

Department of Geography and Environmental Studies
Geography 3103: Watershed Hydrology
Winter 2019



Instructor: Murray Richardson, B355 Loeb Building
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Office Hours: TBA

Lecture: Thursdays 11:35 pm -1:25 pm UC378
Labs: Section A1: Friday 9:35 am – 11:25 pm; Section A2: Friday 12:35 pm to 2:25 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

Hendriks, Martin (2010) Introduction to Physical Geography, Oxford University Press (a custom course pack version of this textbook will be available at the Carleton Bookstore)

Please note I have ordered a black and white custom course pack containing only the required sections of the Hendriks textbook, to reduce your textbook costs. Required readings from this text will be outlined in the course schedule. Assigned readings, including those NOT from the textbook, should be read prior to the class for which they are assigned. All additional course material (e.g. lecture notes and assignments) will be made available on cuLearn. Lecture notes will only be provided after lecture to reduce unnecessary printing – all slides are numbered and you can take notes with reference to slide numbers. Lecture slides provided are no substitute for attending class since much material is relayed orally.

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

Evaluation:

Overall evaluation will be based upon performance in (a) 6 term evaluations (consisting of 5 labs @ 10% each and 1 mid-term tests at 10% each) (**total = 60%**), (b) the final exam (**30%**); and (c) lecture attendance (10%). However, of the 6 term evaluations, up to 2 of them may be re-weighted to the final exam. That is, the balance between term evaluations, the final exam and attendance may be 60%/30%/10% (term evaluations/exam/attendance), 50%/40%/10% or 40%/50%/10%, depending on which calculation is most beneficial for your final mark.

If you complete less than 4 of the 6 term evaluations, the final examination will not be worth more than 50% of your final grade (i.e. only a maximum of 2 term assignments at 10% each can be re-weighted to your final exam). If you do all 6 term evaluations, your mark will also be re-calculated without your lowest 1 and 2 term evaluation grades respectively. Your final mark will be the highest of the three options.

Lecture Attendance:

Lecture attendance will be worth 10% of your final grade. Attendance tracking will be via QR code scanning which will start in week 3. You will be supplied with a QR code which you can print or store on a mobile device, for scanning at the start of class.

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 2, as described under "Evaluation".

Cell Phone and Laptop Policy:

Cell phone use by students is incredibly distracting to the instructor. Please do not use cell phones unless prompted by the teacher (e.g. for PollEverywhere questions). There will be a break half-way through each lecture when you can check your phone. Laptop use can also be distracting as it is obvious to the instructor when students are disengaged from the lecture and using the laptop for other purposes. Please use your laptop for course related purposes only. You may be asked by the instructor to confirm that your use of a computer is consistent with this policy.

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 should contact an 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)