

**Faculty of Science and Faculty of Graduate Studies Course Syllabus
Department of Biology**

**MARI 3604.03 – BIOL 5604.03
Field Aquaculture (Online)**

Summer 2021, SEASIDE
(April 26 to May 11, 2021)

Instructor: Dr. Diego Ibarra | email: Diego.Ibarra@dal.ca | Office: LSC-3625 (Oceanography)
Questions MUST be posted in Brightspace's Discussion boards (see guidelines below). Only use email for private/personal matters.

TA: Jessica Bennett | email: js344308@dal.ca

Time zone: All times (syllabus, Brightspace, calendar, etc.) are in **Atlantic Daylight Time (ADT, UTC-3)**

Course Description

This course teaches students aquaculture techniques through online “virtual field trips” to several aquaculture facilities in the Maritimes and around the World (e.g. farms, hatcheries, etc.). The “virtual field trips” consist of online video-calls with aquaculture farmers, where students can ask questions in real-time, but also include curated PowerPoint presentations with photos and videos that can be studied asynchronously.

Last year we “virtually-visited” a pearl farm in Tahiti, tilapia farms in Alberta and Ghana (Africa), salmon farms in Scotland and New Your State, oyster farms in BC and Nova Scotia, an organic seaweed farm in Main, a seahorse farm in Hawaii, and more. We hope to have more farms this year.

Course Prerequisites:

Undergraduate	Graduate
BIOL 2003.03 – Animal Diversity OR Instructor’s approval	Instructor’s approval
Recommended: MARI 3602.03 Introduction to Aquaculture	

Key knowledge or skills expected of students coming into the course

- Students should be familiar with the basic concepts of aquaculture and the diversity of animal life.

Course Goals and Outcomes

- Describe aquaculture techniques, methods and processes employed in the Maritime provinces of Canada
- Identify culturing techniques to grow microalgae, rotifers, artemia and other aquatic species
- Compare techniques used in the research and culturing of shellfish and finfish species

- Describe skills used in the cleaning and processing of aquaculture species
- Recognize techniques for assessment and monitoring of water quality

Course Materials

Class notes: Class notes are posted on BrightSpace.

OneDrive: Photos, videos and other documents will also be posted in a OneDrive folder (link to folder is in Brightspace). This folder also will be used to back up your work.

Announcements: **Electronic announcements and additional material will be posted on BrightSpace. Students should check the site frequently.**

Text book: There is no textbook required for this course.

Other suggested resources:

Aquaculture. Farming Aquatic Animals and Plants. 2nd edition 2012. J. Lucas and P. Southgate (Editors), 629 pp.	SH 21 A68 2003
Encyclopedia of Aquaculture. (2000). R. Stickney (Editor)	SH 20.3 E53
Principles of Aquaculture. R Stickney	SH 135 S74 1994
Introduction to aquaculture. M. Landau	SH 135 L36 1992
Ecological Aquaculture. The evolution of the blue revolution B. Costa-Pierce	SH 135 E35 2002
Cold-water aquaculture in Atlantic Canada A. Boghen	SH 37 C64 1995

Course Assessment

Component*	Weight (% of final grade)		Date
	Undergrad	Graduate	
Quizzes*	40	30	For specific due dates, please refer to the Detailed Schedule table below (in the Course Content Section)
Farm report ◊	(adds to 55)	(adds to 46)	
- Outline ◊	5	5	
- PowerPoint report (before tour) ◊	5	5	
- Recording of interview with farmer ◊	5	5	
- PowerPoint report (after tour - Final) ◊	20	15	
- Questions for students ◊	10	10	
Final Exam*	15	10	
Research paper*	-	20	
TOTAL	/100	/100	

* Individual work

◊ Teamwork

Conversion of numerical grades to Final Letter Grades

Undergraduate students follows the [Dalhousie Common Grade Scale](#). Graduate students follows a more strict scale, where a minimum of 70% (B-) is required to pass.

%	Undergraduate			Graduate		
	Letter Grade	Grade Point Value	Definition	Letter Grade	Grade Point Value	Definition
90 - 100	A+	4.30	Exceptional	A+	4.30	Exceptional
85-89	A	4.00	Excellent	A	4.00	Excellent
80-84	A-	3.70	Very Good	A-	3.70	Very Good
77-79	B+	3.30		B+	3.30	

73-76	B	3.00	Good	B	3.00	Good
70-72	B-	2.70		B-	2.70	
65-69	C+	2.30	Satisfactory	F	0.00	Failure
60-64	C	2.00		F		
55-59	C-	1.70		F		
50-54	D	1.00	Marginal Pass	F		
<50	F	0.00	Failure	F		

Course Policies

Discussion boards. All questions MUST be posted in Brightspace’s Discussion boards. Only use email for private/personal matters. Please follow the posting guidelines below:

- Before you post your question, **CHECK** if the question has already been asked/answered
- Post only ONE question per post. If you have multiple questions, post them in separate posts
- The post’s TITLE should be your question
- If you know the answer to a question, please help by answering the post
- Be respectful and polite

Participation. You are expected to contribute to the discussion boards (questions **AND ANSWERS**). You are responsible for communicating (email, zoom, etc.) with your teammates. You are expected to participate in some of the real-time activities of the class, as explained below in the attendance section. If you do not participate accordingly, marks will be deducted.

Attendance. Many portions of this course are asynchronous (i.e. not in real-time) to enable you to do them at your time and at your own pace. Some other portions of this course are synchronous (i.e. in real-time, e.g. video-calls with farmers, socials, etc.). You are required to participate in the real-time events that are associated with your team (e.g. recording interview with your farmer). However, other real-time events are not mandatory, although you are encouraged to participate in as many real-time events as you can.

Video-call protocols and etiquette. Synchronous (i.e. real-time) events will require you to connect, via a link posted in Brightspace, to a “Zoom” video-call event (**all time are in Halifax time, i.e., Atlantic Daylight Time, UTC-3**) **please be aware of time zones differences** and follow the etiquette below:

- You are expected to have your **camera ALWAYS On** in a video-call, therefore:
 - Be mindful of your clothing and appearance
 - Be mindful of your background (virtual background is ok)
 - Silence your cellphone and other electronic devices
 - Advise your roommates about your video-call so they are also mindful
- **Microphone off** during video-calls except when talking

Quizzes: Online quizzes (approx. 10 minutes) will be applied to test the material from lectures and from the PowerPoints of different farms. Each quiz will be available for 24 hours. Students can answer the quiz at anytime during those 24 hours; however, there is set amount of time to answer the quiz once it is started, and there is only one attempt. Students are **required** to make and use a **hand-written “cheat-sheet”** for each Quiz. **A photo of the cheat-sheet must be uploaded to its corresponding Brightspace dropbox BEFORE you do the quiz.** Cheat-sheets not meeting specifications (see below) will result in a zero

grade in the corresponding quiz. Note that appropriate documentation (e.g. SDA form, doctor's note) is required to justify missed quizzes.

Cheat-sheet specifications:

- Cheat-sheets are personal. **Copying somebody else's cheat-sheet is a serious plagiarism offence** requiring the Instructor to report all involved parties to the Academic Integrity Office.
- Cheat-sheets **MUST** be hand-written on paper. Digitization, electronic manipulation, photocopying, photographing and/or printing of cheat-sheets is not allowed.
- Size: each cheat-sheet is limited to one side of a letter-sized sheet of paper.
- Content: Anything you want, but **must** demonstrate effort to synthesize lecture content.

NOTE: On your cheat-sheet, write your name, B00 number, date and Quiz number.

Farm report: The final project for this course is the production of a PowerPoint Report of a farm. This is a group project (~3 people per team), where each team will do a different farm. Below are details about this project:

- Details not available yet

Final exam: Exam is online, and format is multiple choice and/or short answers. You **are allowed** to use your cheat-sheets during the final exam (i.e. open book). Final will include material from the lectures, quizzes, and information from the PowerPoints reports (V2) of the farms. The Final Exam will be synchronous; time of day when the exam takes place will be determined later, depending on student availability.

Research paper (Graduate students only)

Each graduate student needs to prepare a *Literature Review* "manuscript" following the "Review Articles" guidelines in the "[Guide for Authors](#)" from the journal Aquaculture. The manuscript must provide objective critical evaluation of the subject. It cannot consist solely of a summary of the available literature. Evaluation of the quality of existing data, the status of knowledge, and the research required to advance knowledge of the subject are essential.

Students are encouraged to discuss their interests and propose subject ideas to the instructor. However, the subject of the review will ultimately be appointed by the instructor. If the student is registered for the *Graduate Certificate in Aquaculture*, the subject of the review must also be approved by the Certificate Coordinator.

Rubric: Research paper (Graduate Students only)

Component	Comments	Weight (%)
Format	Manuscript must follow the formatting guidelines from the "Guide for Authors – Type of paper: Review Articles" from the journal Aquaculture https://www.elsevier.com/journals/aquaculture/0044-8486/guide-for-authors	5%
Clarity	Writing style must be clear and concise. The main content must be divided using headings carefully chosen to assist the reader to understand the content	10%
Critical thinking	The manuscript cannot be a simple summary of literature. Students must demonstrate the ability to evaluate the quality of the available knowledge and to provide suggestions for further advance the subject	10%
Content	Title	5%
	Abstract	10%

Table of contents	https://www.elsevier.com/journals/aquaculture/0044-8486/guide-for-authors	5%
Introduction	for-authors	5%
Content sections		30%
Conclusions		10%
References		10%
TOTAL:		100%

Course Content

Detailed Schedule

All dates and times are in (Halifax) **Atlantic Daylight Time** (UTC-3). Note that quizzes, exams and other due dates are shown in **red** and synchronous real-time events are shown in **blue**.

Day	Date	Topic
1	Mon Apr 26	<p>(11 am) Zoom meeting: Welcome and introduction to the course</p> <p>Lecture – Introduction to Aquaculture</p> <p>Lecture – Culture systems</p> <p>Students should:</p> <ul style="list-style-type: none"> - Organize into teams - Research farm background information by reading farmer’s websites, social media and uploaded content - Download and test screen capturing software - Start working “PowerPoint Report” <p>Zoom meeting to ask questions and bounce ideas. See link and time in Brightspace</p>
2	Tue Apr 27	<p>Quiz (Introduction to Aquaculture) - deadline: 11:59 pm ADT</p> <p>Quiz (Culture Systems) - deadline: 11:59 pm ADT</p> <p>Lecture – Live feed</p> <p>Continue work on “PowerPoint Report”</p> <p>Zoom meeting to ask questions and bounce ideas. See link and time in Brightspace</p>
3	Wed Apr 28	<p>Quiz (Live Feed) - deadline: 11:59 pm ADT</p> <p>Virtual-tours of farms 1. See Brightspace for times and links to meetings</p> <p>Record interview with farmer (only teams with presenting farmers)</p> <p>Zoom meeting to discuss virtual-tours of farms 1. See Brightspace for times and links to meetings</p> <p>Record discussion (only teams with presenting farmers)</p>
4	Thu Apr 29	<p>Virtual-tours of farms 2. See Brightspace for times and links to meetings</p> <p>Record interview with farmer (only teams with presenting farmers)</p> <p>Zoom meeting to discuss virtual-tours of farms 2. See Brightspace for times and links to meetings</p> <p>Record discussion (only teams with presenting farmers)</p> <p>Submit PowerPoint reports: Farms 1 (only teams with presenting farmers)</p>
5	Fri Apr 30	<p>Virtual-tours of farms 3. See Brightspace for times and links to meetings</p> <p>Record interview with farmer (only teams with presenting farmers)</p> <p>Zoom meeting to discuss virtual-tours of farms 2. See Brightspace for times and links to meetings</p> <p>Record discussion (only teams with presenting farmers)</p> <p>Submit PowerPoint reports: Farms 2 (only teams with presenting farmers)</p> <p>Quiz (Farms 1) - deadline: 11:59 pm ADT</p>
6	Sat	“Wild-card day” in case some farmers can only give us a tour during the weekend



	May 1	
7	Sun May 2	Day off
8	Mon May 3	<p>Virtual-tours of farms 4. See Brightspace for times and links to meetings</p> <p>Record interview with farmer (only teams with presenting farmers)</p> <p>Zoom meeting to discuss virtual-tours of farms 2. See Brightspace for times and links to meetings</p> <p>Record discussion (only teams with presenting farmers)</p> <p>Submit PowerPoint reports: Farms 3 (only teams with presenting farmers)</p> <p>Quiz (Farms 2) - deadline: 11:59 pm ADT</p>
9	Tue May 4	<p>Virtual-tours of farms 5. See Brightspace for times and links to meetings</p> <p>Record interview with farmer (only teams with presenting farmers)</p> <p>Zoom meeting to discuss virtual-tours of farms 2. See Brightspace for times and links to meetings</p> <p>Record discussion (only teams with presenting farmers)</p> <p>Submit PowerPoint reports: Farms 4 (only teams with presenting farmers)</p> <p>Quiz (Farms 3) - deadline: 11:59 pm ADT</p>
10	Wed May 5	<p>Virtual-tours of farms 6. See Brightspace for times and links to meetings</p> <p>Record interview with farmer (only teams with presenting farmers)</p> <p>Zoom meeting to discuss virtual-tours of farms 2. See Brightspace for times and links to meetings</p> <p>Record discussion (only teams with presenting farmers)</p> <p>Submit PowerPoint reports: Farms 5 (only teams with presenting farmers)</p> <p>Quiz (Farms 4) - deadline: 11:59 pm ADT</p>
11	Thu May 6	<p>Virtual-tours of farms 7. See Brightspace for times and links to meetings</p> <p>Record interview with farmer (only teams with presenting farmers)</p> <p>Zoom meeting to discuss virtual-tours of farms 2. See Brightspace for times and links to meetings</p> <p>Record discussion (only teams with presenting farmers)</p> <p>Submit PowerPoint reports: Farms 6 (only teams with presenting farmers)</p> <p>Quiz (Farms 5) - deadline: 11:59 pm ADT</p>
12	Fri May 7	<p>Virtual-tours of farms 8. See Brightspace for times and links to meetings</p> <p>Record interview with farmer (only teams with presenting farmers)</p> <p>Zoom meeting to discuss virtual-tours of farms 2. See Brightspace for times and links to meetings</p> <p>Record discussion (only teams with presenting farmers)</p> <p>Submit PowerPoint reports: Farms 7 (only teams with presenting farmers)</p> <p>Quiz (Farms 6) - deadline: 11:59 pm ADT</p>
13	Sat May 8	<p>Submit PowerPoint reports: Farms 8 (only teams with presenting farmers)</p> <p>Quiz (Farms 7) - deadline: 11:59 pm ADT</p>
14	Sun May 9	Day off
15	Mon May 10	<p>Quiz (Farms 8) - deadline: 11:59 pm ADT</p> <p>Zoom meeting to ask questions and bounce ideas and wrap up course. See link and time in Brightspace</p>
16	Tue May 11	Final exam – time to be determined



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Tue
May 18

Submit "Research paper" (only Graduate Students) - deadline: 11:59 pm ADT

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University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate

Academic Integrity

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

Information: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

Information: https://www.dal.ca/campus_life/academic-support/accessibility.html

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution.

Code: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness

Statement: <http://www.dal.ca/cultureofrespect.html>

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) (elders@dal.ca).

Information: https://www.dal.ca/campus_life/communities/indigenous.html

Important Dates in the Academic Year (including add/drop dates)

https://www.dal.ca/academics/important_dates.html

University Grading Practices

https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html

Missed or Late Academic Requirements due to Student Absence (policy)

https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html

Student Resources and Support

Advising

General Advising https://www.dal.ca/campus_life/academic-support/advising.html

Science Program Advisors: <https://www.dal.ca/faculty/science/current-students/academic-advising.html>

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Black Students Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: https://www.dal.ca/campus_life/international-centre/current-students.html

Academic supports

Library: <https://libraries.dal.ca/>

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Studying for Success: https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Copyright Office: <https://libraries.dal.ca/services/copyright-office.html>

Fair Dealing Guidelines <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

Other supports and services

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html

Student Advocacy: <https://dsu.ca/dsas>

Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Safety

Biosafety: <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

Chemical Safety: <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>

Radiation Safety: <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

Scent-Free Program: <https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>