

Department of Geography and Environmental Studies
Geography 3103: Watershed Hydrology
Winter 2018

Instructor: Murray Richardson, B355 Loeb Building

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Email: murray.richardson@carleton.ca

Office Hours: TBA

Lecture: Mondays 2:35 pm -5:25 pm SA413

Labs: Section A1: Tue 11:35 am – 1:25 pm; Section A2: Monday 2:35 pm to 4:25 pm

Teaching Assistant: TBA

Email: TBA

Office Hours: TBA

Prerequisites: GEOG 2013 (Weather and Water) or Permission of the Department

Course Description:

Hydrology can be defined as the study of the hydrologic cycle: the continuous movement of water from the atmosphere to the surface of the earth, into the surface, through the subsurface, and back to the atmosphere. The objective of this course is to give the student an introduction to hydrological processes and the resulting spatial patterns of precipitation, evaporation, snowmelt, subsurface flow and runoff at local, regional and global scales. As hydrology is a quantitative science, assignments involving calculations, the use spreadsheets and basic GIS analysis form an important part of the course.

General Course Topics:

The global water cycle and world water resources
Climate change impacts to the water cycle
Watershed science and management
Wetlands and wetland hydrology
Runoff generation and streamflow dynamics
Hydrologic monitoring and modelling
Quantitative methods in the hydrologic sciences

Readings (please note this is a draft outline – do not buy the textbook until the final outline has been released)

Hendriks, M.R., 2010. "Introduction to Physical Hydrology" (available at Havens Bookstore)

Required readings from the text will be outlined in the course schedule. Assigned readings, including those NOT from the textbook, are to be read prior to the class for which they are assigned. All additional course material (e.g. lecture notes and assignment sheets) will be made available on WebCT. It is recommended that you bring a printed copy of the lecture material to class, so you can focus on understanding the material rather than having to write it down. These notes are no substitute for attending class; you will need to comment the printed notes during class, to capture the full scope of the teaching and class discussions.

In addition to assigned textbook readings, you are required to download and read the following two journal articles prior to our second and third lectures

Oki, T and Kanae, S. 2006. Global hydrological cycles and world water resources. Science. Vol. 31: 5790. pp 1068 – 1072.

Milly, P, Betancourt, et al., 2008. Stationarity is dead: whiter water management? Science. no. 5863 pp. 573-574

Carleton has full text access to Science Magazine but you will need to be on the University network to download .pdfs of these articles.

Evaluation:

Overall evaluation will be based upon performance in (a) 7 term evaluations (consisting of 5 labs @ 10% each and 2 mid-term quizzes at 10% each) (**total = 70%**), and (b) the final exam (**30%**). However, of the 7 term evaluations, up to 3 of them may be re-weighted to the final exam. That is, the balance between term evaluations and the final exam may be either 70%/30%, 60%/40%, 50%/50%, 40%/60%, depending on which calculation is most beneficial for your final mark. If you complete less than 4 of the 7 term evaluations, the final examination will not be worth more than 50% of your final grade (i.e. only a maximum value of 3 term assignments can be re-weighted to your final exam).

Late Policy:

Because of the flexible nature of the evaluation on term assignments, outlined above, late assignments will not be accepted after the due date. Missed term evaluations will be re-weighted to the final exam up to the maximum allowable number of 3, as described under "Evaluation".

Instructional & Conduct Offences:

Instructional offences include among other activities cheating, contravening examination regulations, plagiarism, submitting similar work in 2 or more courses without prior permission, and disrupting classes. Conduct offences apply in areas of discrimination and sexual harassment. Further information about University regulations which define and regulate these offences is presented in the 2011-12:

UG Calendar: <http://www.carleton.ca/calendars/ugrad/current/regulations/acadregsuniv14.html>

Graduate Calendar: <http://www.carleton.ca/calendars/grad/current/regulations/#14>

The assignments you submit must clearly be your own composition. Talking with others about the assignments (including your TA) while you are analyzing the data is strongly encouraged, but it is expected that you work at your own work station throughout. You are also expected to work alone when you are composing your reports. In the body of your reports, acknowledge the use of sources other than the course material, and include a bibliographic list of works cited at the end of the assignment. For sources from the internet, give the URL (and the date you accessed it) both within the body of the assignment and in your bibliography at the end.

You are solely responsible for understanding Carleton's academic offence policy, available at <http://www2.carleton.ca/studentaffairs/ccms/wp-content/ccms->

files/academic_integrity_policy.pdf. If you are uncertain about whether or not something constitutes an academic offence, please ask the instructor or TA. To help determine when a citation is or is not required in your written work, try taking the academic integrity quiz at: <http://www2.carleton.ca/sasc/advisingcentre/academic-integrity/integrity-quiz/>

Academic Accommodations:

Paul Menton Centre:

Location: Room 500, Unicentre, Monday-Friday, 8:30 a.m. – 4:30 p.m.
Tel.: (613) 520-6608

Students with disabilities requiring academic accommodations in this course are encouraged to contact a coordinator at the Paul Menton Centre for Students with Disabilities to complete the necessary letters of accommodation. After registering with PMC, make an appointment to meet and discuss your needs with me at least two weeks prior to the first assignment/exam. This is necessary in order to ensure sufficient time to set up for the needed arrangements. Please note the deadline for winter term courses as outlined in the Undergraduate Calendar

For Religious Observance: Students requesting academic accommodation on the basis of religious observance should make a formal, written request to their instructors for alternate dates and/or means of satisfying academic requirements. Such request should be made during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist, but no later than two weeks before the compulsory academic event. Accommodation is to be worked out directly and on an individual basis between the student and the instructor(s) involved. Students who have questions or wish to confirm accommodation eligibility of a religious event or practice may refer to the Equity Services website for a list of holy days and Carleton's Academic Accommodation policies, or may contact an Equity Services Advisor in the ES Department.

For Pregnancy: Pregnant students requiring academic accommodation are encouraged to contact and Equity Advisor in Equity Services to complete a letter of accommodation. The student must then make an appointment to discuss her needs with the instructor at least two weeks prior to the first academic event in which it is anticipated the accommodation will be required.

Other Important Locations on Campus:

Writing Tutorial Service (215 Paterson Hall)
Student Life Services (510 University Centre)
Student Academic Success Centre (302 Tory Building)