UNIVERSITY OF GUELPH
COLLEGE OF BIOLOGICAL SCIENCES
HUMAN HEALTH AND NUTRITIONAL SCIENCES
WINTER 2012

Please note: This course outline is tentative and will be finalized once the number of students in the course is established in early January.

Course: HHNS 6710
Title: Advanced Topics in Nutrition, Exercise and Metabolism
Class Meeting: Wednesday 1:30 pm - 4:30 pm; Location: SCIE 3310

Course Instructor: Dr. Lindsay Robinson

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I. MAJOR COURSE THEMES OR CONCEPTS

This course will examine the triad of obesity, diabetes and cardiovascular disease in detail. We will explore the metabolic roots of the triad. The roles of the liver, adipose tissue and muscle will be examined. This course will also address the impact of exercise and nutritional factors during key times including fetal development, as well as the role of genetics.

Course objectives:

The primary objective of this course is to discuss issues essential to understanding the interface between nutrition, exercise, and metabolism as they apply to the obesity, diabetes and cardiovascular disease triad. Information from the molecular level (and genetic factors) to the whole animal (in some cases to the population level) will be presented with a common focus being to understand the interaction of nutrition and exercise in human health. Emphasis will be placed on the development and testing of experimental hypotheses in these areas of research.

This course will address the University's learning objectives for graduate courses by addressing the role of metabolism in considerable depth, as well as by integrating the disciplines of nutrition, exercise and physiology in relation to human health. Furthermore the course requires a detailed appreciation of the integration between the body's key metabolic tissues, predominantly active and resting skeletal muscle, the blood, liver and adipose tissue.

II. REQUIRED READINGS

Copies of the readings will be provided in PDF on the course website. Review papers will provide background reading. Students are expected to have read the papers PRIOR TO class. The assigned papers will form the foundation for class

discussion of key course concepts and all students will be expected to participate in these discussions.

III. CONTENT OF LECTURES

Formal lectures will be a minimal part of this course. Student participation and interaction will be encouraged and expected. Classes will involve students critically reviewing and integrating research papers that will be used to generate class discussion focused on key course concepts.

Course Format:

There will be one class time of 2-3 hours each week. The course will be presented in 5 sections according to the schedule below. The first week of each topic will be focused on lecture material (*overview lecture*) by the instructor indicated. The second week of each topic will be for student presentations *(student seminar)*.

Topic 1: Obesity – Dr. Lindsay Robinson
Topic 2: Adipose tissue biology and inflammation in obesity – Dr. Lindsay Robinson
Topic 3: Genetics, Metabolomics in Obesity/Diabetes – Dr. David Mutch
Topic 4: Maternal-Fetal Influences – Dr. David Ma
Topic 5: What is Diabetes? – Dr. David Wright:

11-Jan-12	Course Introduction and Overview by Dr. L. Robinson	
18-Jan-12	Topic 1 - overview lecture	Dr. L. Robinson
25-Jan-12	Topic 2 - overview lecture	Dr. L. Robinson
1-Feb-12	Topic 1 - student seminar	*Students*
8-Feb-12	Topic 2 - student seminar	*Students*
15-Feb-12	Topic 3 - overview lecture	Dr. D. Mutch
22-Feb-12	*Reading Week*	*No class this week*
29-Feb-12	Topic 3- student seminar	*Students*
7-Mar-12	Topic 4 – overview lecture	Dr. D. Ma
14-Mar-12	Topic 5 – overview lecture	Dr. D. Wright
21-Mar-12	Topic 4 – student seminar	*Students*
28-Mar-12	Topic 5 – student seminar	*Students*
4-Apr-12	Course wrap up - papers due	Dr. L. Robinson

**Week of Feb 20 to 24: Reading Week*

Each topic instructor will assign a reading list in advance of the *Overview Lecture*. Students should come prepared to the *Overview lecture* having read all of the papers and are expected to participate in class discussion with the topic instructor.

Each student will give **two oral presentations (*possibly in groups depending on numbers*)** during the course based on 1-2 journal articles in two different topic areas. Students will be responsible for preparing and presenting the appropriate material, and will also be **discussion leaders**. To facilitate class discussion, the presenting students will

be required to prepare 4-5 discussion questions on their journal articles and distribute these questions to their peers and to Dr. Robinson two days (i.e. on Monday) prior to their oral presentation.

- Each oral presentation will be worth 20% of the course grade. *If this is done in groups, all group members will receive the same grade.*

In conjunction with being the section leaders, each student (individually) must write a 4 page (double-spaced) **brief literature critique** outlining the strengths and limitations of one of the research articles they presented during the semester and compare it with key articles in the literature. It is expected the critique will include *at least* five additional primary articles as references.

- The literature critique written report based on one the research articles will be worth 20% of the course grade (due one week following the oral presentation on this topic).

Major Paper Assignment:

Select a topic that has received media attention (such as a nutrition or exercise intervention reported to be beneficial in obesity, diabetes or CVD). Research the scientific basis of this, come to an evaluation of the merit of the selected topic and submit a written report (8-10 pages double-spaced plus references, worth 40%).

The paper is due on April 4th 2012 in class time.

Note: The topic for each assignment must be approved and "registered" with Dr. Robinson. Only one student can register for a given topic.

IV. SUMMARY OF EVALUATION

Oral presentation 1	(possibly group work)	20%
Oral presentation 2	(possibly group work)	20%
Literature critique	(individual work)	20%
Major Paper	(individual work)	40%
TOTAL		100%