00-49

COURSE SCHEDULE/TENTATIVE TIMELINE:

Lectures

T R 08:30-09:50, B202

The instructor reserves the right to alter the pace, scope, and/or breadth of the topics covered to facilitate student learning and to cohere with the natural flow of class discussions.

Week	Date	Topic
W1	J9	Where did you read that?! Evaluating sources of empirical claims 1 (recognizing sources and article types)
W1	J11	Where did you read that?! Evaluating Sources of empirical claims 2 (assessing journal quality)
W2	J16	Says who? Evaluating the person who is making an empirical claim
W2	J18	How does that person know for sure? Evaluating the empirical basis of a claim
W3	J23	How tough should I be on researchers? Approaching scientific articles with the right attitude
W3	J25	How should I look for answers to scientific questions that I have? Conducting a review of literature
W4	J29	Did this scientific study have an impact? Understanding article level bibliometrics and Altmetrics
W4	F1	What should I be looking for when I evaluate a study? Introduction to critical appraisal
W5	F6	Do they set up the study properly? Critically appraising an introduction section
W5	F8	Are they asking a reasonable question? Critically appraising a quantitative research question
W6	F13	Did they pick the right approach? Critically appraising the research paradigm of a study
W6	F15	Did they pick the right tool for the job? Critically appraising the design of a study part 1 (classifying studies)
W7	F20	**No classes- Winter break**
W7	F22	**No classes- Winter break**
W8	F27	Are there other explanations for what their study could show? Introducing the idea of rival hypotheses and looking for bias in study design
W8	F29	Did they recruit enough people from the right population? Critically appraising a sampling strategy and a power analysis
W9	M5	Are they defining and measuring their constructs in a way that makes sense? Evaluating definitions and measurement procedures

W9	M7	Did they run their study in a sloppy way? Evaluating the risk of bias and random error in study implementation
W10	M12	Did they mishandle their data? Evaluating data scrubbing and reduction
W10	M14	Are they presenting their data fairly and clearly? Critically appraising a graph
W11	M19	Did they describe the results fully and properly? Understanding the principles of statistics and descriptive statistics
W11	M21	Did they describe the results fully and properly? Understanding p-values and effect sizes
W12	M26	Are they running the right statistical tests? Critically appraising a statistical analysis 2
W12	M28	Can they see their study clearly? Critically appraising a conclusion section for logical fallacies and bias 1
W13	A2	Can they see their study clearly? Critically appraising a conclusion section for logical fallacies and bias 2
W13	A4	Was the research done in an ethical way? Introduction to research ethics
W14	A9	Did the researchers behave with integrity? Introduction to research integrity
W14	A11	Bonus: If I do a study, how should I deal with the media?

STUDENT RESPONSIBILITIES:

- Students are required to come to class prepared
- Regular attendance is critical to succeed in this class. Students should contact the instructor in advance if they are unable to attend.
- **Any student who misses 8 or more classes or 3 or more labs without approval will be unable to sit for subsequent assessments.**
- If a student misses tests for medical reasons, a doctor's note must be provided
- Late quizzes or worksheets will be deducted 10% per day submitted past the deadline
- Assignment details will be provided on D2L

STATEMENT ON ACADEMIC MISCONDUCT:

Academic Misconduct will not be tolerated. For a more precise definition of academic misconduct and its consequences, refer to the Student Rights and Responsibilities policy available at https://www.nwpolytech.ca/about/administration/policies/index.html.

**Note: all Academic and Administrative policies are available on the same page.

POLICY ON RECORDING TEACHING ACTIVITIES:

Students may not record classroom activities (such as lectures, group activities, group presentations delivered in class, etc.) without the advance written permission of the instructor. This policy is set to protect the privacy and reputation of students, to uphold the copyrights of the instructor and other content creators, and to facilitate free and open discussion of ideas. The classroom is meant to be a psychologically safe environment, where students are free to explore and think through new and controversial ideas without fear of public repercussions. Recording lectures can undermine this goal. If permission to record an activity is granted, the recorded material can only be used for the

student's own private use and is not to be posted online or otherwise distributed. In the case of student presentations, the recording student must show proof that the presenting student(s) have agreed to be recorded before the instructor grants permission.

COPYRIGHT NOTIFICATION:

Any course material created by your instructor is his intellectual property and is provided to you based upon your registration for this class. As such, the material is for your private use only. It is not to be distributed, publicly exhibited, or sold without the permission of the instructor. Third party materials (such as assigned readings) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law.

INSTRUCTOR'S POLICY ON THE USE OF GENERATIVE AI FOR COURSEWORK:

Generative AI is a powerful tool that can help you perform better as a student and kinesiologist. When misused, however, it becomes a crutch that undermines your competence, interferes with your learning, and puts you at a legal and professional risk. This includes the real and immediate risk of accusations of academic misconduct. I want you to use AI responsibly both in this class and in your broader life. For transparency, here are the policies I am setting and enforcing in this course:

- **AI use will not be permitted during closed-book exams.** Consulting AI in this context will be considered equivalent to asking a neighboring student for the answer or copying their work, both of which are academic misconduct.
- **AI should also not be used for reflection activities.** If I am asking you to describe your first-person experience of something, it would be inappropriate for you to ask a friend to describe their experience and then pass it off as your own. It also makes no sense to ask AI to describe a first-person experience, since current AI does not have sentience (meaning it has no first-person experiences). Therefore, anything it tells you in this regard is plausible sounding nonsense.
- **When working on a written project or essay, generative AI can be used for cited idea generation.** That means it can give you ideas, but it is your responsibility to identify the source of the ideas, as well as their veracity, by doing your own independent research and verification. **Without exception, the source of the ideas must be cited in assignments**. Note that some generative AI programs will provide false references when prompted. Not citing references in an academic assignment is a form of plagiarism. Citing incorrect references is sloppy academic work, which reflects badly on you and will undermine your grade. **When AI cannot identify the source of the idea, and your own research process has not revealed a source, minimally you must reference "personal communication" with the specific generative AI model.** However, an assignment with a predominance of this reference will be seen as inadequately researched.

- Uncritically copying and pasting the outputs of AI demonstrates a lack of independent thought and fails to show your mastery of the course content. **I expect you to take any ideas generated by AI and rewrite them in your own words (in addition to citing them).** To ensure that you are not mindlessly pasting the outputs of AI into your assignments, **I will be screening them using GPT zero AI detection software (https://gptzero.me/). If the results show a probability of 50% or greater that AI completely generated the text, I will assume that is indeed the case, and you will be graded accordingly.** It is your responsibility to check your assignments using this tool prior to submitting them.
- AI has a real tendency to overedit. **If you want to use AI to edit your wording, you should have the AI model suggest edits and give a rationale for each suggestion, as opposed to letting the AI completely rewrite the text for you.** This will avoid frustration when trying to ensure that your assignment passes the GPT zero check.