

AGRI5710 Graduate Module Course

Title: Energy Metabolism and Metabolic Diseases

Instructor: Dr. K. Rouvinen-Watt

Timing: October 2010, weekly contact time to be arranged with instructor

Lectures: 2 hr/wk

Student presentations: 1 hr/wk

Description:

In this module we will learn about the metabolism of energy nutrients and the associated metabolic diseases. We will focus on the regulation of lipid and glucose metabolism and how they are impacted by nutrient supply and body condition. Topics covered will include an overview of the regulation of energy homeostasis, link between obesity and the cardiometabolic syndrome, cross-talk between the adipose tissue and the immune system, and the role of oxidative stress in the etiology of metabolic disease.

Format:

This module consists of a series of lectures and guided discussions (one 2-hr session per week). For each of the major topic areas, students are required to orally critique key research papers with a focus on research hypotheses and methodology used in the experiments. There will be one 1-hr paper critique session per week with one student Oral Presentation per session. Each student is also required to write a Special Topics Paper. There will be one Laboratory session which will focus on methods used in evaluating oxidative stress *in vivo*.

Oral Presentation: PowerPoint slide show, 20 min paper critique + 10 min for discussion.

Lab Report: MS Word format, title page, max 3 pages of text, references, font size 12, line spacing 2, due 1 week after lab.

Special Topics Paper: MS Word format, title page, max 6 pages of text, references, font size 12, line spacing 2, due at the end of module.

Method of evaluation:

- 1) Oral Presentation to class (30% based on instructor and peer review)
- 2) Lab Report (20%)
- 3) Special Topics Paper (50%)

Pre-requisites:

Participation in this module requires solid undergraduate background in physiology, biochemistry, and nutrition.