

APPLIED SCIENCE AND MANAGEMENT DIVISION
Freshwater Ecosystems and Hydrology
3 Credit Course
Fall, 2014

FRESHWATER ECOSYSTEMS AND HYDROLOGY

INSTRUCTOR: Darrell Otto

OFFICE HOURS: Wed & Fri.am.

OFFICE LOCATION: T126C

CLASSROOM: Lecture: T1083
Lab: A2601

E-MAIL: dotto@yukoncollege.yk.ca

TIME: Lectures: Mon. & Wed. 1030 – 1200h
Lab Session: Mon. 1300-1600h

TELEPHONE: 867-668-8868

DATES: September 3 – December 19, 2014

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 on a global scale, followed by a study of processes at smaller scale including precipitation, accumulation, surface and groundwater flow of water and ice together with the associated solution, erosion, transport and sedimentation actions. The course will also look at the conservation and protection of water as a resource for people, and as an essential environmental component.

PREREQUISITES

Second year standing in Renewable Resources Management; BIOL 101 or RRMT 121 are course prerequisites. RRMT 125 and RRMT 149 are recommended, but not essential.

EQUIVALENCY OR TRANSFERABILITY

This course is accepted for transfer as credit for Renewable Resources 250 Water Resource Management at University of Alberta.

LEARNING OUTCOMES

On successful completion of this course students will:

- 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

Readings will be assigned from the text and supplied materials. Lectures will supplement the readings with additional detail, relevant examples, clarification and emphasis.

There is a mandatory lab component to this course. There will be a heavy emphasis on the applied aspects of fieldwork and data collection in conjunction with sample analysis and specimen identification techniques to be completed in the laboratory. Most of the fieldwork will be conducted in the water over the first eight weeks of the course, as weather permits. Lab sessions may be physically demanding and appropriate clothing is necessary. Successful completion of the lab component is required to gain credit for this course.

A major written assignment related to freshwater ecology or hydrology will also be required for successful completion of the course.

COURSE REQUIREMENTS

Attendance

Attendance at all lectures and participation in laboratory activities is mandatory. **Absences in excess of 10% of scheduled activities (2 lectures OR 1 lab session) may result in withdrawal from the course at the instructor's discretion.** You must successfully complete the laboratory component of the course to receive a passing grade.

EVALUATION

The lecture part of the course will be evaluated by an in-class midterm examination of no more than 1hr. 20 min. duration, and a 3 hour final exam set in the examination period in December.

The major practicum assignment mark will be based on a final report and presentation of your findings.

Marks will be assigned as follows:

Mid-term exam	15%
Lab Reports	30%
Lab Exam	10%

Major Assignment	20%
<u>Final exam</u>	<u>25%</u>
Total	100

SUGGESTED TEXT

Dodds, Walter K. Freshwater Ecology: Concepts and Environmental Applications.. Academic Press. San Diego, California. 2002.

Additional reading materials will be supplied or placed on reserve in the library.

PLAGIARISM

Plagiarism is a serious academic offence. Plagiarism occurs when students present the words of someone else as their own. Plagiarism can be the deliberate use of a whole piece of another person's writing, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material. Whenever the words, research or ideas of others are directly quoted or paraphrased, they must be documented according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Resubmitting a paper 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.

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) at (867) 668-8785 or lassist@yukoncollege.yk.ca.

SYLLABUS

A detailed week-by-week course syllabus will be distributed during the first lecture.