

KINESIOLOGY/BIOLOGY 3011
Physiology of Exercise II
Winter 2025



Lakehead
UNIVERSITY

School of
Kinesiology

Professor: Ian Newhouse, Ph.D.
Office: SB-1017
Phone: 343-8074
Email: Ian.Newhouse@lakeheadu.ca
Office Hours: by appointment

Teaching Assistant: Ashley Wright
Email: Acwright@lakeheadu.ca

TIMES:

Lecture Times:

Wed

7:00 – 10:00 PM

SB-1016

Lab Times:

Labs will be individually scheduled in Feb/March to allow the assessments needed for the exercise/lifestyle prescription project.

CALENDAR DESCRIPTION:

This course is a continuation of Kinesiology 3010. Topics include: body composition, obesity, and nutrition; training for performance; factors affecting performance; laboratory assessment of performance; and thermoregulation, exercise, and the environment. Students will utilize laboratory assessments to develop an exercise/lifestyle prescription for a volunteer client.

Pre-requisite: Kinesiology 3010

COURSE FORMAT:

Lecture (in person) and lab (only for prescription paper)

LEARNER OUTCOMES:

At the conclusion of this course students will be able to explain the biochemical and physiological adaptations which occur in the human body to meet the acute and chronic demands of different types of exercise and work. More specifically they will be able to integrate and apply principles and theories of exercise training in various clinical and healthy populations. The lab assignment is viewed as a capstone learning experience for demonstrating the skills and knowledge base needed to complete an exercise/lifestyle prescription.

EVALUATION:

<u>Item</u>	<u>Weighting</u>	<u>Due Date</u>
Midterm exam	25%	Feb 26
Lab/Term assignment	30%	draft Mar 26 final April 2
Presentations related to lab assignment	10%	Apr 2
Final exam	35%	TBA

LAB/TERM Assignment: You have just graduated with a kinesiology degree and have been hired by **Lakehead Fitness and Lifestyle Consultants**. The company aims to create a niche for itself in the competitive fitness and lifestyle industry by capitalizing on the well-rounded knowledge and expertise of kinesiology graduates while catering to the **individualized** needs of **all segments** of the population. Clients may range from business executives, cardiac/cancer rehabilitation patients, friends/family, and the elderly, to elite level athletes. Your first assignment with the company will be to recruit a client and conduct an interview to establish the client's fitness/lifestyle history, profile and goals. It is strongly recommended that employees recruit from a diverse population so that the theoretical and applied aspects of various health problems can be addressed. The next task will be to prepare an exercise/lifestyle prescription for this individual. The means to which this is accomplished are totally up to you. The company has the resources to assist you with physiological assessments (lab hours TBA in Feb/March), nutritional analyses, lifestyle/fitness questionnaires or you may wish to pursue innovative methodologies. It is also possible that only one or two goals form the focus of your prescription. Whatever you choose to do, it is critical to the success of the company that the exercise/lifestyle prescription be professionally presented, adheres to the training principles, has some means of monitoring success and is backed by up-to-date research. One component of the prescription paper will be a review of the literature of a health issue relevant to the client (eg. type II diabetes, dieting, Achilles tendonitis). To ensure that your proposal meets with the standards of the company, you will hold an editorial board meeting (March 26) with one or two colleagues to discuss the strengths and weaknesses of your prescription paper. This prescription paper should be double spaced, APA referenced and approximately 10 to 15 pages in length (3-4 pages of this will be the relevant review of literature). Revised papers are then due on April 2. Only one paper from each group will be presented to the whole company and presentations will be on April 2nd. Groups can decide which paper is presented. It is the responsibility of all group members to ensure a professional presentation. The same presentation mark is awarded to all students in the group. These presentations will be 12 minutes long with 2 minutes for questions.

Late penalty: For all assignments there is a standard late penalty of 1% (of final grade) for each day late.

REQUIRED TEXT AND RESOURCES:

Powers, S. K., Howley, E. T. & Quindry J. (2021). *Exercise physiology: Theory and application to fitness and performance* (11th ed.). New York, NY: McGraw-Hill Education.
(cost \$173.92)

Other readings are on the D2L site

ADDITIONAL COURSE INFORMATION:

The School of Kinesiology has adopted a series of policies that apply to all courses. Students are expected to be familiar with these policies and to abide by them. The course policy document may be found on the School of Kinesiology website at:

<https://www.lakeheadu.ca/academics/departments/kinesiology/regulations-and-policies>

Generative artificial intelligence (Generative AI or GenAI) is a category of AI systems capable of generating text, images, or other media in response to prompts. These systems include ChatGPT and its variants Bing (built by OpenAI) and Bard (built by Google) among several others. Other generative AI models include artificial intelligence art systems such as Stable Diffusion, Midjourney, and DALL-E.

GenAI tools can provide valuable assistance and support in academic work. However, it is essential to use them responsibly and ethically. The following information and guidelines apply to the use of AI-based tools in this course:

a) Student Responsibility

- o It is the responsibility of the student to understand the limitations of AI-based tools. While these tools can provide suggestions and insights, final decisions and critical thinking should come from the student's own understanding and effort. Before submitting, review your work with this in mind. If you don't understand what type of GenAI usage is appropriate, ask the course instructor for clarification.

b) Formative Usage

- o In this class, you may use GenAI for formative, but not summative, work. That means it can be used as a "possibility engine" (brainstorm tool), a "study buddy," a "collaboration coach," a "guide on the side," a "personal tutor," a "co-designer," etc. to help you learn course content, but it cannot be used as the primary vehicle for any work that is submitted for marks or evaluation. (See UNESCO's "ChatGPT and Artificial Intelligence in Higher Education Quick Start Guide," page 9, for explanations and examples of these and other roles GenAI can productively serve in a formative capacity.)

c) Error & Bias

- AI content is created by computer algorithms that have been trained using large amounts of data. The AI learns from patterns and examples in the data to generate new content that resembles what it has been trained on. If the training data used to train the AI model is biased or limited in scope, the AI may reproduce content that is inaccurate, incomplete, offensive, and/or biased. Students should weigh this as they consider material produced by AI.

d) Trustworthiness

- Generative AI can be vulnerable to manipulation and misuse. It can be used to generate fake news, misinformation, or deepfake content, which can have harmful consequences. Students should check AI generated content against reputable sources.

e) Plagiarism

- Since [writing and critical thinking ability] are learning outcomes of this course, all work submitted for evaluation must be the student's original work. Using the work of others (including content curated/generated by AI) without proper citation is considered plagiarism. See "Citing Artificial Intelligence" for assistance with correct documentation.

f) Citation of Sources

- o If you use material generated by an AI program for an assignment in this course, it must be cited like any other source (with due consideration for the quality of the source, which may be judged as poor). Failure to do so will be considered a violation of academic integrity. See Student Code of Conduct – Academic Integrity.

Supports for Students

There are many resources available to support students. These include but are not limited to:

- [Health and Wellness](#)
- [Student Success Centre](#)
- [Student Accessibility Centre](#)
- [Library](#)
- [Lakehead International](#)
- [Indigenous Initiatives](#)

Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities and/or medical conditions to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please contact [Student Accessibility Services](#) (SC0003, 343-8047 or sas@lakeheadu.ca)

As a university student, you may sometimes experience mental health concerns or stressful events that interfere with your academic performance and negatively impact your daily activities. All of us can benefit from support during times of struggle. If you or anyone you know experiences academic stress, difficult life events or feelings of anxiety or depression, Lakehead has resources available to you. Check in with the [WellU Key](#) to find the mental health resources you are looking for. Remember that getting help is a smart and courageous thing to do- for yourself, for those you care about, and for those who care about you. Getting support sooner rather than later is almost always helpful.

Courses offered by the School of Kinesiology address a number of the College of Kinesiologists of Ontario's entry-to-practice competencies. For more information on the competencies and becoming a registered Kinesiologist, visit the CKO website at

https://coko.ca/CKO_Public/Public_Content_Records/Apply_/Subcontent3/Study_Resources.aspx

Unfair marking: If you feel you have been marked unfairly on an exam or a paper you are welcome to resubmit it while noting the specific area of concern, but keep in mind that the entire exam/paper will be remarked.

Late penalty: For all assignments there is a standard late penalty of 1% (of final grade) for each day late.

DETAILED COURSE SCHEDULE:

LECTURE OUTLINE

CHAPTERS IN TEXT

Week 1	Introduction/Training Principles	21
Week 2	Physiological consequences of training/overtraining	21
Week 3	Training for special populations	22
Week 4	Training for special populations	22
Week 5	Nutritional practice in athletes	23
Week 6	Nutritional practice in athletes	23
Week 7	Exercise and the environment	24
Week 8	Exercise and the environment	24
Week 9	Ergogenic aids	25
Week 10	Ergogenic aids	25
Week 11	Student presentations	
Week 12	Review (1 class)	

Notes:

1. The chapters noted build on preceding chapters so it may be necessary to review these earlier chapters as well.
2. Supplementary readings and powerpoint slides will be posted to D2L throughout the term.