



Land Acknowledgement

UBC Okanagan is located on the traditional, ancestral, and unceded territory of the Syilx Okanagan Nation. I respectfully acknowledge that I am an uninvited visitor on these lands. I benefit from unearned colonial privilege while Indigenous peoples continue to be treated unfairly in Canada and live with the lasting legacy of the residential school system. As a student at UBC Okanagan, I encourage you to reflect on this and learn more about what we can do as we work towards Truth and Reconciliation.

HES 380: Exercise Metabolism

Faculty: Faculty of Health and Social Development

Department/School: Health and Exercise Sciences

Instructor(s): Dr. Jonathan Little

Duration: Term 1 Winter 2024

Delivery Modality: In-Person

Course Location: SCI 333

Course Days: Wed/Fri

Class Hours: 8:00 – 9:20am

Other Instructional Staff

TA: Ella Harness

Course Format

This "flipped classroom" course format is broken up into 5 X 2-wk modules. Each module follows the same consistent format with students responsible for watching 2-3 short (~25-30 minute) recorded lectures in the first week with creation of multiple-choice quiz questions related to the lectures submitted by the end of the week. Optional "Chalk Talks" to expand your learning, get to know your Professor, and ask questions occur on Friday morning during regularly scheduled class time in the first week of each module. The second week of each module involves an In-Class Integration Session (Wednesday), In-Class Activities and Knowledge Application (Friday), and a Module Quiz (online) (See Figure 1).



HES 380

Module Overview

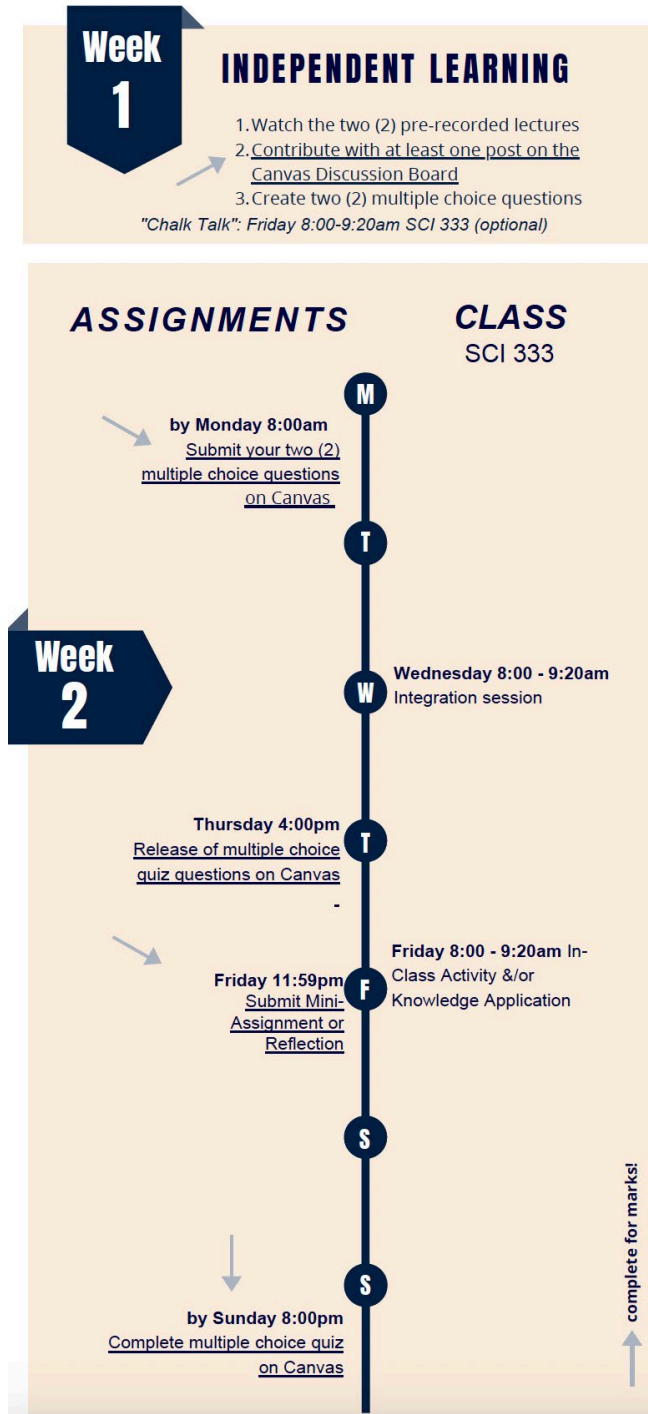


Figure 1 – HES 380 Module Overview

Students are expected to watch the recorded lectures and **learn independently** to become familiar with the material **in the first week of each module**. **There are no formal class meetings in the first week of each module but you will need to work independently to i) watch recorded lectures, ii) make a Discussion Board post, and iii) create two multiple choice questions for submission and grading.** I will hold a “chalk talk” (in person) on Friday during the scheduled class time (8:00-9:20am PST) during the first week of each module to go over key concepts, answer questions or provide assistance. Please drop in to these optional “extra learning” sessions on Friday mornings in SCI 333 if you want to learn more, have any questions or require any clarifications on the lecture content. **In the second week, students are expected to attend both the Wednesday and Friday morning in-person in-class sessions in SCI 333.** Wednesday will be an integration session using practice questions and knowledge retrieval to help solidify main concepts from the module lectures. Friday will involve in-class activities and active learning approaches to work towards application of the knowledge. The **Friday in-class activities will include a short Mini-Assignment or Reflection, which must be submitted by 11:59pm that day for grading.** Quiz questions will be released on Thursday of the second week of each module and the **quiz can be completed within a 30-minute time at any point between Thursday and Sunday.**

Within each module, marks are obtained by:

- i) Posting on the Canvas Discussion Board in the first week;
- ii) Creating two multiple choice quiz questions to be submitted by Monday of the second week (Modules 1-4 only; further details are provided below and will be covered in the recorded lectures in the first week);
- iii) Submitting the Mini-Assignment or Reflection on the Friday of the second week.
- iv) Answering the quiz questions by the end of the second week;

You will also be assessed on the learning outcomes via:

- v) A midterm exam
- vi) A final exam

Learning Outcomes

Upon successful completion of this course, students will be able to...

1	Identify key metabolic enzymes and describe how they function to regulate energy provision during exercise (Lectures, Student Quiz Content Creation, Integration Sessions, In-Class Activities)
2	Explain how the key components of carbohydrate and lipid metabolism are integrated during exercise, health, disease, and nutritional challenges (Lectures, Student Quiz Content Creation, Integration Sessions, In-Class Activities, Mini-Assignments)
3	Describe the major metabolic adaptations to exercise training and apply this knowledge to explain how exercise training: i) alters fuel selection during exercise; and ii) contributes to

	improved metabolic health (Lectures, Required Readings, Student Quiz Content Creation, Integration Sessions, In-Class Activities, Mini-Assignments)
4	Critically evaluate scientific research articles in the areas of exercise metabolism and nutritional supplements and be able to communicate your ideas in writing (Lectures, In-Class Activities, Mini-Assignments)

Assessments of Learning

1	Canvas Discussion Board Posts 10% (2% each module)
2	Student Quiz Content Creation 16% (4% each module, Modules 1-4)
3	Module Quizzes 16% (4% each module, Modules 1-4)
4	Mini-Assignments & Reflections 10% (Top 4 of 5, 2.5% each)
5	Midterm Exam: Multiple choice and short-answer 20% (Friday Oct. 25)
6	Final Exam: Multiple choice, short-answer, case study 28% (Date TBD)

Learning Activities

1	<p>The course is divided into 2-week modules and uses a "flipped" classroom format. During the first week of each module students watch pre-recorded lectures (posted on Canvas) on their own time and are required to make a Discussion Board post and create multiple choice quiz questions that are submitted for grading. An optional "chalk talk" to extend learning or ask clarification questions is provided in the first week of each module. In the second week of each module, students are expected to attend class on both the Wednesday and Friday for Integration Sessions and In-Class Activities. The In-Class Activities done on Friday's during the second week of each module will involve Mini-Assignments or Reflections that must be submitted for grading.</p> <p>Throughout the Wednesday and Friday in-class sessions, we will utilize an interactive software platform called <i>Socrative</i> (http://b.socrative.com/login/student/), which can be accessed on phone, tablet, or computer with internet connection. This tool allows for "clicker" style questions to be asked without the need for clickers.</p>
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Course schedule

Below is the planned course schedule, separated by Modules.

<u>Date</u>	Meeting/Class	Tasks	Reading
Week 1 - Introduction to the Course			
<u>Week 1</u>			
Wed. Sept. 4	8:00 – 9:20am – In-person Class SCI 333	Review Course Outline & Canvas	Course Syllabus/Outline
Friday Sept. 6	8:00 – 9:20am – In-person Class Example Integration Session & In- Class Activity – i) <i>How our brains learn & how can we use this information to study more effectively?</i> ii) <i>Review of Exercise Physiology & Metabolism</i> SCI 333	Watch video: <i>Tips on writing good multiple choice questions</i> <u>Sun. Sept. 8</u> Complete Practice Quiz by 8:00pm	“Socratic Instructions – HES 380” – posted on Canvas “Explanation of Multiple Choice Question Creation and Submission” – posted on Canvas

Module 1 (Weeks 2-3) – Overview of Metabolism, Bioenergetics & Enzymes			
<p><u>Week 2</u> Sept 9-15</p> <p>Fri. Sept. 11</p>	<p>No in-person class meetings</p> <p>Optional: In-person (SCI 333) “Chalk Talk” or extra help</p>	<p>Watch Lectures 1 & 2</p> <p>Make Discussion Board Post on Canvas</p>	<p>Required Reading: Jeukendrup, 2002</p>
<p><u>Week 3</u> Wed. Sept 18</p> <p>Fri. Sept. 20</p>	<p>8:00 – 9:20am – In-person Integration Session SCI 333</p> <p>12:30 – 2:00pm – In-person In-Class Activity SCI 333</p>	<p><u>Mon. Sept. 16th</u> : Submit 2 Multiple Choice Questions on Canvas by 8:00am</p> <p><u>Thurs. Sept. 19:</u> Module 1 Quiz released on Canvas at 4:00pm</p> <p><u>Fri. Sept. 20:</u> Submit Mini-Assignment/Reflection by 11:59pm</p> <p><u>Sun. Sept. 22:</u> Complete Module 1 Quiz by 8:00pm</p>	

Module 2 (Weeks 4-5) - Carbohydrate Metabolism			
<u>Week 4</u>			
Sept. 23 – 29	No in-person class meetings	Watch Lectures 3 & 4	
Fri. Sept 27	No chalk talk this week (JL away)	Make Discussion Board Post on Canvas	
<u>Week 5</u>			
Wed. Oct. 2	8:00 – 9:20 – In-person Integration Session SCI 333	<u>Mon. Sept. 30:</u> Submit 2 Multiple Choice Questions on Canvas by 8:00am	
Fri. Oct. 4	8:00 – 9:20am – In-person In-Class Activity SCI 333	<u>Thurs. Oct. 3:</u> Module 2 Quiz released on Canvas at 4:00pm <u>Fri. Oct. 4</u> Submit Mini-Assignment/Reflection by 11:59pm <u>Sun. Oct. 6</u> Complete Module 2 Quiz by 8:00pm	

Module 3 (Weeks 6-7) – Lipid Metabolism			
<u>Week 6</u> Oct. 7-13	No in-person class meetings	Watch Lectures 5 & 6	
Fri. Oct. 11	Optional: In-person (SCI 333) “Chalk Talk” or extra help	Make Discussion Board Post on Canvas	
<u>Week 7</u> Wed. Oct. 16	8:00 – 9:20am – In-person Integration Session SCI 333	<u>Mon. Oct. 14:</u> Submit 2 Multiple Choice Questions on Canvas by 8:00am	
Fri. Oct. 18	8:00 – 9:20am – In-person In-Class Activity SCI 333	<u>Thurs. Oct. 17:</u> Module 3 Quiz released on Canvas at 4:00pm	
		<u>Fri. Oct. 18:</u> Submit Mini- Assignment/Reflection by 11:59pm	
		<u>Sun. Oct. 20:</u> Complete Module 3 Quiz by 8:00pm	
Week 8 – Midterm Exam Week			
<u>Week 8</u> Wed. Oct. 23	8:00 – 9:20am – In-person Midterm Review Session SCI 333	<u>Fri. Oct. 25</u> In-Person Midterm Exam	
Fri. Oct. 25	Midterm Exam In-Person SCI 333	SCI 333	

Module 4 (Weeks 9-10) – Metabolic Adaptations to Exercise Training			
<p><u>Week 9</u> Oct 28 – Nov 3</p>	<p>No in-person class meetings</p>	<p>Watch Lectures 7 & 8 + bonus lecture</p>	<p>Required Reading: Hollooszy & Coyle, 1984</p>
<p>Fri. Nov. 1</p>	<p>Optional: In-person (SCI 333) “Chalk Talk” or extra help</p>	<p>Make Discussion Board Post on Canvas</p>	
<p><u>Week 10</u> Wed. Nov. 6</p>	<p>8:00 – 9:20am – In-person Integration Session SCI 333</p>	<p><u>Mon. Nov. 4:</u> Submit 2 Multiple Choice Questions on Canvas by 8:00am</p>	
<p>Fri. Nov. 8</p>	<p>8:00 – 9:20am – In-person In-Class Activity SCI 333</p>	<p><u>Thurs. Nov. 7:</u> Module 4 Quiz released on Canvas at 4:00pm</p> <p><u>Fri. Nov. 8:</u> Submit Mini- Assignment/Reflection by 11:59pm</p> <p><u>Sun. Nov. 10:</u> Submit Module 4 Quiz by 8:00pm</p>	
Week 11 – Reading Week (No Classes or Activities)			

Module 5 (Weeks 12-13) – Insulin Resistance: Causes, Consequences, & Treatment			
<u>Week 12</u>			
Nov. 18 – 24	No in-person class meetings	Watch Lectures 9, 10, & 11	Required Reading: Bonen et al. 2006
Fri. Nov. 22	No chalk talk this week (JL away)	Make Discussion Board Post on Canvas	Recommended Podcast: Inside Exercise: Fat metabolism, insulin resistance and exercise with Dr. Graham Holloway (University of Guelph)
<u>Week 13</u>			
Wed. Nov. 27	8:00 – 9:20am – In-person Integration Session SCI 333	**NO SUBMISSION OF MULTIPLE CHOICE QUESTIONS OR QUIZ FOR MODULE 5	
Fri. Nov. 29	8:00 – 9:20am – In-person In-class Activity SCI 333	<u>Fri. Nov. 29</u> Submit Mini-Assignment/Reflection by 11:59pm	
Wed. Dec. 4	8:00 – 9:20 - Final Exam Review Class SCI 333		
TBD	Final Exam (cumulative) – in-person		

Late policy

There are no late submissions allowed for: i) Canvas Discussion Board Posting; ii) Student Quiz Content Creation; iii) Module Quizzes. These assessments provide ample time and flexibility to be completed during the module on the student's own time.

There are a total of 5 Mini-Assignments/Reflections, which must be submitted by the 11:59pm deadline on the Friday of the second week of each module. Collectively, these assessments are worth 10% of your total grade. Your final grade will include your top 4 Writing Mini-Assignments/Reflections (i.e., I will drop your lowest grade and the top 4 grades will each contribute 2.5% to your final grade). If you submit a Mini-Assignment/Reflection after the 11:59pm Thursday deadline but within 24 hours of the due date it will be graded with a penalty of 30% taken off the given grade (i.e., a 72% grade on the assessment would be given a 42%). If you submit within 24-48 hours of the due date (i.e., between 11:59 Saturday to 11:59 Sunday) it will be graded with a penalty of 50% taken off the given grade (i.e., a 72% grade on the assessment would be given a 22%). No submissions will be allowed after 48 hours unless under extenuating circumstances that are approved by School policies.

Missed exam policy

If you miss the midterm exam for legitimate reasons approved by School policies, you must write a make-up exam scheduled through the UBCO exam invigilation services. Normally this must be completed within 1 week of when the original midterm was scheduled.

Missed Activity Policy:

On Friday during the second week of each module there will be an in-class activity that involves a Mini-Assignment or Reflection. These assignments are submitted via Canvas and are due by 11:59pm so if you miss class for extenuating circumstances (or choose not to attend) you should attempt to complete the assignment. You will not benefit from the In-Class Activity or discussion but you may still be able to complete the Mini-Assignment or Reflection on your own time; this is why I have allowed for an 11:59pm submission deadline. If you miss one of these you will not be allowed a make-up assignment unless under extenuating circumstances that are approved by School policies. The top 4 out of 5 grades for Mini-Assignments/Reflections are counted towards your final grade in the class, so you could miss one of these without penalty.

Learning Materials

You are required to read scientific journal articles pertaining to specific topics throughout the course, as outlined below. These articles will be posted on Canvas or you will need to search the literature on your own. You can expect to be tested on material in any articles posted on Canvas. When you read one of the required review articles, the objective is to introduce the topic and reinforce important points from the lectures. You will also have to search on your own, and interpret, primary journal articles for some In-Class Activities & Mini-Assignments. For this, the focus will be on the main findings and conclusions of the research study; you do not need to memorize specific details and/or understand all aspects of these publications.

Link to Library Course Reserves for HES 380 (CWL and login required, also available in Canvas):

<https://courses.library.ubc.ca/c.HWdDK3>

Other Course Policies

Academic Integrity

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. **For example, incidences of plagiarism or cheating usually result in a failing grade or mark of zero on the assignment or in the course.** Careful records are kept to monitor and prevent recidivism.

A more detailed description of academic integrity, including the University's policies and procedures, may be found in the Academic Calendar at:

<http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,54,111,0>

Final Examinations

You can find the [Senate-approved term and examination dates here](#). Except in the case of examination clashes and hardships (three or more formal examinations scheduled within a 27-hour period) or unforeseen events, students will be permitted to apply for out-of-time final examinations only if they are representing the University, the province, or the country in a competition or performance; serving in the Canadian military; observing a religious rite; working to support themselves or their family; or caring for a family member. Unforeseen events include (but may not be limited to) the following: ill health or other personal challenges that arise during a term and changes in the requirements of an ongoing job.

Further information on Academic Concession can be found under Policies and Regulation in the Okanagan Academic Calendar <http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,48,0,0>

Grading Practices

Faculties, departments, and schools reserve the right to scale grades in order to maintain equity among sections and conformity to University, faculty, department, or school norms. Students should therefore note that an unofficial grade given by an instructor might be changed by the faculty, department, or school. Grades are not official until they appear on a student's academic record.

<http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,41,90,1014>

Student Services Resources:

UBC Okanagan Disability Resource Centre

The DRC facilitates disability-related accommodations and programming initiatives to remove barriers for students with disabilities and ongoing medical conditions. If you require academic accommodations to achieve the objectives of a course please contact the DRC at:

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UNC 215 250.807.8053
email: drc.questions@ubc.ca
Web: <https://students.ok.ubc.ca/academic-success/disability-resources/>

UBC Okanagan Equity and Inclusion Office

Through leadership, vision, and collaborative action, the Equity & Inclusion Office (EIO) develops action strategies in support of efforts to embed equity and inclusion in the daily operations across the campus. The EIO provides education and training from cultivating respectful, inclusive spaces and communities to understanding unconscious/implicit bias and its operation within in campus environments. UBC Policy 3 prohibits discrimination and harassment on the basis of BC's Human Rights Code. If you require assistance related to an issue of equity, educational programs, discrimination or harassment please contact the EIO.

UNC 325H 250.807.9291
email: equity.ubco@ubc.ca
Web: <https://equity.ok.ubc.ca>

Student Wellness

At UBC Okanagan health services to students are provided by Student Wellness. Nurses, physicians and counsellors provide health care and counselling related to physical health, emotional/mental health and sexual/reproductive health concerns. As well, health promotion, education and research activities are provided to the campus community. If you require assistance with your health, please contact Student Wellness for more information or to book an appointment.

UNC 337 250.807.9270
email: healthwellness.okanagan@ubc.ca
Web: <https://students.ok.ubc.ca/health-wellness/>

Student Learning Hub

The Student Learning Hub is your go-to resource for free math, science, writing, and language learning support. The Hub welcomes undergraduate students from all disciplines and year levels to access a range of supports that include **tutoring in math, sciences, languages, and writing, as well as help with study skills and learning strategies**. Students are encouraged to visit often and early to build the skills, strategies and behaviors that are essential to being a confident and independent learner. For more information, please visit the Hub's website.

LIB 237 250.807.8491
email: learning.hub@ubc.ca
Web: <https://students.ok.ubc.ca/academic-success/learning-hub/>

The Global Engagement Office

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The Global Engagement Office provides advising and resources to assist International students in navigating immigration, health insurance, and settlement matters, as well as opportunities for intercultural learning, and resources for Go Global experiences available to all UBC Okanagan students, and more.

email: ubco.global@ubc.ca

Web: <https://students.ok.ubc.ca/global-engagement-office/>

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Safewalk

*Don't want to walk alone at night? Not too sure how to get somewhere on campus? Call Safewalk at **250-807-8076**.*

For more information, see: <https://security.ok.ubc.ca>