HLTH 7001.03 and HLTH 7002.03
Independent Study/Directed Reading
PhD in Health
COURSE OUTLINE

Course Description

This course is available to students in the Doctor of Philosophy in Health program in order to provide the flexibility needed to ensure students are able to focus on their areas of research interest across the diverse fields within the program. A student may develop an Independent Study with an available faculty supervisor on a subject area of mutual interest. The Independent Study proposal must be approved by the PhD in Health Program Director. HLTH 7002 is independent of HLTH 7001.

Objectives

Specific course objectives are determined negotiated by the student and faculty member to their mutual satisfaction. Each course will meet at least one of the following objectives.
By the end of the course, the student will be able to:

1. Demonstrate the independent conceptualization and design needed to implement a research paper for the generation of new knowledge, applications, or understandings.
2. Demonstrate critical thinking and analytical skills necessary to create and interpret new knowledge and technology relevant to the student's area of health research.
3. Apply methodology relevant to the student's area of health research, such as use of specific instrumentation and/or software, interviewing skills, and leading edge techniques.
4. Demonstrate an understanding of the methods, technologies, and issues in a specific health research focus with attention to the broader health context.
5. Synthesize the body of knowledge that is relevant to the student's area of health including diverse, interpretations, methods and disciplines.
6. Analyze a specific health condition in relation to health and social well-being through inclusion of body structure and function, activity and participation, and contextual factors.
7. Assess interdisciplinary approaches to students' specific area of health research.
8. Perform critical appraisal and systematic inquiry related to existing practice theories, models of intervention and personal practice experiences and abilities in students' specific area of health research.
9. Evaluate existing and new knowledge regarding practice contexts, practice theories, models of intervention, incorporating personal practice experience, in the student's specific area of health research.

Course Readings

Specific course readings are determined by the student and faculty member in consultation with each other.

Course Assignments

Specific course assignments are determined by the student and faculty member in consultation with each other in the design of the independent study course. The professor and student will develop a course outline together including a reading list and agreed upon assignments and expectations. There will be at least two graded assignments. Examples of possible assignments/projects:

1. A paper on a specific health condition in relation to health and social well-being through an examination of body structure and function, activity and participation, and contextual factors relevant to the condition.
2. Development of a literature search and critique strategy for an area of practice or a theoretical area or question
3. Analysis and write up of previously collected data (if faculty has prior ethics approval) guided by literature
4. Literature review and critique of a field or area in a field outside of but relevant to the student's discipline.

Syllabus Development

As the FGS form requires minimal detail, course instructors are asked to provide a **detailed syllabus**. This will help to ensure that instructor and student expectations are well aligned and there are no surprises when it comes to deadlines, assignments and final grade. Please be sure to provide details of how deliverables will be assessed (in the form of a rubric, for example).

Directed readings/independent studies should be treated as **3 credit hour courses**, and the appropriate detail related to deliverables and their assessment provided. Also, in consultation with the student, instructors should ensure that the scope of the work aligns with the credit hours to be assigned. It is in the best interests of our students and program to employ good pedagogical principles when designing and delivering courses.

An example of an independent study syllabus is provided along with this document for reference if required.

PHYT 5070.03 DIRECTED STUDY
Examining the effect of aerobic exercise on cortical excitability using TMS: a critical review of the evidence

COURSE OUTLINE

COURSE DESCRIPTION

The premise underlying functional recovery after brain injury is that repetitive activation of neural pathways drives plasticity at the level of the synapse, which results in functional and structural changes in the brain. As such, the basis for rehabilitation is repetitive practice of novel, skilled tasks. Brain injury often results in a change in the level of excitability of cortical neurons, making it more difficult to successfully activate them and in-turn drive recovery. Efforts in research and clinical practice now target ways to alter cortical excitability prior to a bout of rehabilitation in order to maximize its effect. One such way of altering cortical excitability is through aerobic exercise. Studies have shown that aerobic exercise increases cortical excitability thus lowering the threshold for activation. A means of measuring cortical excitability is though the use of transcranial magnetic stimulation (TMS). TMS is a non-invasive brain stimulation technique by which cortical neurons can be activated to determine their excitability. Other TMS paradigms can be used to measure the interaction of various brain regions to determine inhibitory and excitatory influences. To date the literature examining the effect of aerobic exercise on cortical excitability as assessed using TMS has not been summarized. Understanding the evidence supporting the use of aerobic exercise as a means to increase cortical excitability has clinical applications; should aerobic exercise be an effective means to increase cortical excitability, it stands to reason that it should be incorporated into clinical practice as a 'primer' to rehabilitation. Thus the overall objective of this course is to examine the literature around aerobic exercise and cortical excitability as assessed using TMS. In the pursuit of this objective, the course will enhance the participants fundamental skills related to literature searching, critical appraisal, development of a research question and application of methodologies utilized in such studies balance control studies. Additionally, the participant will design a research study that will address a key (as yet unanswered) question related to the application of aerobic exercise as a means to increase cortical excitability. Course work will be completed by independent study and written assignments, culminating in the production of the research proposal.

PHYT 5070 is a 3-unit (half) credit course.

LEARNING OBJECTIVES

At the completion of this course, the participant will be able to:

1. Identify and select strategies to access classic and contemporary research evidence related to aerobic exercise, cortical excitability and TMS (including advanced database searching)
2. Describe common research methodologies employed in studies examining cortical excitability using TMS
3. Demonstrate an understanding of theory related to neurophysiological aspects of the effects of aerobic exercise on the brain
4. Demonstrate an ability to apply knowledge related to aerobic exercise, cortical excitability and TMS to address related research questions

COURSE PROFESSOR

Shaun G. Boe, MPT, PhD
Tel: 902.494.6360
Email: s.boe@dal.ca
Rm. 426 Forrest Building

COURSE FORMAT AND TOPICS

The course will consist of structured independent study supplemented by weekly meetings* with the course supervisor. Topics include:

Part 1
Search strategies
Developing a literature search
Generating a research question related to aerobic exercise and cortical excitability

Part 2
Transcranial magnetic stimulation (TMS; principles)
Common TMS methodologies/paradigms
Generating a related research question (aerobic exercise/cortical excitability/TMS)

Readings (to be provided to the student)

Additional articles will be identified via literature searches comprising Part 1 of the course (see above).

* Meeting times (weekly: Monday 11 am – 12 pm)

EVALUATION METHODS

Method	Due Date	% of Final Mark
Assignments (2)		
# 1 Literature Search Strategy and Results	XXXXXXX, 4 pm	15%
#2 Research Question	XXXXXXX, 4 pm	5%
Article Critiques (2)		
#1	XXXXXXX, 4 pm	10%
#2	XXXXXXX, 4 pm	10%
Research Methodology (1)		
	XXXXXXX, 4 pm	15%
Final Paper (1)		
Research Proposal	XXXXXXX, 4 pm	45%
	Total	100%

***See attached rubrics for evaluation of Article Critiques and Final Paper**

IMPORTANT MESSAGES

No Scents Please is a School and University policy. The *No Scents* policy is recognized as an inconvenience for some. The policy exists because for some scents are life threatening. Students are required to abstain from using any scented products in academic classes and fieldwork education settings.

Grading Policy is that of the Faculty of Graduate Studies (see Faculty of Graduate Studies policies and regulations, Graduate Studies calendar).

Letter Grade	Numerical (%) Equivalent
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
F	< 70

Accommodation: Advising and Access Services Center (http://www.dal.ca/campus_life/student_services/academic-support/accessibility/accommodation-statement-for-course-syllabus.html)
Students may request accommodation as a result of barriers experienced related to disability, religious obligation, or any characteristic protected under Canadian human rights legislation.

Students who require academic accommodation for either classroom participation or the writing of tests and exams should make their request to the Advising and Access Services Center (AASC) prior to or at the outset of the regular academic year. Please visit www.dal.ca/access for more information and to obtain the Request for Accommodation form.

A note taker may be required as part of a student's accommodation. There is an honorarium of $75/course/term (with some exceptions). If you are interested, please contact AASC at 494-2836 for more information or send an email to notetaking@dal.ca

Please note that your classroom may contain specialized accessible furniture and equipment. It is important that these items remain in the classroom, untouched, so that students who require their usage will be able to fully participate in the class.

For more information, go to the AASC website at:
http://www.dal.ca/campus_life/student_services/academic-support/accessibility.html

Academic Integrity

At Dalhousie University, we are guided by the values of academic integrity: honesty, fairness, responsibility and respect. As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

WHAT DOES ACADEMIC INTEGRITY MEAN?
At university we advance knowledge by building on the work of other people. Academic integrity means that we are honest and accurate in creating and communicating all academic products. Acknowledgement of other people's work must be done in a way that does not leave the reader in any doubt as to whose work it is. Academic integrity means trustworthy conduct such as not cheating on examinations and not misrepresenting information. It is the student's responsibility to seek assistance to ensure that these standards are met.

HOW CAN YOU ACHIEVE ACADEMIC INTEGRITY?
We must all work together to prevent academic dishonesty because it is unfair to honest students. The following are some ways that you can achieve academic integrity; some may not be applicable in all circumstances.

- make sure you understand Dalhousie's policies on academic integrity (see http://www.dal.ca/dept/university_secretariat/academic-integrity/academic-policies.html)
- do not cheat in examinations or write an exam or test for someone else
- do not falsify data or lab results

Be sure not to **plagiarize**, intentionally or unintentionally, for example…

- clearly indicate the sources used in your written or oral work. This includes computer codes/ programs, artistic or architectural works, scientific projects, performances, web page designs, graphical representations, diagrams, videos, and images
- do not use the work of another from the Internet or any other source and submit it as your own
- when you use the ideas of other people (paraphrasing), make sure to acknowledge the source
- do not submit work that has been completed through collaboration or previously submitted for another assignment without permission from your instructor (These examples should be considered only as a guide and not an exhaustive list.)

WHERE CAN YOU TURN FOR HELP?
If you are ever unsure about any aspect of your academic work, contact the course instructor(s):

- Faculty of Health Professions Academic Integrity Website
  - Overview of academic integrity process, with resources for faculty and students
- Academic Integrity Website
  - Links to policies, definitions, online tutorials, tips on citing and paraphrasing
- Writing Centre
  - Assistance with learning to write academic documents, reviewing papers for discipline-specific writing standards, organization, argument, transitions, writing styles and citations
- Dalhousie Libraries
  - Workshops, online tutorials, citation guides, Assignment Calculator, RefWorks
- Dalhousie Student Advocacy Service
  - assists students with academic appeals and student discipline procedures.
- Senate Office
  - List of Academic Integrity Officers, discipline flowchart, Senate Discipline Committee

WHAT WILL HAPPEN IF AN ALLEGATION OF AN ACADEMIC OFFENCE IS MADE AGAINST YOU?

As your instructor, I am required to report every suspected offence. The full process is outlined in the Faculty Discipline Flow Chart (www.dal.ca/dept/university_secretariat/academic-integrity.html*)* and includes the following:

- Each Faculty has an Academic Integrity Officer (AIO) who receives allegations from instructors
- Based on the evidence provided, the AIO decides if there is evidence to proceed with the allegation and you will be notified of the process
- If the case proceeds, you will receive a PENDING grade until the matter is resolved
- If you are found guilty of an offence, a penalty will be assigned ranging from a warning, to failure of the assignment or failure of the class, to expulsion from the University. Penalties may also include a notation on your transcript that indicates that you have committed an academic offence.

About Intellectual Honesty and what it means for you

Welcome to a new academic year. In each of your course syllabi you will learn valuable information about the structure of the course and the learning expectations. Additionally, you will find information in each syllabus related to academic integrity. Are you wondering about how to write papers without getting into trouble on academic integrity? There's help!

Have a look at www.academicintegrity.dal.ca ! There is an awesome section called Student Resources that has information on paraphrasing and citing in your work, as well as a list of services here at Dal that can help you with academic integrity issues. You can also find information on the Faculty of Health Profession's academic integrity website (https://www.dal.ca/faculty/health/faculty-and-staff/academic-integrity.html). Many of the academic allegations we receive from course instructors are about plagiarism - students not giving adequate acknowledgement in the submission of their written work about the work of others. It doesn't really matter if a student has done similar work in other courses and has never been questioned. It's like shoplifting. Someone may do this many times and never be stopped by the security guard; it's still shoplifting. Written words, whether on the web, in hard copy, or in another student's assignment, are someone's property. The consequences can include failing the assignment, failing the course and/or a notation on your transcript! Be sure you know how to acknowledge paraphrasing and quotations in your work. Remember references alone are insufficient. If you are unsure about your work, check out www.academicintegrity.dal.ca , and talk to your course instructors about their expectations. Don't wait until you hear from the Academic Integrity Officer!

There are other important regulations about academic integrity that affect how you do your course work and write exams. The regulations are in the graduate and undergraduate university calendars under University Regulations, see Intellectual Honesty and Academic Dishonesty. You are responsible for knowing these policies and acting accordingly.

Pay attention to the issues around lending your work out to others, and completing group assignments. You are responsible and accountable for your work. If another student violates academic integrity in using your work, you may also be culpable.

If you are unsure about academic integrity and your work, ASK your course instructor, see a librarian, and find out about writing workshops (https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html).

Make it a great academic year! Work at your best.

Brenda Merritt, PhD
Associate Dean (Academic)
Academic Integrity Officer

Adapted from PHYT5202 – Scientific Inquiry 1
2016-2017
Entry – Level Masters, School of Physiotherapy

DALHOUSIE UNIVERSITY

Evaluation Form: Annotated Bibliography - Article Appraisal # 1

ITEM	COMMENT	MARK
1. Question---Includes complete [clinical] question.		2
2. Citation/Source – includes complete citation		2
3. Purpose (of the Paper)		6
4. Key Methods --- (relevant to clinical question, from the paper) Captures Research Design via a) Sample (5) b) Data collection/Measurement(s) (5) c) Issue of Interest (5) d) Analysis/statistics (data reduction; thematic analysis/hypothesis) (5)		20
5. Results - includes relevant data • necessary explanatory variables, and • themes/sub-themes • references key quotes • info on prevalence or impact as approp.		20
6. Key Limitations- focused/concise summary of important limitations in the study design/research methods, distinct from own learning issues, that limit application of the results to the clinical question		20
7. Key Contributions----provides a clear, concise summary statement to answer the clinical/research question, consistent with the noted limitations, and the methods/results info provided E.g. This paper provides 'x' support/proof for the theory that 'y'….		20
8. Style----Methods/Results formatted for easy detection of nb info (setting up comparisons across papers); analysis (limitations/contributions) clear/concise; few errors spelling/grammar .		10
Total (Original Submission)		100
Reflection: Identifies/explains a key revision that would strengthen the original submission		10
Combined Score: Original (2.0) + reflection (0.5)		2.5

Instructor Note:

Assign marks for each section of the ABib form, noting the conversions:

Mark (%)	Rank	Mark (6)	Mark (10)	Mark (20)
100	Perfect	6	10	20
95	Exemplary/Excellent	5.7	9.5	19
90		5.4	9	18
85	Very Good	5.1	8.5	17
80		4.8	8	16
75	Good	4.5	7.5	15
70	Satisfactory	4.2	7	14
60	Unsatisfactory	3.6	6	12
0	omitted	0	0	0

Evaluation Rubric

PROJECT PROPOSAL

Instructions for Evaluators: Using the criteria and descriptors below, put an '**X**' on the box that best fits your evaluation. (*Note: a mark of **75%** would be given if all criteria were marked midway in the 'acceptable' range)*.

Student Name: _____

	UNSATISFACTORY	ACCEPTABLE	EXEMPLARY
Abstract	Abstract does not contain one or more of the required elements*; description of the research project is unclear or inaccurate; exceeds the 250 word limit; references are omitted or improperly cited.	Abstract contains the required elements*; description of the research project is confusing; within the 250 word limit; references are present but improperly cited.	Abstract contains the required elements*; description of the research project is precise and accurate; within the 250 word limit, references are present and cited properly.
	***Key elements**: background, rationale, purpose, hypothesis, design, subjects and procedures		
	☐ ☐ ☐ ☐ ☐ ☐ ☐		
Introduction to Research Topic (1-3 pages)	Background information is incomplete and poorly organized. The rationale for the study is not evident. Does not describe the proposed population, intervention and/or outcome variable(s).	Provides an overview of the background and rationale for the proposed study. Missing information about the proposed population, intervention and/or outcome variable(s).	Provides a clear overview of the background and rationale for the proposed study. Describes the proposed population, intervention, and outcome variable(s).
	☐ ☐ ☐ ☐ ☐ ☐ ☐		
Scope & Relevance of Literature Reviewed	The scope of the literature reviewed is narrow, limiting the range of contrasting opinions on issues related to the proposed project; many references are minimally or only generally relevant to defining the problem and research question. Many references are dated.	The scope of the literature reviewed is adequate to reveal a range of contrasting opinions on issues related to the proposed project references are mostly relevant to the problem and research question. Most references are current; some older references are key to the research question.	The scope of the literature reviewed is thorough, revealing the spectrum of contrasting opinions on issues related to the proposed project; all references are highly relevant to the problem and research question References are current; all older references are key to the research question.
	☐ ☐ ☐ ☐ ☐ ☐ ☐		
Analysis of Cited Studies	Analysis of aspects of the design, findings and conclusions of cited studies is minimal. Levels of evidence are not indicated.	Analysis of aspects of the design, findings and conclusions of cited studies is evident. Levels of evidence are indicated but not always appropriately/accurately.	Analysis of the design, findings and conclusions of cited studies is comprehensive and in sufficient depth. Levels of evidence are indicated where appropriate.
	☐ ☐ ☐ ☐ ☐ ☐ ☐		

Evaluation Rubric

PROJECT PROPOSAL

	UNSATISFACTORY	ACCEPTABLE	EXEMPLARY
Justification for Proposed Project	Justification of the proposed project is absent due to lack of adequate knowledge of scope and significance of the problem; shows conceptual misunderstandings.	Justification of the proposed project is weak due to limited knowledge of the scope and significance of the problem and its conceptual basis.	Justification of the proposed project is convincing due a thorough grasp of the conceptual basis, scope, and significance of the problem.
	☐ ☐ ☐ ☐ ☐ ☐ ☐		
Purpose & Hypothesis(es)	The purpose and/or hypothesis(es) are not stated and/or they are unclear and/or have little relevance to the problem.	The purpose & hypothesis(es) are stated but are worded awkwardly and/or have limited relevance to the problem.	The purpose statement & hypothesis(es) are explicit, well worded and have clear relevance to the problem.
	☐ ☐ ☐ ☐ ☐ ☐ ☐		
Study Design	Design is not explicitly described or rationale for design choice is absent. The procedures do not support the proposed study design; it is unclear how the design would answer the research question and/or the feasibility is questionable.	Design is described but rationale for design choice is not convincing. The procedures support the design which is appropriate to answer question; however, the feasibility is unclear.	Design is described with a convincing rationale for design choice. The procedures clearly support the design which is appropriate to answer question and the feasibility is clear.
	☐ ☐ ☐ ☐ ☐ ☐ ☐		
Subjects	Description of subject characteristics and rationale for inclusion/exclusion criteria are unclear; characteristics are not representative of the proposed target population. Proposed sample size is not justified.	Description of subject characteristics and rationale for inclusion/exclusion criteria are clear; however, criteria are too broad, (limiting experimental control) or too narrow (not representative of target population). Proposed sample size is weakly justified.	Description of subject characteristics and rationale for inclusion/exclusion criteria are comprehensive, enhancing experimental control and representativeness of target population. Proposed sample size is reasonably justified based on previous studies and/or power analysis.
	☐ ☐ ☐ ☐ ☐ ☐ ☐		
Subject Recruitment & Selection	Method of subject recruitment and selection/screening is omitted or poorly described making reproducibility impossible. Process of obtaining informed consent is omitted, poorly described and/or ethically unsound.	Method of subject recruitment and selection/screening is described but without enough detail to be completely reproducible. Process of obtaining informed consent is inadequate to ensure that subjects are thoroughly informed and process is ethically sound.	Method of subject recruitment and selection is explicitly described and is completely reproducible. Process of obtaining informed consent is thoroughly described; process is ethically sound.
	☐ ☐ ☐ ☐ ☐ ☐ ☐		

Evaluation Rubric

PROJECT PROPOSAL

	UNSATISFACTORY	ACCEPTABLE	EXEMPLARY
Procedures	Many key elements* are NOT addressed. Procedures are unclear and do not flow logically; not all procedures are appropriate to answer the research question; some procedures do not appear feasible and/or would be difficult to reproduce.	Most key elements* are addressed. Procedures are clear; appropriate to answer the research question; and feasible but more detail is needed to reduce confounding variables and ensure reproducibility/internal validity.	All key elements* are addressed. Procedures are clear and completely described; appropriate to answer the question; reproducible; feasible; and are necessary to ensure internal validity while reducing confounding variables.
	***Key elements**: method of group assignment; venue, schedules, subjects' time commitments; specific details of all procedures; roles of investigators; space/materials/equipment to be used, including specifications & trademarks; explicit descriptions/details of reliability/validity of all intervention & outcome variables; process for ensuring subject safety, anonymity, and confidentiality of data; description of all possible risks/benefits for subjects including the procedure for managing subject injury; process for data collection, storage, & analysis.		
	☐ ☐ ☐ ☐ ☐ ☐ ☐		
Citations & References	Some referenced material is not cited. Citation and reference list formats contain errors and/or inconsistencies that make it difficult to identify source.	All referenced material is cited. Citation and reference list formats contain minor errors and/or inconsistencies.	All referenced material is cited accurately. Citation and reference list formats are correct and consistent.
	☐ ☐ ☐ ☐ ☐ ☐ ☐		
	☐ ☐ ☐ ☐ ☐ ☐ ☐		
Other Appendices	One or more relevant/required appendices are missing; appendices are incorrectly or not identified in the methods section.	All relevant/required appendices are included but are not clearly identified or cited in methods section	All relevant/required appendices are included; clearly identified and appropriately cited in the methods section.
	☐ ☐ ☐ ☐ ☐ ☐ ☐		
Organization of the Proposal	The content is poorly organized and relationships between ideas are unclear.	The content is organized but relationships between some ideas are unclear and the flow is disjointed in places.	The content is well organized and relationships between ideas are clear.
	☐ ☐ ☐ ☐ ☐ ☐ ☐		

Evaluation Rubric

PROJECT PROPOSAL

	UNSATISFACTORY	ACCEPTABLE	EXEMPLARY
Writing Style	Contains numerous errors/omissions in spelling, punctuation, page numbers, captions, grammar, tense, etc,	Contains few errors/omissions in spelling, punctuation, page numbers, captions, grammar, tense, etc.	Contains no errors/omissions in spelling, punctuation, page numbers, captions, grammar, tense, etc
	Contains vague & general terminology, awkward sentence structure, redundant descriptions, and confusing or inappropriate wording.	Contains appropriate scientific terminology but some sentences are awkward and writing contains redundancies and/or wording is too general.	Contains appropriate scientific terminology; sentences are concise, focused and wording is precise.
	Writing is inconsistent in style and voice.	Writing is mostly consistent in style and voice.	Writing is consistent in style and voice.
	Writing style seriously impedes understanding.	Writing style does not impede understanding.	Writing style contributes to ease of reading and comprehension.
	☐ ☐ ☐ ☐ ☐ ☐ ☐		

Comments: