

# Course Outline Form: Fall 2017

## General Information

**Course Title:** ANSC 6470 \* Advanced Animal Nutrition (I): “Sub-modules of Proteins and Amino Acids, Carbohydrates and Energy”

**Course Description:** The purpose of the course is to provide students a core background and recent advances in understanding of key aspects of nutrient utilization and metabolism in animals. As the part I of the two series of courses, this course focuses on three sub-modules of advances in understanding utilization and metabolism of proteins and amino acids, carbohydrates, and energy. Each week will consist of two 80-min class sessions, which will involve group discussions. Ideally, in the first class session of each of the three sub-modules (protein and amino acids, carbohydrates, energy), the instructor and invited speakers will present a brief overview and relevant background information. For the other class sessions, students will be assigned to lead the discussion on pertinent research papers that are chosen by students and are approved by the instructor. It is essential that all students read the papers that will be discussed in upcoming class meetings. When presenting research papers, the student will need to provide some carefully selected background information on the topic (potentially from other sources than the paper itself), followed by a description of key methodology and results, a critical assessment of the conclusions, the conceptual contribution of the papers to our understanding of the field, and strengths and weaknesses of the paper. The instructor will clarify research methodology and concepts and direct discussions when appropriate. Students will be asked to write a short review paper (approximately 10 pages) in their chosen topic area for each of the three sub-modules. The instructor will provide guidelines on student research paper presentations and how students’ presentations will be evaluated. The instructor will also provide guidelines on writing the mini-review papers at the beginning of the course semester.

**Credit Weight:** 0.50

**Academic Department (or campus):** Animal Biosciences

**Campus:** Guelph

**Semester Offering:** Fall

**Class Schedule and Location:** 2:30 – 3:50 pm on Tuesdays and Thursdays; room 101 in Animal Science & Nutrition (ANNU) Building

## Instructor Information

Instructor Name: Ming Z. Fan, Ph.D., Professor of Nutritional Ecology

Instructor Email: mfan@uoguelph.ca

Office location: room 224, #70 Animal Science & Nutrition (ANNU) Building

## **GTA Information**

GTA Name: not available

GTA Email: not available

GTA office location and office hours: not available

## **Course Content**

### **Specific Learning Objectives and Outcomes:**

Although all of the learning objectives are met to some degree in the course, the following will be particularly emphasized:

- 1) Literacy - Students will be required to develop an understanding of key review articles, interpret peer-reviewed original research papers and present ideas and research findings to the class orally. Students are expected to be actively involved in class discussions. Students' scientific writing skills will be improved through writing short and focused mini-review papers during the semester. Students are asked to follow the guidelines and requirements to prepare and carry out oral presentations and min-review writing assignments.
- 2) A sense of historical development - The history of nutrient discovery, nutritional concept development and development of techniques to evaluate nutritional adequacy of diets & rations will be weaved into the course material.
- 3) Understanding of forms of inquiry - Various experimental approaches in the nutritional sciences and their interpretation will form an important part of discussions in class.
- 4) Depth and breadth of understanding - Aside from covering detailed aspects of the cellular and molecular mechanisms of nutrient transformation in the body, students will be encouraged to develop a facility with the philosophy that whole-animal function can be explained by appealing to cellular metabolism at the molecular level.

### **Lecture Content:**

<b>Class/Date</b>	<b>Topic</b>
<b>1 / Sept 7</b>	First class meeting
<b>Sub-module 1: "PROTEINS AND AMINO ACIDS"</b>	
<b>2 / Sept 12</b>	Lecture – Advances in protein and amino acid nutrition and metabolism Dr. Ming Z. Fan, Department of Animal Biosciences, University of Guelph

<b>3 / Sept 14</b>	Topic of amino acid and protein bioavailability: student presentations
<b>4 / Sept 19</b>	Topic of amino acid and protein bioavailability: student presentations
<b>5 / Sept 21</b>	Topic of amino acid and protein requirements: student presentations
<b>6 / Sept 26</b>	Topic of amino acid and protein requirements: student presentations
<b>7 / Sept 28</b>	Topic of amino acid and protein metabolism: student presentations
<b>8 / Oct 3</b>	Topic of amino acid and protein metabolism: student presentations
<b>9 / Oct 5</b>	Topic of amino acids in signaling gene expression: student presentations
<b>Note:</b> Students' mini-review assignments in Word files for the sub-module-1 are due for submission on <b>Oct. 18, 2017 via email</b> to the instructor.	
<b>Sub-module 2: "CARBOHYDRATES"</b>	
<b>Oct 10, Tue</b>	<b>No classes – Fall Study Break Day (class rescheduled to Thursday, Nov. 30)</b>
<b>10 / Oct 12</b>	Lecture – Exogenous enzymes for enhancing fibre digestion in food animals Dr. Elijah Kiarie, Department of Animal Biosciences, University of Guelph Lecture – Fibre structure and microbial enzyme systems for fibre digestion Dr. Weijun Wang, Department of Animal Biosciences, University of Guelph
<b>11 / Oct 17</b>	Topic of Carbohydrate digestion and absorption: student presentations
<b>12 / Oct 19</b>	Topic of Carbohydrate digestion and absorption: student presentations
<b>13 / Oct 24</b>	Topic of carbohydrate and immunity and gut health: student presentations
<b>14 / Oct 26</b>	Topic of carbohydrate and immunity and gut health: student presentations
<b>15 / Oct 31</b>	Topic of sugar homeostasis and metabolism: student presentations
<b>16 / Nov 2</b>	Topic of sugar homeostasis and metabolism: student presentations
<b>17 / Nov 7</b>	Topic of sugars & metabolites in signaling gene expression: student presentations
<b>Note:</b> Students' mini-review assignments in Word files for the sub-module-2 are due for submission on <b>Nov. 22, 2017 via email</b> to the instructor.	
<b>Sub-module 3: "ENERGY"</b>	
<b>18 / Nov 9</b>	Lecture – Advances in energy nutrition and metabolism Dr. Dom Bureau, Department of Animal Biosciences, University of Guelph

<b>19 / Nov 14</b>	Topic of energy bioavailability in feedstuffs: student presentations
<b>20 / Nov 16</b>	Topic of energy bioavailability in feedstuffs: student presentations
<b>21 / Nov 21</b>	Topic of energy needs for various body functions: student presentations
<b>22 / Nov 23</b>	Topic of energy needs for various body functions: student presentations
<b>23/ Nov 28</b>	Topic of cellular events in energy expenditure: student presentations
<b>24 / Nov 30</b> including <b>Oct-10 class</b> re-scheduled	Topic of cellular events in energy expenditure: student presentations
<b>Note:</b> Students' mini-review assignments in Word files for the sub-module-3 are due for submission on <b>Dec. 15, 2017 via email</b> to the instructor.	

#### Seminars:

Not available.

#### Course Assignments and Tests:

Leadership in discussion, presentation of research papers and writing scientific mini-reviews will be marked. Students will also be evaluated for participation in class discussions. The instructor will make efforts in posting students' individual sub-module marks upon completing each sub-module.

---

Preparation and participation to class discussions	10%
Oral presentations (3 x 15 marks) of research articles	45%
Mini-review papers (3 x 15 marks each for 10 pages max)	45%
<b>TOTAL</b>	<b>100%</b>

---

#### Additional Notes (if required):

Specific written guidelines for presenting original research papers and writing mini-review papers will be provided and discussed in the first class meeting by the course instructor.

**Final examination date and time:**

Not applicable.

**Final exam weighting:**

Not applicable.

**Course Resources**

**Required Texts:**

Not applicable.

**Recommended Texts:**

Not applicable.

**Lab Manual:**

Not applicable.

**Other Resources:**

Course syllabus, guidelines and other class related information will be posted on the course site as PDF files by the course instructor by using D2L. Student original research papers to be used for class discussions will be circulated to class students via email by the course instructor.

**Field Trips:**

Not applicable.

**Additional Costs:**

Not applicable.

**Course Policies**

**Grading Policies**

Students' Power point presentation files will be submitted to the instructor via email immediately after class presentations for class posting on the course site. Students' finalized

mini-review assignments are to be prepared in a MS Word file and will be submitted to the instructor for marking via email by following the suggested due dates.

**Course Policy on Group Work:**

Not applicable.

**Course Policy regarding use of electronic devices and recording of lectures:**

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

**University Policies**

**Academic Consideration**

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for

Academic Consideration:

[Academic Consideration, Appeals and Petitions](#)

**Academic Misconduct**

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

[Academic Misconduct Policy](#)

## **Accessibility**

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email [csd@uoguelph.ca](mailto:csd@uoguelph.ca) or see the website: [Student Accessibility Services Website](#)

## **Course Evaluation Information**

Please refer to the **Course and Instructor Evaluation Website**

## **Drop date**

The last date to drop one-semester courses, without academic penalty, is September 15, 2017. For regulations and procedures for Dropping Courses, see the Academic Calendar:

[Current Undergraduate Calendar](#)

## **Additional Course Information**

Not applicable.