



School of Science

**RRMT 134**

**Salmon Hatcheries and Related Fisheries Practices**

Term: Fall 2021

Number of Credits: 3

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## Course Outline

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**INSTRUCTOR:** Darrell Otto  
**OFFICE HOURS:** TBA      **PHONE:** (867) 668-8868  
**OFFICE LOCATION:** A2303

**E-mail:** dotto@yukonu.ca

### **Class Meetings:**

**Room :** A2805      Mondays 1:00-3:50pm.

**Labs:** As per schedule

**Field Trips:** To be arranged at first lecture

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### **COURSE DESCRIPTION**

This course is an introduction to salmon hatcheries and fisheries techniques related to hatchery operations and assessment. Various hatchery practices will be explored, but the emphasis will be on salmon incubation techniques in a groundwater-fed facility. McIntyre Creek Salmon Incubation Project is a Yukon College facility that will serve as a model, and a venue for demonstration of techniques presented in lectures. Although there are no formal laboratory sessions, there will be a mandatory field trip and other course activities. The course is delivered in a blended format, consisting of a combination of lectures and online materials.

### **COURSE REQUIREMENTS**

Prerequisite(s): Admission to the Renewable Resources Management Program and NOST 215.

### **EQUIVALENCY OR TRANSFERABILITY**

Receiving institutions determine course transferability. Find further information at:

<https://www.yukonu.ca/admissions/transfer-credit>

## **LEARNING OUTCOMES**

Upon successful completion of the course, students will be able to:

- Basic fish biology with a focus on reproduction
- The life histories of the 5 species of Pacific salmon found on the west coast of Canada
- The history of fish hatcheries and stocking
- The roles fish hatcheries serve as a fisheries management tool
- The role fish hatcheries serve in biological research
- The role fish hatcheries serve in food fish production
- The role of biotechnology in hatcheries and stocking
- Major hatchery-related genetics issues and impacts on wild stocks
- Water quality requirements of salmon in hatcheries
- Stress and the ethics of handling live fish
- Standard procedures used for salmon broodstock collection
- Monitoring salmon eggs and maintaining a quality incubation environment
- Juvenile salmon nutrition, feed conversion, growth monitoring
- Symptoms of diseases of hatchery salmon, and their treatment
- Procedures used in the marking and releasing of juvenile salmon

## **COURSE FORMAT**

This course will involve one 3-hour class meeting each week. During that time there will be lectures, laboratory exercises or field trips that introduce and/or reinforce the course content. For every hour of classroom time there should be 2 hours of reading or working on assignments. This means that for the typical student you can expect to spend 9 hours per week total on this course. It is important to note that the time required will vary by individual.

### **Delivery format**

There will be a combination of face-to-face classroom lectures and lab sessions in this course. Laboratory exercises or field trips designed specifically to reinforce lecture materials will be conducted. Class meeting hours will be divided approximately evenly between lectures and lab exercises.

## EVALUATION

Unit/Pop Quizzes	15%
Laboratory Reports	25 %
Term Paper	20 %
Midterm Exam	15 %
Final Exam	25%
<b>Total</b>	<b>100%</b>

**Unit/Pop Quizzes** will be given at the beginning of lectures to encourage students to actively engage with course materials and complete the assigned readings.

**Exams:** The midterm exam (1.5 hours) on Oct. 25 will cover materials introduced up to that point in the course whereas the final exam (3 hours) will cover the full course content.

**Term Paper:** You will be expected to research and write a substantial term paper of 2500 to 3000 words for successful completion of this course. The topic should fall within the scope of the course and must be pre-approved by the instructor.

## ATTENDANCE

**Attendance at all course activities is mandatory.** Unexcused absences exceeding 10% of scheduled activities may result in your withdrawal from the course at the instructor's discretion.

## COURSE WITHDRAWAL INFORMATION

Refer to the YukonU website for important dates

## TEXTBOOKS & LEARNING MATERIALS

There is no specific textbook required, and any readings will be assigned from supplied materials, library reserve or via the internet. You will require a computer with internet access to complete this course.

## ACADEMIC INTEGRITY

Students are expected to contribute toward a positive and supportive environment and are required to conduct themselves in a responsible manner. Academic misconduct includes all forms of academic dishonesty such as cheating, plagiarism, fabrication, fraud, deceit, using the work of others without their permission, aiding other students in committing academic offences, misrepresenting academic assignments prepared by others as one's own, or any other forms of academic dishonesty including falsification of any information on any Yukon University document.

Please refer to Academic Regulations & Procedures for further details about academic standing and student rights and responsibilities.

## ACADEMIC ACCOMMODATION

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon University Academic Regulations (available on the Yukon University website). It is the student's responsibility to seek these accommodations by contacting the Learning Assistance Centre (LAC):

[LearningAssistanceCentre@yukonu.ca](mailto:LearningAssistanceCentre@yukonu.ca).

## Proposed RRM 134 Lecture/Lab Topics - 2021

Date	Lecture Topic	Laboratory/Field Trip
Sept. 13	Course Introduction/Logistics Planning Fish Biology and Adaptations to the Aquatic Environment	
Sept. 20	Yukon Salmonids and the Life Cycle of Pacific Salmonids	Fish Dissection
Sept. 24	Life Histories of Yukon Chinook and Chum Salmon	
Sept. 27	The History and Roles of Fish Hatcheries Broodstock Collection and Egg Fertilization Procedures	Fry Capture and Sampling
Oct. 4		Hatchery Data Collection
Oct. 18	Water Quality Requirements of Salmonids Incubation Site Characteristics	Water Quality Assessment
Oct. 25	Mid-term Exam Salmon Hatchery Incubation Systems	
Nov. 1		Incubation Systems
Nov. 8	Rearing of Juvenile Salmonids Impacts of Hatchery Reared Fish	
Nov. 15	Introduction to Fish Nutrition	
Nov. 22	Fish Disease in Hatcheries Term Paper Due	
Nov. 29	Fry Tagging and Marking Transporting and Releasing of Fry	
Dec. 6	Pacific Salmon Spawner Stock Assessment	