# Queen's University School of Kinesiology and Health Studies



# Course Name: KNPE 125/3.0

Introduction to Human Physiology

### **Course Instructors:**

Stacey Forbes Lindsay Lew

### **Contact Hours:**

Lectures: 3 x 1 hr / week

## Prerequisite:

Level 1 or above in a HLTH or KINE Plan.

### **Exclusions:**

No more than one course from IDIS 150/6.0; or (PHGY 215/3.0 or PHGY 216/3.0); PHGY 210/6.0; PHGY 212/6.0; PHGY 214/6.0

## **Course Description:**

This course provides an introduction to human physiology from the cellular to the systemic level with special emphasis on the systems that adapt to exercise stress. The following areas will be covered: the cell, nervous system, skeletal muscle system, respiratory system, cardiovascular system, neuroendocrine system, renal system and reproductive physiology.

## Course Texts:

KNPE125 Course Pack (required)
The course pack will be available on onQ.
This course pack contains readings and activities to help you learn a conceptual framework of flow to predict how physiological systems adapt in response to a disturbance in the system (i.e. human movement) (learning outcome 3). If you complete all of the readings and activities in the course pack, 2% will be added to your final course grade.

The information from the course pack will be tested in three different components of the course that will be described further below:

- 1. Weekly online guizzes on OnQ.
- 2. Each of the 3 unit tests.
- Each of the 3 group assignments.

Textbook (Optional)
Principles of Human Physiology. 6th ed.
Cindy L. Stanfield. Pearson, Toronto.

This text is used primarily as a supplement to the information presented in lecture, tests will be based on lecture material only.

# **Learning Outcomes:**

 Describe the basic structural and functional characteristics of types of cells (e.g. neural, muscle), organs (e.g. blood

## **Course Evaluation:**

Unit 1 - Cellular Function and Neural Physiology OnQ Quiz 1 2% vessels, lungs) and organ systems relevant to human movement.

- Accurately recite the conceptual framework of flow (both the equation for flow and the flow model) which will be used in this course to understand the underlying causal chain of events that constitute physiological function.
- Apply the conceptual framework of flow to predict how physiological systems adapt in response to a disturbance in the system (i.e. human movement).

OnQ Quiz 2 2% OnQ Quiz 3 2%

Unit 1 - Flow Model Design Assignment - Course pack weeks 1-3

7% (lowest assignment grade will not count)

Unit 1 Test 23%

Unit 2 - Muscle Physiology and Metabolism
OnQ Quiz 4 2%
OnQ Quiz 5 2%
OnQ Quiz 6 2%

Unit 2 Flow Model Design Assignment - Course pack weeks 5-7

7% (lowest assignment grade will not count)

Unit 2 Test 23% Unit 3 – Systems Physiology

OnQ Quiz 7 2% OnQ Quiz 8 2% OnQ Quiz 9 2%

Unit 3 Flow Model Design Assignment - Course pack weeks 9-11

7% (lowest assignment grade will not count)

Unit 3 Test 20%

Course content completion

Course Pack Throughout course 2%

## Course Outline

Course Outline	
Homeostasis: A Framework for Human Physiology	Muscle Fibre Types and Types of Muscle
Cell and Protein Structure and Function	Anaerobic Metabolism
Chemical Reactions: Enzyme Function	Fatty Acid Metabolism and the TCA Cycle
Protein Synthesis	Aerobic Metabolism
Membrane Physiology	Protein Metabolism
Membrane Potentials	Gastrointestinal Physiology
Action Potentials	Liver and Adipose Tissue
Conduction and Chemical Synapses	Endocrine System
Sensory Receptors and Afferent Signaling	Pulmonary Physiology
Reflex Control of Movement	Renal Physiology
Voluntary Control of Movement	Immune System
Skeletal Muscle Anatomy	Cardiovascular Physiology
Excitation Contraction Coupling	Exercise Physiology
Muscle Fibre Types and Types of Muscle	Course Review
Anaerobic Metabolism	