Calendar Description:
An examination of global environmental hydrology including precipitation, evaporation, subsurface water and runoff. Physical processes, measurement, analytical techniques and modelling strategies will be considered in the context of global change.

Overview and Objectives:
The hydrosphere refers to all the water on and within the Earth’s system. The majority of water on Earth is in the oceans (97%), the remaining 3% is fresh and is found in ice caps, in the ground, in lakes, and streams. Coupled with on-going changes and demands with respect to water resources, global environmental change is exacerbating these challenges.

Geographers are particularly interested in hydrological processes due to their close connection to the related fields of climatology, geomorphology, biogeochemistry, ecology, soil sciences, and food systems. Issues associated with water quality, supply, and hazards are important to planners, policy makers, leaders and the public. There are many areas of research underway in the broad field, and several aspects are areas of expertise for faculty in our department. It is critical that we understand the physical processes that form the foundation of the spatial and temporal characteristics of water and related environments, in order to comprehend and address the scope of these important water issues.

In this course, we focus on physical hydrology with the opportunity to contextualize these processes with human interests. By the end of this course students will have a comprehensive, quantitative understanding of physical hydrology as it relates to the global water cycle. My experience and interests in physical hydrology are grounded in surface water dynamics at a watershed scale, and its connections to fluvial geomorphology, in particular sediment dynamics and watercourse restoration. As such, the discussions and literature covered this semester will reflect this, however, in your own final paper, you are welcome to explore your specific hydrology interests.
Readings:
We will reply on peer-reviewed articles from selected journals in the field for our readings. However, having an upper level undergraduate physical hydrology textbook as a reference will be invaluable. I recommend Physical Hydrology, by S. L. Dingman, Waveland Press (3rd edition is from 2015, but any edition is sufficient). In addition to any review you may require, it is expected that you will be reading 4-5 articles per week for this course. Outside of the schedule class time, I expect you to be spending 10-15 hours per week on this course.

Course Website:
You will need to be able to access CourseLink in order to submit assignments and papers, and access course material.

Content/Schedule (preliminary):
1. Hydroclimatology and water balance concepts (Data Assignment 1: Unit Hydrographs)
2. Precipitation – focus on estimating from models
3. Hydrological connectivity
4. Hydrograph separation and tracers: chemical and isotopic approaches (Data Assignment 2: Hydrograph Separation)
5. Slope-channel connectivity
6. Surface storage – stream-lake interactions, physical limnology
7. Sediment erosion and transport
8. Paleohydrology and hazards (Data Assignment 3: Flood Frequency)

Assessment/Evaluation (provisional):
Weekly presentations, 30%
Data Assignments, 30%
Final Paper, 40% due December 7, 2018

Notes:
Course outline is provisional as of April 23, 2018.

E-mail Communication
As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

When You Cannot Meet a Course Requirement
When you find yourself unable to meet an in-course requirement because of illness or
compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. Refer to the graduate calendar for information on regulations and procedures for Academic Consideration.

Drop Date
Courses that are one semester long must be dropped by the end of the fortieth class day, Friday November 2, 2018. The regulations and procedures for dropping courses are available on WebAdvisor.

Copies of out-of-class assignments
Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Accessibility
The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day.

More information: www.uoguelph.ca/sas

Academic Misconduct
The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not
excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Graduate Calendar.

**Recording of Materials**
Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

**Resources**
The Academic Calendars are the source of information about the University of Guelph’s procedures, policies and regulations, which apply to graduate programs.