

Faculty of Science and Faculty of Graduate Studies**Course Syllabus****Department of Biology***MARI 3604 /BIOL 5604***Field Aquaculture***Summer 2026, SEASIDE**(April 29 to May 14)***Instructors:****Dr. Mehdi Raissy** | email: mehdi.raissy@dal.ca**Office:** In-person office hours are not available. Students are encouraged to email to arrange a Teams meeting for support.**Angelisa Osmond** | email: angelisa.osmond@dal.ca**Office:** In-person office hours are not available. Students are encouraged to email to arrange a Teams meeting for support.**Questions MUST be posted in Brightspace's Discussion boards** (see guidelines below).

Only use email for private/personal matters.

TAs: Steph Duffy | email: Steph.Duffy@dal.ca**Lectures:** **M,T,W,R,F,Sat – All day** | **Location:** BIOLOGY LSC LAB 2102**Course delivery:** In-person. However, we can switch to online teaching if needed.**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 in-person field trips to several aquaculture facilities in the Maritimes.

This course also has hands-on labs including two Transport Canada Certifications (1) Small Domestic Vessel Basic Safety (SDV-BS), and (2) Small Vessel Operator Proficiency (SVOP), from Survival Systems Training Limited (Dartmouth); a boat driving lab (Northwest Arm); an Aquaculture Instrumentation Workshop/Lab (Innovasea) and a knots and ropes lab.

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
- 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.

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	15	15	For specific due dates, please refer to the Detailed Schedule table below (in the Course Content Section)
Database of farmers	10	5	
Small Domestic Vessel Basic Safety (SDV-BS) ◊	25	20	
Small Vessel Operator Proficiency (SVOP) ◊	50	40	
LAB 1: Ropes and Knots [†]	Pass/fail [†]	Pass/fail [†]	
LAB 2: Boat Driving Practicum [†]	Pass/fail [†]	Pass/fail [†]	
Bus Field Trip 1 ^{o†}	Pass/fail ^{o†}	Pass/fail ^{o†}	
Bus Field Trip 2 ^{o†}	Pass/fail ^{o†}	Pass/fail ^{o†}	
Half Day Trip / Lab: Aquaculture Instruments	Pass/fail ^{o†}	Pass/fail ^{o†}	
Bus Field Trip 3 ^{o†}	Pass/fail ^{o†}	Pass/fail ^{o†}	
Lecture attendance	Pass/fail ^{o†}	Pass/fail ^{o†}	
Participation in Discussion Boards	2% bonus	2% bonus	
Research paper	-	20	
TOTAL	/100	/100	

* All components are individual (i.e. there is no teamwork).

◊ These are Transport-Canada Certifications.

[†] To pass the course, you must pass **ALL** Pass/Fail components.

^o To pass this component, you just need to ATTEND it.

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

COVID19 Policies: Masks may be mandatory in some farms for biosecurity purposes (i.e. field trips). If you feel sick or if you were in close contact with a person with COVID19, please stay home to avoid spreading the virus to other people in the class. Accommodations will be made to make sure that your grade does not suffer from your absence.

VERY IMPORTANT: Copyrights and non-disclosure of information and media. Some farmers have shared a combination of media (photos/video), documents and other information that you can use exclusively for this course. However, **DO NOT share or post any of the farmer's information and/or media to your social networks or elsewhere.** This information and media can (intendedly or unitedly) be used to harm the farmer's reputation, which may lead to **legal action against yourself.**

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:

Participation in Discussion Boards. You are expected to contribute to the discussion boards. **Only use email for private/personal matters.** Please follow the Discussion board posting guidelines below:

- Be respectful and polite
- Participation grades will be computed at the end of the course.
- Four discussion prompts will be provided throughout the course, engagement with all four prompts will result in a bonus grade of an additional 2% .

Attendance is mandatory. You are expected to attend all lectures, labs, field trips and survival safety sessions. You cannot arrive late or leave early. We will deduct any unnecessary absences from your final mark, in proportion to the amount of class time missed. If a problem develops that may keep you from attending a class, lecture, lab or training contact the instructor either before or on the day you need to miss a class. Unexcused absences may result in failure. **If you are unable to attend due to illness or unforeseen circumstances, please reach out as soon as possible to your instructor and a student's declaration of absence form must be completed and submitted online to Brightspace. Absences will be reviewed on a case-by-case basis.**

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
 - Advice your roommates about your video-call so they are also mindful
- **Microphone off** during video-calls except when talking.
- Sometimes the Video-calls will take place at the lab, where all students will be logged in using their laptops. If that is the case, **please mute your laptop.**

Quizzes: Online quizzes (approx. 10 minutes) will be applied to test the material from lectures. These Quizzes will be available on brightspace and are to be completed by end of day of each lecture day. There is only one attempt.

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 created during the lecture, they can be on paper or on a file.
- On your cheat-sheet, write your name, B00 number, date and Quiz number
- 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.
- Pass in a copy of your cheat sheet after the class within one hour within a designated drop box, this can be a PDF or Photo.

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

Database of farmers: Students will collectively create a database of aquaculture farms around the world, by searching on the internet.

- Each student needs contribute **5** farms.
- Farms can be anywhere in the world, however farmers must be able to communicate in English (even if English is not their first language)
- Before you enter a new farm, do a “find” to verify that the farm has not be entered before. IF DUPLICATES, ONLY THE FIRST ENTRY COUNTS.
- When inserting new rows in the database, keep all your entries together. When you are done, your 5 entries need to be in consecutive rows.
- The link of the database can be found in CONTENT > GENERAL

Fatigue Management Training:

This is a mandatory online course required for all students. Completion of this training is required in order to obtain certification for both **SDV-BS** and **Small Vessel Operator Proficiency (SVOP)**. The course is delivered through the Canadian Centre for Occupational Health and Safety (CCOHS) and must be completed independently by each student. **A fee of \$20.00 applies and is the responsibility of each student. The course takes 1-3 hours to complete. Once Completed, please submit your certificate to Brightspace on the designated drop box.**

<https://www.ccohs.ca/products/courses/fatigue-sea> - course registration purchase

<https://www.ccohs.ca/distributors/transport-canada> - course login

Small Domestic Vessel Basic Safety (SDB-BS). This is a Transport Canada approved certification that is the minimum requirement to be able to **crew** in commercial vessels. There is a theoretical portion which will be taught at Dalhousie, and there is a practical portion, which will be taught at *Survival Systems Training Limited* (<https://www.sstl.com/>) in Dartmouth. The practical part takes the whole day. You will need to make your way to the SSTL facility on your own (e.g. via Metro-Bus). The course includes marine emergency response, marine firefighting, life-rafts and signalling devices, marine survival and rescue, and more. The course also includes swimming and getting into a life-raft in a special pool that simulates waves, wind, rain, fog and sound/visual effects (thunders, etc.).

Small Vessel Operator Proficiency (SVOP). This is a Transport Canada approved certification that is the minimum requirement to be able to **drive** “small” commercial vessels (up to 5 Tons). The course takes place at Dalhousie in our designated lab.

LABS: All LABS are Pass/Fail and **you must pass ALL the LABS to be able to pass the course.**

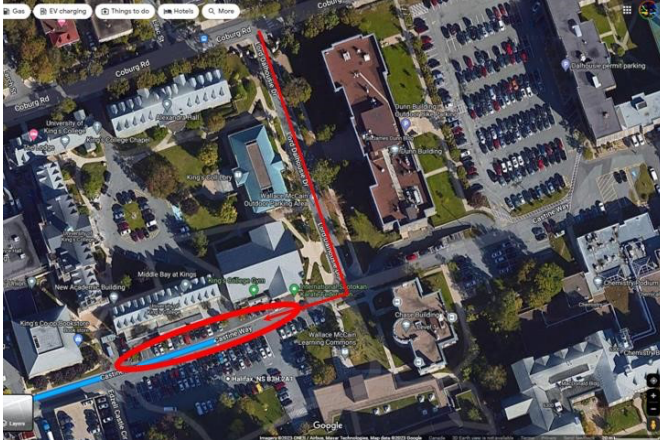
- **Ropes and Knots Lab.** This lab take place at Dalhousie in our designated lab. In this lab you will learn how to tie the most common knots used in aquaculture.
- **Boat Driving Practicum.** The instructors of this lab are from *Survival Systems Training Limited*. This lab starts and ends at the wharf located at the end of Jubilee Road ([see walking directions](#)). *As a back up, in case the floating wharf in Jubilee is not operational, we could use the wharf in Oakfield Road Park ([see walking directions](#)); again, this is only a back up location.* Students will board a small boat and learn how to drive it by practicing driving skills around the Northwest Arm. The boat can only take small groups of students, so we must divide the class accordingly, and we must create a schedule so that a group of students is waiting in the wharf ready to swap with the group that is just finishing their training.
- **Aquaculture Instruments Workshop.** This lab take place at *Innovasea* (<https://www.innovasea.com/>) You will need to make your way to the *Innovasea* facility on your own (e.g. via Metro-Bus).

FIELD TRIPS: All of these are Pass/Fail and **you must pass ALL to be able to pass the course.** However, to obtain a PASS in a FIELD TRIP, you simply need to ATTEND it.

- **Bus Field Trips.** These start and end in the parking lot almost in front of the McCain Learning Commons

(see photo and link below)

- a. <https://www.google.com/maps/place/44%C2%B038'13.1%22N+63%C2%B035'40.1%22W/@44.6366959,-63.5944588,158m/data=!3m1!1e3!4m4!3m3!8m2!3d44.636984!4d-63.594484>



- b.
- **Local Field Trips.** These are to places around HRM. You will need to make your way to the facilities on your own (e.g. via Metro-Bus).
 - **Zoom Field Trips.** These occur via zoom. See link in Brightspace.
 - **Guest Lectures.** These take place at Dalhousie in our designated lab.

Field Trip Lunches

Students are responsible for covering the cost of their own lunches during field trips.

For the first bus trip day, there is a **pre-arranged lunch option** at the Red Cap Restaurant. A lunch combo (pizza and a drink) is estimated at **\$23.00–\$25.00**.

Dietary accommodations can be arranged in advance, and students are encouraged to review the menu on the restaurant's website. Please notify the instructors ahead of the trip of any allergies or dietary restrictions. <https://redcaprestaurantandmotel.com/menu-card/>

Students are also welcome to **bring their own lunch**, particularly if preferred. For all subsequent field trips, students may choose to bring their own lunch or purchase food where available.

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 https://www.elsevier.com/journals/aquaculture/0044-8486/guide-for-authorsfor-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	Follow instructions in “Guide for Authors – Type of paper: Review Articles” from the journal Aquaculture.	10%
	Table of contents		5%
	Introduction	https://www.elsevier.com/journals/aquaculture/0044-8486/guide https://www.elsevier.com/journals/aquaculture/0044-8486/guide-for-authorsfor-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). Due to the fluid nature of this course. The up-to-date detailed schedule will be on Brightspace. Please check Brightspace frequently for updates and announcements.

University Policies and Statements

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 at 1321 Edward St or elders@dal.ca. Additional information regarding the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.html

Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: <https://www.dal.ca/about-dal/internationalization.html>

Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all 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. Additional academic integrity information can be found at: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre (https://www.dal.ca/campus_life/academic-support/accessibility.html) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (<https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html>)

Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

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 (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: <http://www.dal.ca/cultureofrespect.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. The full Code of Student Conduct can be found at: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Fair Dealing Policy

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at: https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html

Originality Checking Software

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at: https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html

Student Use of Course Materials

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.

Student Resources and Support

University Policies and Programs

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

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

Classroom Recording Protocol:

https://www.dal.ca/dept/university_secretariat/policies/academic/classroom-recording-protocol.html

Dalhousie Grading Practices Policies:

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

Grade Appeal Process: https://www.dal.ca/campus_life/academic-support/grades-and-student-records/appealing-a-grade.html

Sexualized Violence Policy:

https://www.dal.ca/dept/university_secretariat/policies/health-and-safety/sexualized-violence-policy.html

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

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

Learning and Support Resources

General Academic Support – Advising (Halifax): https://www.dal.ca/campus_life/academic-support/advising.html

General Academic Support – Advising (Truro): <https://www.dal.ca/about-dal/agricultural-campus/ssc/academic-support/advising.html>

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

On Track (helps you transition into university, and supports you through your first year at Dalhousie and beyond): https://www.dal.ca/campus_life/academic-support/On-track.html

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

Indigenous Connection: <https://www.dal.ca/about-dal/indigenous-connection.html>

Elders-in-Residence (The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit the office in the Indigenous Student Centre or contact the program at elders@dal.ca or 902-494-6803:

<https://cdn.dal.ca/content/dam/dalhousie/pdf/academics/UG/indigenous-studies/Elder-Protocol-July2018.pdf> Black Student Advising Centre:

https://www.dal.ca/campus_life/communities/black-student-advising.html

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

South House Sexual and Gender Resource Centre: <https://southhousehalifax.ca/about/>

LGBTQ2SIA+ Collaborative: <https://www.dal.ca/dept/vpei/edia/education/community-specific-spaces/LGBTQ2SIA-collaborative.html>

Dalhousie Libraries: <http://libraries.dal.ca/>

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

Dalhousie Student Advocacy Services: <https://www.dsu.ca/dsas?rq=student%20advocacy>

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

Human Rights and Equity Services: <https://www.dal.ca/dept/hres.html>

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

Study Skills/Tutoring: http://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Faculty of Science Advising Support: <https://www.dal.ca/faculty/science/current-students/undergrad-students/degree-planning.html>

Safety

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

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

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

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