ANSC*3170 Nutrition of Fish and Crustacea

Course Outline

W14

General Information

Course Title: ANSC*3170 Nutrition of Fish and Crustacea

Course Description:

The course will provide the student with a broad overview of the state-of-the-art on nutrition and feeding of fishes and crustaceans, mainly from an aquaculture perspective.

The course will also help the students cultivate the skills needed to be able to understand, search, and critically evaluate information on nutrition of fishes and crustaceans, and subsequently use this information to address various practical issues and challenges in aquaculture.

Prerequisite(s): NUTR*3190 or NUTR*3210
Equate(s): NUTR*3340

Credit Weight: 0.5

Academic Department (or campus): Dept. of Animal and Poultry Science

Campus: Guelph

Semester Offering: W (Offered in even-numbered years)

Class Schedule and Location: MACK 117

Instructor Information

Instructor Name: Dominique P Bureau
Instructor Email: dbureau@uoguelph.ca
Office location: ANNU 136
Office hours: M, W, F; 12h00-13h00 or by appointment (contact by email).

GTA Information

GTA Name: Not applicable
GTA Email: Not applicable
GTA office location and office hours: Not applicable
**Course Content**

**Specific Learning Outcomes:**

The students will:

1) Review nutrition and feeding in the context of the conversion of dietary inputs into aquatic animal biomass and marketable products under controlled conditions (aquaculture context).

2) Develop an understanding of the basic digestive, physiological and metabolic processes in fish and crustaceans that are relevant to nutrient utilization

3) Learn to follow and identify the fate of ingested nutrients and understand the basis of their essentiality, deficiency signs, and interactions between nutrients and/or different dietary components.

4) Develop an understanding growth processes and factors affecting growth, and learning how to describe and analyze growth performance of fish and crustaceans using simple mathematical equations.

5) Learn about some of the methods and protocols commonly used in fish nutrition research

6) Compare approaches for establishing nutrient requirements, nutritional specifications, and feed formulation guidelines and be able to discuss some of the limitations and implications of these approaches.

7) Learn about feed ingredients, their origin, and the factors affecting their quality and nutritive value

8) Learn about formulation and manufacturing artificial diets (feeds) suitable for fish and crustaceans production

9) Be exposed to current and emerging issues in aquaculture (environmental impacts, product quality and safety, profitability, etc.) upon which nutrition and feeding may have major impacts/effects

10) Acquire some of the skills needed to be able to effectively gather, integrate and analyze scientific and practical information and use this information to develop practical applications for aquaculture and fisheries management.

The course is designed to meet the following Learning Objectives of the University:
1) **Literacy**: Students will be required to critically review and understand the up-to-date scientific information on fish nutrition compiled in course notes and lecture material (power point slides). The students will also be required to review scientific papers and technical documents, comprehend and present ideas and research findings into an imposed format.

2) **Understanding of Forms of Inquiry**: A major theme of this course will pertain to the process whereby information is searched in a variety of source to achieve a series of tasks with strong practical applications.

3) **Depth and Breadth of Understanding**: This course will cross several conventional discipline boundaries within the broad areas of nutrition, metabolism, physiology, chemistry, aquaculture, natural history and biology of fish, environmental biology, feed technology, etc. Students will be encouraged to go beyond material discussed in class.

4) **Independence of Thought**: Emphasis will be placed on identifying and understanding the basis for current viewpoints. Inevitably, this results in challenges to orthodoxy.

5) **Love of Learning**: This course will be aimed at helping students to distinguish between education and training, and to ascribe value to both.
Lecture Content:

1/6/2014  First Class Meeting + Chap 1. Feeding in Aquaculture
1/8/2014  Chap 1. Feeding in Aquaculture + Tutorial Task #1
1/10/2014 Chap 2. Nutritional Concepts
1/13/2014 Chap 2. Nutritional Concepts + Tutorial Task #2
1/15/2014 Chap 2. Nutritional Concepts
1/17/2014 Chap 3. Growth Processes
1/20/2014 Chap 3. Growth Processes + Tutorial Task #3
1/22/2014 Chap 3. Growth Processes
1/24/2014 Chap 4. Digestion
1/27/2014 Chap 4. Digestion
1/29/2014 Chap 4. Digestion
1/31/2014 Chap 5. Protein and Amino Acids
2/3/2014  Chap 5. Protein and Amino Acids
2/5/2014  Chap 5. Protein and Amino Acids + Task #4 tutorial
2/7/2014  Mid-Term Review + Chap 6 Lipids
2/10/2014 Mid-Term (in class)
2/12/2014 Chap 6. Lipids
2/14/2014 Chap 6. Lipids
2/17/2014 Reading Week / No Class
2/19/2014 Reading Week / No Class
2/21/2014 Reading Week / No Class
2/24/2014 Chap 7. Carbohydrates
2/26/2014 Chap 8. Vitamins, Vitamin-like Compounds & Carotenoids
3/14/2014 Chap 12. Ornamental species nutrition
3/19/2014 Chap 13. Crustacean Nutrition
3/31/2014 Chap 16. Feed Manufacturing + Review for final exam
4/2/2014  Final exam (in class)
4/4/2014  No class
Labs: While the course doesn’t contain labs, three (3) practical modules/sessions will be offered (students will need to sign up a specific time slot to complete each of the module)

Seminars: Not applicable

Course Assignments and Tests:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term project (six tasks)</td>
<td>50%</td>
<td>See term project description for detailed schedule</td>
</tr>
<tr>
<td>Practical modules (three modules)</td>
<td>15%</td>
<td>Details on the practical modules and dates will be provided on Courselink on 17 January 2014</td>
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<tr>
<td>Mid-term exam</td>
<td>15%</td>
<td>Monday, 10 February 2014, in class</td>
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<tr>
<td>Final exam</td>
<td>20%</td>
<td>Wednesday, 2 April 2014, in class</td>
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Final examination date and time:

Final exam weighting: The final exam will be worth 20% of the final mark. The exam will be given in class on Wednesday 2 April 2014.

Course Resources

Required Texts: None

Recommended Texts:

Lab Manual: Not applicable

Other Resources:

Electronic copy of course notes, handout (copies of the PPTslides) and other material will also be posted on a weekly basis on the course website.

Field Trips: Not applicable

Additional Costs: Not applicable

Course Policies

Grading Policies

Assignments (tasks) and exams will be graded in a timely fashion (within 10 days) and they returned to the students (except the final exam) with personalized feedback and/or general feedback in class to highlight some of the shortcomings in the students’ work or understanding of the concepts.

Assignments (term project tasks) must be submitted by 5 PM on the due date. Assignments submitted late will be subjected to 50% penalty per day late (2 days late = 0 marks).

Course Policy on Group Work:

Term project tasks (assignments) need to be of personal work and plagiarism and simple duplication of format/style will not be tolerated.

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: http://www.uoguelph.ca/registrar/calendars/undergraduate/2013-2014/
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: http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08...

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 or see the website: http://www.csd.uoguelph.ca/csd/

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 March 7, 2014. For regulations and procedures for Dropping Courses, see the Academic Calendar: http://www.uoguelph.ca/registrar/calendars/undergraduate/2013-2014/