

## **AQUACULTURE - ADVANCED ISSUES**

Fall Semester 2018 Course Outline  
Department of Animal Biosciences  
Course No.: ANSC\*3050

**Professor Richard Moccia**

<http://animalbiosciences.uoguelph.ca/abscpeople/rmoccia>

**Course Title:** ANSC\*3050 Aquaculture: Advanced Issues

### **Course Description:**

The goal of this course is to introduce senior undergraduate students to many of the fundamental principles as well as advanced interdisciplinary issues, involved in the farming of aquatic organisms. The course will concentrate primarily on fish species due to their worldwide commercial importance. Lectures will cover a broad range of topics including fish physiology, behaviour, nutrition, genetics, water quality, health and disease, reproductive techniques, economic, political and legal issues, and various types of culture systems technologies. Students will analyze many of the contemporary challenges facing the aquaculture industry, through task exercises requiring interdisciplinary knowledge, lateral thinking, creative problem solving and bridging science and technology to enable 'issues management'. Although the subject matter is focused on aquaculture, the pedagogical outcomes for students will include improved critical analysis and problem solving skills.

Although the course will be taught primarily by faculty from the Department of Animal Biosciences, selected guest lecturers may also be drawn from OAC, OVC, CBS and CPES, this being a true representation of the breadth of knowledge required for such a curriculum offering and underlining the wealth of expertise to be found in our faculty at Guelph. In addition, guest speakers from industry and the applied research sector, will balance the presentations with their hands-on expertise. This diverse mix will give the student a broad perspective on the issues, principles, and technologies which are relevant to the commercial production of captive fish populations.

Finally, the course is designed to challenge students to develop independent and critical thinking skills through lateral thinking exercises, interdisciplinary problem solving and in-class discussions around case studies and issues management tasks.

### **Credit Weight:**

0.50

### **Academic Department (or campus):**

Department of Animal Biosciences

### **Campus:**

Guelph

## **Semester Offering:**

Fall of each year

## **Class Schedule and Location:**

Monday, Wednesday and Friday 2:30 until 3:20 in MacKinnon Rm 118

## **Instructor Information**

Instructor Name: Professor Richard Moccia

Instructor Email: [rmoccia@uoguelph.ca](mailto:rmoccia@uoguelph.ca)

Office location and office hours: 135 ANBIO

## **Course Assistants Information**

Assistant Name: TBA

Assistant Email: TBA

Assistant office location and office hours: TBA

## **Course Content**

### **Specific Learning Outcomes:**

1. Literacy by reading, discussing and analyzing assigned texts and case studies and completion of a research topic for presentation.
2. Numeracy through presentation of statistical trends and developments in aquaculture and the use of mathematical models to represent complex ecological systems.
3. Sense of Historical Development through presentations on global aquacultural developments.
4. Moral Maturity will be fostered through analysis of case studies affecting modern aquacultural practices, e.g. transgenics and fish welfare.
5. Understanding of Forms of Enquiry will be developed via case-studies presenting complex socio-economic topics in aquaculture.
6. Depth and Breadth of Understanding through discussion and analysis of assigned texts and case studies.
7. Independence of Thought by identifying, researching and organizing various sources of information for completion of case studies and presentation topic.
8. Love of Learning will be encouraged through the involvement of a diversity of guest speakers and an informal field trip. Furthermore, the opportunity for personal involvement in learning will be provided in the student's selection of a research presentation topic.

### **Lecture Content:**

Lectures will cover a broad range of topics including basic fish physiology and behaviour, nutrition, genetics and breeding, water quality, health and disease, reproductive techniques, economics and legal aspects, various types of rearing systems technology etc., as well as analyze many of the

contemporary challenges which face the industry. The focus will be on finfish aquaculture as it relates to Canada's agri-food industry, but additional materials will be covered from marine and tropical aquaculture situations.

Instructors will present discipline-specific material and case studies developed from contemporary problems which face the industry. In addition, guest speakers from industry and the applied research or production sector may be used to balance the presentations with their hands-on expertise. This diverse mix will give the student a broad perspective on the issues, principles, and technologies which are relevant to the commercial production of captive fish populations.

One field trip will be scheduled for students to visit the Alma Aquaculture Research Station. This facility is a large, technically sophisticated research and development center, which allows students to view first-hand, many of the types of fish species, equipment and operational procedures discussed in the course.

A series of discipline studies discussed in-class, will also challenge students to critically analyze several contemporary issues facing the development of aquaculture in an ecologically sustainable manner.

Several online quizzes will challenge the students to incorporate material from across selective disciplines, in order to solve problems developed from lectures and various case studies presented.

**Labs:**

N/A

**Seminars:**

N/A

**Course Assignments and Tests:**

<b>Assignment or Test</b>	<b>Due Date</b>	<b>Contribution to Final Mark (%)</b>	<b>Learning Outcomes Assessed</b>
Online Task Assignments	Various throughout the semester	70% (7 quizzes @ 10% each)	Problem solving. Creative thinking. Interdisciplinary skills. Assessment and analytical efficiency. Time management.
Case Studies	Various throughout the semester	10% (up to 6 class case studies @ 10% total)	Problem solving. Team work. Creative analysis
Team Presentations	Will be scheduled with class input.	20% (1 team presentation @ 20% each)	Team work. Public speaking. Presentation skills. Defense of ideas and opinions.

## **Additional Notes:**

**Online Quizzes:** Seven, short, online problem solving quizzes will be posted on the CourseLink ANSC\*3050 website throughout the semester. They will represent a task assignment related to a prior lecture series in the course, and will require additional reading, and short, essay type responses, typically 2-3 pages in length. After discussion of the task assignment in class, a 'time window' will be set for each task completion. This course requires completion of all 7 quizzes.

**Case Studies:** A series of "Case Studies" will be presented in class and group solutions to these situations will be presented for discussion and evaluation.

**Team Presentations:** A review of an application for a cage aquaculture license using the OMNR/UoG Decision Support Tool will be made by 'Solution Teams'. Each team will be made up of three or more students each, depending on the class size. The background material will be presented during the semester and during the final week and all teams will be required to present a formal seminar to the class detailing and defending their decision. Research literature will need to be reviewed and discussed by the team, and brainstorming sessions should attempt to evaluate the application, and identify the various issues involved. Brief (max. 20 minute) presentations will be made by each team, and the entire class will debate the merits of the 'decision' presented. Teams are encouraged to be innovative in their approaches to problem-solving, and not to be afraid of taking risks with their ideas. NO IDEA is, 'TOO FAR OUT', as long as the team can present a convincing case for the solution. A written report, including references and a copy of the Power-Point or other presentation materials will be required for hand-in.

## **EMAIL LISTSERV MATERIAL**

Throughout the semester, various bits of information and short news-type articles will be delivered to you via the 'Aquanews' email distribution listserv, as well as other material posted only to the class list. You will be required to sign up for this during the first week of classes. This material should be considered REQUIRED READING, as it may relate to the exam or short task questions.

\* To sign up for the Aquanews Listserv, send an email to: [rmoccia@uoguelph.ca](mailto:rmoccia@uoguelph.ca) and put 'Add Aquanews' in the subject line of the email.

## **Final examination date and time:**

There will be no formal mid-term or final examinations in this course.

## **Final exam weighting:**

N/A

## **Course Resources**

### **Required Texts:**

Because of the broad, interdisciplinary nature of this course, there is no single textbook available or required. A list of reading material will be provided by each individual instructor as appropriate for their particular discipline area. A bibliography factsheet will be provided to you during the first week of lectures.

### **Recommended Texts:**

See above.

### **Lab Manual:**

N/A

### **Other Resources:**

#### **Internet Sites:**

There are an abundance of internet sites available which deal directly with aquaculture and related areas. The Aquaculture Centre at the University of Guelph has an informative website at the following URL: <http://animalbiosciences.uoguelph.ca/~aquacentre/>

Feel free to check it out to see the many activities that the University of Guelph is involved with concerning aquaculture. Within our website, you will also find a 'Directory of Aquaculture Links' at the following URL: <http://animalbiosciences.uoguelph.ca/aquacentre/information/links.html>

One scheduled lecture may be left open so that you can take class time to review our website as well as the many useful links categorized in the **Directory**. Although this will not be a supervised internet session, it is expected that you will dedicate the 50 minute lecture slot to this exercise. It will help you considerably with your task presentation topic selection, and will give you a jump-start on many sources of information available to assist your comprehension of lecture material.

#### **Field Trips:**

One mandatory field trip will be scheduled for students to visit the Alma Aquaculture Research Station, tentatively scheduled for Sunday, November 1st departing at 0900 hrs. This facility is a large, technically sophisticated research and development centre, which permits students to view first-hand, many of the types of fish species, equipment and operational procedures discussed in the course. The Alma Aquaculture Research Station is owned by the province of Ontario, is financially supported by the Ontario Ministry of Agriculture, Food and Rural Affairs and is managed and operated by the University of Guelph. There is no charge for this field trip.

### **Additional Costs:**

None required.

### **Course Policies**

#### **Grading Policies:**

\*Please indicate all course policies regarding in-semester tests and assignment submissions, including time and place for submission of assignments and explicit penalties for late submissions.

## Undergraduate Grading Procedures

\*Please note that these policies are binding unless academic consideration is given to an individual student.

### **Course Policy on Group Work:**

Please see instructor for clarification and/or concerns. Incidents will be addressed on an individual basis.

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

Cell Phones, Pagers, Blackberries, Blueberries, Cordless Drills, Blow Dryers etc.: If you want to stay in class, TURN THEM OFF, otherwise take the course by correspondence (currently not available this way!)

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:**

The University of Guelph is committed to supporting students in their learning experiences and responding to their individual needs and is aware that a variety of situations or events beyond the student's control may affect academic performance. Support is provided to accommodate academic needs in the face of personal difficulties or unforeseen events in the form of Academic Consideration.

Information on regulations and procedures for Academic Consideration, Appeals and Petitions, including categories, grounds, timelines and appeals can be found in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

### **Academic Misconduct:**

**Plagiarism:** You are required to be fully aware of university policy on academic misconduct and plagiarism, and task assignments and other material completed for the course may be assessed for plagiarism using third-party software packages available.

See also: [http://www.uoguelph.ca/undergrad\\_calendar/c01/index.shtml](http://www.uoguelph.ca/undergrad_calendar/c01/index.shtml)

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.

Detailed information regarding the Academic Misconduct policy is available in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

### **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 Student Accessibility Services (SAS), formerly Centre for Students with Disabilities (CSD), as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email [sas@uoguelph.ca](mailto:sas@uoguelph.ca) or visit the [Student Accessibility Services website \(http://www.uoguelph.ca/csd/\)](http://www.uoguelph.ca/csd/).

### **Course Evaluation Information:**

End of semester course and instructor evaluations provide students the opportunity to have their comments and opinions used as an important component in the Faculty Tenure and Promotion process, and as valuable feedback to help instructors enhance the quality of their teaching effectiveness and course delivery.

While many course evaluations are conducted in class others are now conducted online. Please refer to the [Course and Instructor Evaluation Website](#) for more information.

### **Drop period:**

The drop period for single semester courses starts at the beginning of the add period and extends to the Fortieth (40th) class day of the current semester (the last date to drop a single semester courses without academic penalty) which is listed in [Section III \(Schedule of Dates\) of the Undergraduate Calendar](#).

The drop period for two semester courses starts at the beginning of the add period in the first semester and extends to the last day of the add period in the second semester.

Information about Dropping Courses can be found in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

### **Additional Course Information**

*N/a*