

APPLIED SCIENCE & MANAGEMENT DIVISION  
RENr 250/RRMT 239  
3 Credit Course  
Fall, 2019



**COURSE OUTLINE**

**RENr 250 / RRMT 239**

**45 HOURS  
3 CREDITS**

PREPARED BY: Maciej Stetkiewicz

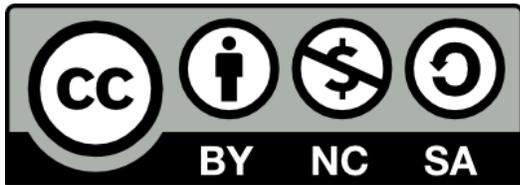
DATE: August 23, 2019

APPROVED BY: Stephen Mooney, Interim Dean ASM

DATE: August 23, 2019

APPROVED BY ACADEMIC COUNCIL:

RENEWED BY ACADEMIC COUNCIL:



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## Water Resource Management / Freshwater Ecosystems and Hydrology

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### LECTURES

**INSTRUCTOR:** Maciej Stetkiewicz      **OFFICE HOURS:** By Appointment  
**OFFICE LOCATION:** NR32, Yukon Research Centre      **CLASSROOM:** A2103  
**E-MAIL:** [mstetkiewicz@yukoncollege.yk.ca](mailto:mstetkiewicz@yukoncollege.yk.ca)      **TIME:** 10:30am - 12:00pm  
**TELEPHONE:** (867) 668-8874      **DATES:** Monday and Wednesday

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### LABS

**Lab INSTRUCTOR:** Nina Vogt      **OFFICE HOURS:** By Appointment  
**OFFICE LOCATION:** NR32, Yukon Reach Centre      **CLASSROOM:** A2805  
**E-MAIL:** [nvogt@yukoncollege.yk.ca](mailto:nvogt@yukoncollege.yk.ca)      **TIME:** 1:00pm - 4:00pm  
**TELEPHONE:** (867) 456-8630      **DATES:** Thursday

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### COURSE DESCRIPTION

This is a two-component course intended to teach the student habitat assessment techniques for freshwater ecosystems; as well as basic elements of hydrology. The freshwater ecology portion of the course will emphasize the applied aspects of limnology. Laboratory sessions will focus on the collection of data relevant to the physical, chemical and biological variables that influence living organisms and their interactions within these systems. Topics covered include an overview of freshwater as environment, freshwater flora and fauna, population dynamics, community ecology, energy and chemical cycles. The hydrology portion of the course will study how water is distributed, moved and stored. Students will learn about the hydrology cycle including important components such as: precipitation, storage, sun-off, streamflow analysis, water quality and how these relate to freshwater ecology.

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**PREREQUISITES**

Admission to second-year of the Renewable Resources Management Program, NOST 201 AND RRMT 125

**Or**

Registration in the B.Sc. in Northern Environmental and Conservation Sciences Program.

**RELATED COURSE REQUIREMENTS**

*Access to computer with word processing and excel*

**EQUIVALENCY OR TRANSFERABILITY**

**LEARNING OUTCOMES**

Upon successful completion of this course students will be able to do the following:

- Have a clear understanding of freshwater systems as an environment
- Recognize the diversity of aquatic organisms, their respective trophic levels and interactions.
- Understand population dynamics, community ecology, energy flow and chemical cycles existing in freshwater systems.
- Have the basic skills necessary to assess freshwater habitats.
- Understand fundamental hydrologic principles including the distribution of water and the pathways and mechanisms of water movement, measurement of precipitation and water flow, the watershed as a unit for study and management, water related processes including erosion, solution, transport and deposition;
- Recognize the role of water as a shaper of landscapes and as an essential component of ecosystems.

**COURSE FORMAT**

Course objectives will be attained primarily through learning activities during lectures and labs. Readings will be provided when necessary to supplement lecture and lab

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learning activities.

There is a mandatory lab component to this course. Many labs will be conducted outside and, therefore; could be physically demanding and require appropriate outdoor clothing. Successful completion of the lab component is required to gain credit for this course.

**ASSESSMENTS:**

**Attendance and Participation**

Attendance for the lab component of this class is mandatory. Exceptions may be made at the discretion of the lab instructor. Attendance will not be taken for the lecture component of this class; however, missing class will mean missing out on important information that will be relevant for the major assignment, midterm and final exam. It is the responsibility of the student to ensure that they are caught up on any lectures that they miss.

**Assignments**

Each student must individually complete the major assignment. Each student will also individually complete the lab-exams, mid-term exam and final exam. Students may work in groups for lab assignments; however, each student will be required to submit an individual lab report for each lab.

**Exams**

There will be a mid-term exam, two lab exams and a final exam. If you cannot attend one of the exams, you must make arrangements with the instructor and lab instructor ahead of time as early as possible. In special circumstances when this is not possible, the instructor and lab instructor may allow for a make-up to be written.

**Due Dates and Late Assignments**

Due dates for assignments will be indicated when they are assigned. Assignments handed in late will be penalized 10% per day.

**EVALUATION:**

Assignments	20%
Midterm Exam	15%
Lab Reports	35%
Lab Exams	10%
Final Exam	20%
<b>Total</b>	<b>100%</b>

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**REQUIRED TEXTBOOKS AND MATERIALS**

There is no specific textbook for this class. Assigned readings will be provided as handouts.

**ACADEMIC AND STUDENT CONDUCT**

Information on academic standing and student rights and responsibilities can be found in the current Academic Regulations that are posted on the Student Services/ Admissions & Registration web page.

**PLAGIARISM**

Plagiarism is a serious academic offence. Plagiarism occurs when a student submits work for credit that includes the words, ideas, or data of others, without citing the source from which the material is taken. Plagiarism can be the deliberate use of a whole piece of work, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Students may use sources which are public domain or licensed under Creative Commons; however, academic documentation standards must still be followed. Except with explicit permission of the instructor, resubmitting work which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the College.

**YUKON FIRST NATIONS CORE COMPETENCY**

Yukon College recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see [www.yukoncollege.yk.ca/yfnccr](http://www.yukoncollege.yk.ca/yfnccr).

**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 College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC): [lac@yukoncollege.yk.ca](mailto:lac@yukoncollege.yk.ca).

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## TOPIC OUTLINE

Week of	Monday Lecture	Wednesday Lecture	Thursday Lab
September 2	No lecture	Introduction and properties of water	No lab
September 9	Water quality parameters	Primary productivity	Primary Production
September 16	Freshwater organisms part 1	Freshwater organisms part 2	Lab time
September 23	Freshwater organisms part 3	Biodiversity	Vegetation classification
September 30	Population ecology	Community ecology	Lab time
October 7	Nutrient cycles	Trophic state and eutrophication	Lab Exam
October 14	Thanks giving - <b>no class</b>	Mid Term	Macro Invertebrates
October 21	Behaviour and interactions among microorganisms and invertebrates	Interactions among plants and animals in freshwater communities	Lab time
October 28	Water cycle and watershed basics	Streamflow	Assessing Freshwater ecosystem health
November 4	Precipitation and evapotranspiration	Storage and groundwater	Lab time
November 11	Remembrance day - <b>no class</b>	Mine water treatment	Frequency Analysis
November 18	Water Resource Management	Ecosystem Services	Lab time
November 25	Impacts of climate change on hydrology in the North	Presentations	Review for lab exam
December 2	Review for Final	Review for Final	Lab Exam