

# Langara.

THE COLLEGE OF HIGHER LEARNING.

## The Advanced Anatomy and Physiology of the Musculoskeletal System Continuing Studies September 2021 Scheduled, on-line & In-person

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### COURSE DESCRIPTION

This course is intended to students in the health-related professions, who require a detailed knowledge of the structures and the dynamic physiological processes involving the musculoskeletal system.

The course will be delivered mostly on-line with four in-person three-hour sessions held at the Anatomy lab room G-109 at the Langara College. **Should you have any concerns attending classes on campus, please kindly let us know so we can address those concerns ahead of time.**

The students will apply this knowledge to familiarize with the basics for the assessment of some common injuries and conditions affecting the musculoskeletal system for their management, rehabilitation, and prevention.

### REQUIRED TEXT BOOK

1. The Anatomy Coloring Book. Kapit and Elson. Fourth Edition, 2014. Pearson Education. ISBN: 9780321832016
2. Study notes and presentation slides provided by the instructor.

### **SOME SUGGESTED READING**

1. Principles of Anatomy and Physiology. Tortora-Derrickson. 14<sup>th</sup> edition.
2. Clinical Kinesiology for Physical Therapist Assistants. Lippert. 3<sup>rd</sup> Edition. 2000
3. Stretching. Bob Anderson. 2000
4. The Stark Reality of Stretching. Steven Stark. Fourth Edition, 1999.

### **LEARNING OUTCOMES:**

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

- Describe the bone and muscle tissues
- Understand the physiological process of skeletal muscle contraction
- Palpate and name the most prominent bony landmarks and all the easily accessible muscles in the human body.
- Name and perform the actions of the main muscle groups of the body with normal joint range of motion (ROM).
- Apply basic skills for the interpretation of Xrays of the skeleton.
- Apply basic skills in the assessment of muscles and joints with the manual muscle testing (MMT), and range of movement (ROM) testing.
- Recommend appropriate stretching techniques and routines for the management, rehabilitation, and prevention of common musculoskeletal conditions.

### **METHODOLOGY**

The course will be delivered mostly online by Lectures and demonstrations on Zoom meetings. There will be four in-person sessions for student-Instructor and student-student interactions and demonstrations using anatomical models in the lab.

During the teaching activities, the students may be asked to show and palpable muscles and to identify bone prominences and landmarks in the radiographic studies, anatomical models and their own body.

**The students will be asked to role-play, assess the joints, muscles, and joint movements of classmates and themselves at the in-person sessions, which will be part of the evaluation of the course.**

The students will have access to a digital booklet posted on BrightSpace with the contents in-brief to be used in conjunction with the textbook in class. All the power point presentation slides will also be accessible on BrightSpace to support their preparation.

The students will discuss some common musculo-skeletal disorders related to regions of the skeleton and muscle groups being studied.

**The student will answer a total of six (6) quizzes, four (4) on-line and two (2) in-person at the lab. There will also be two (2) on-line diagram tests.**

**At the end of this course, the students will complete and submit digitally an open-book final exam.**

### **REQUIRED RESOURCES**

Students are expected to attend the on-line classes and be prepared to learn. This includes having the adequate resources such as laptops, tablets or similar devices and adequate internet service.

### **EVALUATION OF THE COURSE:**

**The minimum Grade requirement for successful completion of the course is C or 60%.** The grading scale for the evaluation will be based on the following table:

A+ 95 – 100%	A 90 -94 %	A- 85 – 89%
B+ 80 – 84%	B 75 – 79%	B- 70 – 74%
C+ 65 – 69%	C 60 – 64%	C- 55 – 59%
D 50 – 54%	F 49% or below	

The evaluation of the Learning Outcomes of the **Advanced Anatomy & Physiology for Bodywork Practitioners online** will include:

<b>5 on-line Quizzes @ 5 % each</b>	<b>25%</b>
<b>1 In-person Quiz</b>	<b>10%</b>
<b>4 In-person sessions: student work and participation @ 5% each</b>	<b>20%</b>
<b>2 on-line Diagram tests @ 8% each</b>	<b>16%</b>
<b>Final open-book exam</b>	<b>29%</b>
<b>Total</b>	<b>100%</b>

The on-line Quizzes and Diagram tests will be completed on the BrightSpace platform as scheduled in the outline of the course and within their allotted time frame.

While the students complete the on-line Quizzes and Diagram tests, neither their video nor their audio would be required to be on.

It is expected that the students complete the on-line evaluations individually keeping academic honesty. However, the students may choose to add some formality to this exercise and may voluntarily keep their video on until finishing.

**Any kind of recording, saving, photographing or similar of evaluations or debriefing of evaluations are prohibited.**

The student's quality work and active participation in all the in-person sessions will be marked by the instructor.

The final exam will be open-book and should be completed and submitted within the time frame and allotted time as per the details in the outline of the course

The student must get at least a total of 60% overall to pass the course. In order to receive a minimum of 60% or a C grade, students must complete and submit all on-line assignments and evaluations.

As per policy, a failing grade will be given if a student does not complete all of the course requirements.

### **Langara Academic Integrity Policy**

Please be advised that all material created by the instructor, including lecture slides, handouts, assignments and exams [or what is relevant] are the sole property of the instructor and are protected by copyright. Students must not share instructor-created material with others, including friends, family members, other students or third party "homework help" sites without the express permission of the instructor. If any student is found to have shared material created by the instructor, the College may take steps to address this infringement, and such steps may include actions under the Langara College Academic Integrity policy (F1004). and/or

Under the Langara Academic Integrity policy, it is a violation of policy to aid, enable or assist other students to cheat, including by sharing course information without permission. Students found to have violated the policy may be subject to disciplinary sanctions.

## **REFUNDS AND WITHDRAWALS**

**Before course starts:** All refunds are subject to an administration fee of 20% of the course/event fee (minimum \$15 to a maximum of \$35 per course). Cancellations must be received at least 24 hours prior to the first day of class. Please note: We would be pleased to hold a 100% credit of the registration fee toward taking another Langara Continuing Studies course/s. This credit is valid for 12 months.

**After course has started:** No refunds are issued except for extraordinary circumstances and where approved by the program coordinator. In such case, request must be submitted in writing by e-mail, fax, mail or in person to the relevant program coordinator. Students wanting to discontinue taking a course after the course drop/refund period must officially withdraw from the course. Students may withdraw from the course by contacting the program coordinator prior to the end of the sixth session (of 14 classes). Please note that courses withdrawn from after the drop deadlines will not be eligible for a refund. If the student qualifies their transcript will indicate a W (Withdrawn). After this time if a student does not complete the course they will receive an "I" Incomplete on their transcript.

## **THE INSTRUCTOR, Dr. David Li Lam**

- Medical Doctor (MD) graduated in Havana, Cuba
- Specialist in Human Anatomy
- Doctor of Traditional Chinese Medicine (Dr.TCM)
- Registered Massage Therapist (RMT)

Dr. Lam's extensive and intimate knowledge of the human body's structure and function is matched with his vast clinical experience in both TCM and Western Medicine.

From 1986 to 1993, Dr. David taught Western Medical Sciences to medical and nursing students in both Cuba and the Republic of Yemen. After moving to Canada, Dr. Lam brought his unique teaching style of Western Medical Sciences to several TCM Colleges in Vancouver (1996) and to Langara College (1999).

For over fifteen years, Dr. Lam has successfully assisted students understand and apply Western Medical Sciences and Theories to the practice of allied professions.

He is currently teaching academic subjects in the RMT program at the Langara College, the A&P module for the Medical Aesthetics program, the Physical Assessment for Pharmacists, and the Basic and Advanced A&P courses.

**COURSE SCHEDULE: January 2021 scheduled (mixed) on-line and in-person**

Session	Date	Topics
1	Sep 18 AM (1)	Introduction to the MSK system. Bone structure and surface marking. Synovial joints. Skeletal muscle tissue. Structure and functions of muscles. Naming skeletal muscles.
1	Sep 18 PM (2)	The skeletal muscle cell. The physiology of the skeletal muscle contraction and relaxation. Isometric and Isotonic contractions. Twitch contraction. Types of skeletal muscle cells. Muscle unit recruitment
2	Oct 2 AM Room G109 (3)	<b>Quiz 1 (classes 1-2) in-person 10%</b> <b>De-briefing of Quiz 1</b>  <b>Students shall bring their laptop or similar device to answer the quiz on BrightSpace.</b>  Using the models at the lab: The skeleton of the head. Cranial and facial bones. Unique features of the skull. The TMJ. Intro to the essentials of Xray interpretation. Xrays of the skull. <b>In-class work 5%</b>
2	Oct 2 PM Room G109 (4)	<b>In-person class</b> Working on the available models at the lab: The vertebral column. Distinct regional vertebrae. Skeleton of the thorax. Xrays of the vertebral column and thorax. The skeleton of the thorax. Xrays of the thorax. <b>In-class work 5%</b>
3	Oct 16 AM (5)	<b>Quiz 2 (classes 3-4) on-line 5%</b> <b>De-briefing of Quiz 2</b>  Muscles of the head. Muscles of the facial expression and for mastication and speech. Extrinsic muscles of the eyeball. Muscles of the neck. The SCM, muscles of the anterior and posterior triangles
3	Oct 16 PM (6)	Muscles of the back of the neck Muscles of the back: the erector spinae group, the oblique and postural muscles. Muscles of the thorax: diaphragm, intercostals.

		Muscles of the abdominal region. Sheath of the rectus abdominis. Inguinal canal. Muscles of the pelvic floor. Muscles of the perineum
4	Oct 30 AM Room G109  (7)	<b>Part 1:</b> <b>Quiz 3 (classes 5,6) 5%</b> <b>De-briefing of Quiz 3</b>  <b>Part 2:</b> <b>Diagram test 1 (classes 1-6) 8%</b> <b>De-briefing Diagram test 1</b>  Overview of the appendicular skeleton in preparation for the lab practice
4	Oct 30 PM Room G109  (8)	<b>In-person class:</b>  The skeleton of the upper extremities. The main joints of the upper extremities. Xrays of the upper extremities. Lab practice  <b>In-class work 5%</b>
5	Nov 6 AM Room G109  (9)	<b>Quiz 4 (classes 7,8) 5%</b> <b>De-briefing of Quiz 4</b>  Muscles of the upper extremities: Muscles of the shoulder girdle and muscles of the limb.
5	Nov 6 PM Room G109  (10)	<b>In-person class:</b>  The skeleton of the lower extremities. The main joints of the lower extremities. Male and female pelves. Xrays of the lower extremities. Lab practice.  <b>In-class work 5%</b>
6	Nov 20 AM  (11)	<b>Quiz 5 (class 9-10) on -line 5%</b> <b>De-briefing of Quiz 5</b>  Muscles of the lower extremities Muscles of the pelvic girdle and muscles of the limb
6	Nov 20 PM  (12)	The range of movement (ROM) of the main joints. Exercise physiology. Exercise-induced muscle damage. Aerobic vs strength training. Anabolic steroids. Creatine supplementation  Assessment of the ROM. Screening tests (active motion). Muscle screening tests. Manual muscle testing (MMT). Evaluation procedures.

7	Nov 27 AM  (13)	<b>Part 1:</b> <b>Quiz 6 (classes 11,12) on-line 5%</b> <b>De-briefing of Quiz 6</b>  <b>Part 2:</b> <b>Diagram test 2 (classes 8 –12) on-line 8%</b> <b>De-briefing Diagram test 2</b>  <b>Releasing of the open-book final exam questions to the students</b>
7	Nov 27 PM  (14)	<b>Final exam open-book exam (all inclusive) 29%</b> <b>Completion and submission of the open-book final exam on Brightspace may be extended up to November 29 at 6:00pm</b>