



*"We must plant the sea and herd its animals using the sea as farmers instead of hunters. That is what civilization is all about - farming replacing hunting."*

-Jacques Cousteau

## **Aquaculture in British Columbia**

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### **Dr. Mark Flaherty**

**Office Hours:** Turpin B352 Monday 1:30-3:30 PM. Thursday 11:00 AM - Noon

**Contact:** 250-721-7337 email: [msf@uvic.ca](mailto:msf@uvic.ca)

### **Dr. Stephen Cross**

**Office Hours:** requests should be made via email for a zoom meeting.

**Contact:** email: [Scross@contestogac.on.ca](mailto:Scross@contestogac.on.ca)

**Lectures:** Mondays, 14:30 - 17:30 **Classroom:** MacLaurin D111

Lectures will consist of Face-to-Face meetings and presentations via ZOOM.

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We acknowledge and respect the ɫəkɫəŋən peoples on whose traditional territory the university stands and the Songhees, Esquimalt and WɫSÁNEĆ peoples whose historical relationships with the land continue to this day.

### **COURSE DESCRIPTION**

British Columbia's coastline stretches for 25,725 km. Aquaculture is an integral part of BC's economy and that of many coastal communities. BC is Canada's largest producer of farmed seafood, providing over half of Canada's output. This course examines the current state and future development of BC's aquaculture industry. Students will be introduced to the industry's history, the species cultured, production methods (hatchery through seafood processing), technological innovations, business/economic considerations, marketing strategies, environmental impacts and their management, social issues (including First Nations), and the

regulatory framework for this important agri-food industry. The lectures will be structured to encourage discussion around critical siting (resource management) and operation of the various industry sectors, and to allow an objective evaluation of the risks of this approach to seafood production in the context of global seafood demand.

## **LEARNING OUTCOMES**

By the end of this course, students will be able to:

- understand how cultured seafood is produced in BC and the opportunities for further diversification,
- discuss the advantages and disadvantages of different aquaculture production systems, and to,
- critically evaluate the major controversies currently associated with aquaculture development in BC.

## **LECTURES**

The lecture topics listed below will be covered during the semester. Guest speakers from industry and government agencies will also be invited to give you a broad perspective on many of the issues related to aquaculture in BC. The lecture sequence may differ from that indicated below in order to accommodate the schedules of the guest speakers.

January	9	Course Introduction – A Global Perspective on Aquaculture
	16	Shellfish & Finfish Aquaculture in BC – Production Methods
	23	Shellfish & Finfish Aquaculture in BC – Environmental Issues
	30	Seaweed Farming – a New Sector for the Coast
Feb	6	Site Selection and the Licensing Process in BC; Aquaculture Regulations
	13	The Social License to Operate/ First Nations Aquaculture
	20	<b>READING BREAK</b>
	27	Product marketing and certification
March	6	Midterm followed by New Production Technologies – IMTA, Genomics
	13	Group 1 field trip
	20	Group 2 field trip
	27	Environmental sustainability and the future of Aquaculture in BC
April	3	Class Presentations – Research Papers Due

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## **REQUIRED TEXT BOOK**

Because of the broad, interdisciplinary nature of this course no textbook is required.

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## **REQUIRED READINGS**

Course readings will be available on Brightspace.

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## FIELD TRIP

Arrangements are being made for a two day field excursion on Vancouver Island. Ideally, we will visit facilities representative of all components of cultured seafood production (fish and shellfish hatcheries, grow out sites, processing plants, and R&D sites). Owing to the limited capacity of some operations to accommodate visitors on site, we will split the class into two and make separate trips. The tentative schedule is Group 1 on March 14 and 15, Group 2 on March 21 and 22. Signup sheets will be available once the dates are confirmed.

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## EVALUATION

Your grade will be based on five components:

- a) Midterm: March 6 - 20%

Multiple choice and true or false questions. Fill in the blanks – expand industry acronyms and provide definition for each.

- b) Research Paper: Due April 3 - 35%

Student pairs will prepare independent yet complementary papers for a potentially new aquaculture species for British Columbia (to be assigned in class). One person will cover the technical considerations and the other on the socio-economic/ regulatory considerations. Each paper should be no more than 15-20 pages double-spaced (including tables/figures) plus references. Times 12 font, double spaced, PDF. Papers can be submitted to the drop box on Brightspace.

- c) Oral Presentation of Research Paper Findings: April 3 - 5%

The last class takes the format of an academic conference session. Each student pair will make a brief presentation (15 minute – 7.5 minutes each) that summarizes their joint feasibility study research papers, followed by 5 minutes for questions. The session chair will ensure strict adherence to the time limits.

**NOTE:** students are evaluated independently on both the paper and the presentation.

- d) Final Take Home Exam: 30%

Three short essay questions (500-600 words). One longer essay (1,200 – 1,500 words). The exam will be emailed at 9 AM on April 5. Completed exams must be submitted to the Dropbox on Brightspace by 6 PM April 7.

- e) Participation – 10%

Classroom room discussions focused on “Questions of the Day,” engagement with guest speakers.

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## GRADING SYSTEM

As per the Academic Calendar:

Grade	Grade point value	Grade scale	Description
A+	9	90-100%	<b>Exceptional, outstanding and excellent</b> performance. Normally achieved by a minority of students. These grades indicate a student who is self-initiating, exceeds expectation and has an insightful grasp of the subject matter.
A	8	85-89%	
A-	7	80-84%	
B+	6	77-79%	<b>Very good, good and solid</b> performance. Normally achieved by the largest number of students. These grades indicate a good grasp of the subject matter or excellent grasp in one area balanced with satisfactory grasp in the other area.
B	5	73-76%	
B-	4	70-72%	
C+	3	65-69%	<b>Satisfactory, or minimally satisfactory.</b> These grades indicate a satisfactory performance and knowledge of the subject matter.
C	2	60-64%	
D	1	50-59%	<b>Marginal</b> Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
F	0	0-49%	<b>Unsatisfactory</b> performance. Wrote final examination and completed course requirements; no supplemental.
N	0	0-49%	Did not write examination or complete course requirements by the end of term or session; no supplemental.

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## GEOGRAPHY DEPARTMENT INFO

- Geography Department website: <http://geog.uvic.ca>
- Undergraduate Advisor: [geogadvisor@uvic.ca](mailto:geogadvisor@uvic.ca)

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## POLICY ON LATE ASSIGNMENTS

Only the course instructor can grant exceptions.

## ACADEMIC INTEGRITY

It is every student's responsibility to be aware of the university's policies on academic integrity, including policies on **cheating, plagiarism, unauthorized use of an editor, multiple**

**submission, and aiding others to cheat.**

**Policy on Academic Integrity:**

<http://web.uvic.ca/calendar/undergrad/info/regulations/academic-integrity.html>

If you have any questions or doubts, talk to me, your course instructor. For more information, see <http://www.uvic.ca/learningandteaching/students/resources/expectations/>.

**ACCESSIBILITY**

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a documented disability or health consideration that may require accommodations, please feel free to approach me and/or the Resource Centre for Students with a Disability (RCSD <http://rcsd.uvic.ca/>) as soon as possible. The RCSD staff is available by appointment to assess specific needs, provide referrals, and arrange appropriate accommodations. The sooner you let us know your needs, the quicker we can assist you in achieving your learning goals in this course.

**POSITIVITY AND SAFETY**

The University of Victoria is committed to promoting, providing and protecting a positive and safe learning and working environment for all its members.

**SEXUALIZED VIOLENCE PREVENTION AND RESPONSE AT UVIC**

UVic takes sexualized violence seriously and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and its overall approach by visiting [uvic.ca/svp](http://uvic.ca/svp). If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Whether or not you have been directly impacted, if you want to take part in the important prevention work taking place on campus, you can also reach out:

Where: Sexualized violence resource office in EQHR; Sedgewick C119

Phone: 250.721.8021

Email: [svpcoordinator@uvic.ca](mailto:svpcoordinator@uvic.ca)

Web: [uvic.ca/svp](http://uvic.ca/svp)

**COURSE EXPERIENCE SURVEY (CES)**

AT the end of term you will have the opportunity to complete an anonymous survey regarding your learning experience (CES). This survey provides important feedback to me regarding the course and my teaching. The survey is accessed via MyPage and can be done on your laptop, tablet, or mobile device.

**NOTE:**

A note to remind you to take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone.

Counselling Services - *Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students.* [uvic.ca/services/counselling/](http://uvic.ca/services/counselling/)

Health Services - *University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives.* [uvic.ca/services/health/](http://uvic.ca/services/health/)

Centre for Accessible Learning - *The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations* [uvic.ca/services/cal/](http://uvic.ca/services/cal/). *The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.*

Elders' Voices - *The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being.* [uvic.ca/services/indigenous/students/programming/elders/index.php](http://uvic.ca/services/indigenous/students/programming/elders/index.php)