Queen's University
School of Kinesiology and Health Studies

Course Name: **KNPE 449/3.0** Advanced Protein Metabolism	**Course Instructor:** Dr. Chris McGlory	**Contact Hours:** Lectures: 1 x 3 hrs / 12 weeks
		Prerequisite: Level 4 in a KINE Plan and (HLTH 331/3.0 or KNPE 349/3.0)

Course Description:

The aim of this course is to provide a basic understanding of the biological factors that regulate the size of human skeletal muscle. Specific emphasis will be placed on how nutrition and exercise affect skeletal muscle growth/loss in both the athletic and clinical setting. Students will be provided with insight into the use of isotopic labeling of amino acids and other contemporary laboratory-based techniques used to study human skeletal muscle protein turnover.

Exclusion:
KNPE 493 topic ID: Advanced Protein Metabolism (W'20; W'21)

Course Texts:

NOTE: Nutrition software package: estimated cost $75.

Learning Outcomes:

- Identify key factors affecting human skeletal muscle protein turnover and gain a cursory knowledge of experimental methods used to study skeletal muscle growth.
- Critically evaluate strengths and weaknesses of study designs related to experimental research.
- Independently develop an experimental approach to address an existing knowledge gap in the nutritional and exercise sciences.

Course Evaluation:

Mid-term 1	15%
Journal Club Assignment	25%
Mid-term 2	15%
Grant Proposal	25%
Presentations	20%

Course Outline

Introduction and course overview	Fatty acids and skeletal muscle
Amino acids and metabolic tracers	Molecular control of skeletal muscle mass
Resistance exercise and protein nutrition	Mitochondria and skeletal muscle
Exercise, Sex, and Hormones	Muscle atrophy