Physical & Environmental Sciences
UNIVERSITY OF TORONTO
SCARBOROUGH

"HYDROLOGY AND WATERSHED MANAGEMENT"
(EES1126, Winter 2017)

Professor: Carl Mitchell   **Phone:** 416 208 2744   **Office:** EV-450
                                         Email: carl.mitchell@utoronto.ca

Lecture Time:
Office Hours: TBD according to students' schedules; likely Mondays
Course Web Site: Everything on Blackboard (https://portal.utoronto.ca)
Teaching Assistant:

COURSE SUMMARY AND WEEKLY STRUCTURE

This course provides an advanced understanding of hydrological processes occurring at the watershed scale within the broader theme of management for water resources protection. The course begins with an advanced investigation of hydrological processes occurring in watersheds, including the quantitative analysis of these processes. Aspects of water quality and land use change will be taught. This material will come together through the concept of integrated watershed management, including the linking of scientific understanding with governance, regulations, and management approaches.

This course will be a hybrid-type lecture/seminar course. Each week, Professor Mitchell will lecture about a specific topic for a period of time and students will be given a short break. After this, we will reconvene with a graduate student-led tutorial-type discussion of the assigned reading(s) for the week.

EVALUATION

Evaluation will be carried out in accordance with the Graduate Grading and Evaluation Practices Policy (and how that policy is interpreted and applied in this Dept.)
http://www.governingcouncil.utoronto.ca/policies/uniassgpp.htm

Leading of Group Journal Article Discussions	5%
Participation in Weekly Journal Article Discussions	15%
Applied Isotope Hydrology Assignment **(due March 2)**	15%
Oral Presentation of Case Study	15%
Term Paper on Watershed Impacts **(due March 30, in class)**	20%
Final Exam	30%

READINGS

From time to time, I will refer students to the textbook "Hydrology and the Management of Watersheds, Fourth Edition" by Brooks, Ffolliot, and Magner (2013). This book is freely available in pdf form by chapter through the UofT Library system. Additionally, students will be assigned weekly readings that are benchmark original research papers related to course topics and I expect students to be fully prepared to discuss these papers every week (it is part of your mark to participate). All readings are listed below and will focus on lecture material from the previous week so that students have a better understanding of what they are discussing. It is possible that I may add more papers or alter this list somewhat, depending on the final number of students enrolled.

CLASS OUTLINE / SCHEDULE (subject to minor changes; seminar readings pertain to material taught in the previous week)

DATE	CONTENT
Jan. 6	Introduction to the course and requirements, overview of the hydrological cycle and watersheds. No seminar discussion this week.
Jan. 13	Infiltration, Recharge, and Surface Water-Groundwater Interactions Seminar Reading: Winter (2001) *JAWRA*, 37(2): 335-349.
Jan. 20	Runoff Mechanisms, Streamflow, and Floods Seminar Reading: Fernald et al. (2001) *Water Resources Research*, 37(6): 1681-1694.
Jan. 27	Isotope and Tracer Approaches (Computer lab on isotope hydrograph separation instead of journal seminar)
Feb. 3	Soil Erosion and Sediment Transport Seminar Reading: Stewart and McDonnell (1991) *Water Resources Research*, 27: 2681-93.
Feb. 10	Water Quality Seminar Reading: Favaro and Lamoureux (2015) *Geomorphology*, 256: 359-369.
Feb. 17	**Reading Week. NO CLASS!!**
Feb. 24	Integrated Watershed Management Seminar Reading: Silins et al. (2014) *Ecohydrology*, 7(6): 1508-1523.
March 2	Riparian Areas and Wetland Hydrology Seminar Reading: Blomquist and Schlager (2005) *Society and Natural Resources*, 18: 101-117.
March 9	Urban Hydrology Seminar Reading: Vidon and Hill (2004) *Journal of Hydrology*, 292(1-4): 210-228.
March 16	Watershed Governance and Community Approaches Seminar Reading: Roy and Shuster (2009) *J. Am. Water Resour. Assoc.*, 45(1): 198-209.
March 23	Oral Presentations of Case Studies
March 30	Oral Presentations of Case Studies

BLACKBOARD INFORMATION

Logging in to your Blackboard Course Website
Like many other courses, EES1126 uses Blackboard for its course website. To access the EES1126 website, or any other Blackboard-based course website, go to the UofT portal login page at http://portal.utoronto.ca and log in using your UTORid and password. Once you have logged in to the portal using your UTORid and password, look for the My Courses module, where you'll find the link to the EES1126 course website along with the link to all your other Blackboard-based courses.

Activating your UTORid and Password
If you need information on how to activate your UTORid and set your password for the first time, please go to http://www.utorid.utoronto.ca. Under the "First Time Users" area, click on "activate your UTORid" (if you are new to the university) or "create your UTORid" (if you are a returning student), then follow the instructions. New students who use the link to "activate your UTORid" will find reference to a "Secret Activation Key". This was originally issued to you when you picked up your Tcard at the library. If you have lost your Secret Activation Key you can call 416-978-HELP or visit the Help Desk at the Information Commons on the ground floor of Robarts Library to be issued a new one. The course instructor will not be able to help you with this. 416-978-HELP and the Help Desk at the Information Commons can also answer any other questions you may have about your UTORid and password.

Email Communication with the Course Instructor
Although outside of class I may prefer to communicate with you via email, I would prefer that you make an attempt to communicate with me in person. I will only answer short emails with short responses. Anything of substance should be discussed in person. Particularly in time-constrained instances, you can phone me too.

At times, I may decide to send out important course information by email. To that end, all UofT students are required to have a valid UofT email address. You are responsible for ensuring that your UofT email address is set up AND properly entered in the ROSI system. You can do that by using the following instructions:

To submit the information to activate your UTORid and password (see above), you will need to click the "Validate" button. Follow the instructions on the subsequent screens to receive your utoronto.ca address. Once you have your UofT email address, go to the ROSI system (www.rosi.utoronto.ca), log in and update the system with your new UofT email address.

You can check your UofT email account from
1. The UofT home page http://www.utoronto.ca: From the Quick Links menu on the top right, choose "my.utoronto.ca". Enter your UTORid and password, and when the Welcome page opens, click "WEBMAIL".
2. Email software installed on your computer, for example Microsoft Outlook or Mozilla Thunderbird. Visit the Help Desk at the Information Commons or call 416-978-HELP for help with the set up.

Forwarding your utoronto.ca email to a Hotmail, Gmail, Yahoo or other type of email account is not advisable. In some cases, messages from utoronto.ca addresses sent to Hotmail, Gmail or Yahoo accounts are filtered as junk mail, which means that emails from your course instructor may end up in your spam or junk mail folder.

You are responsible for:

    1. Ensuring you have a valid UofT email address that is properly entered in the ROSI system
    2. Checking your UofT email account on a regular basis as email is the primary means of professor-to-student communication outside of regular classroom hours.

EMERGENCY PLANNING

Students are advised to consult the university's preparedness site (http://www.preparedness.utoronto.ca) for information and regular updates regarding procedures relating to emergency planning.

ACCESSIBILITY NEEDS

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact The UTSC Accessibility Services as soon as possible:
http://www.utsc.utoronto.ca/~ability/
I also suggest you also refer to the following University of Toronto Scarborough Library link:
http://utsc.library.utoronto.ca/services/persons-with-disabilities

PLAGIARISM

University of Toronto code of Behaviour on Academic Matters states that "it shall be an offense for a student knowingly: to represent as one's own any idea or expression of an idea or work of another in any academic examination or term test or in connection with any other form of academic work, i.e., to commit plagiarism."

For accepted methods of standard documentation formats, including electronic citation of internet sources please see the UofT writing website at: http://www.writing.utoronto.ca/advice/using-sources/documentation

The full Code of Behaviour regulations could be found from consulting
http://www.sgs.utoronto.ca/facultyandstaff/Pages/Academic-Integrity.aspx

The University of Toronto has a site license that enables all faculty and students to use Turnitin.com (http://www.turnitin.com/), a plagiarism prevention system. You will be required to hand in your final term paper through Turnitin.com. For more information on this service please consult http://teaching.utoronto.ca/ed-tech/teaching-technology/turnitin/.
"Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site".

WRITING AND ENGLISH LANGUAGE

Please see the English Language and Writing Support services at the University of Toronto if you feel this would help you: http://www.sgs.utoronto.ca/english/ and http://www.writing.utoronto.ca/advice. Students have commented that they found the latter URL extremely helpful for writing term papers.

The following are also useful:

Sylvan Barnett, *A Short Guide to Writing About Art*. 5-7th edition (New York: Harper-Collins, 1997) William Strunk Jr., E.B. White. The Elements of Style (New York: MacMillan Publishing)

LATE WORK

Late work will not be accepted unless discussed and agreed upon with Professor Mitchell. Under emergency circumstances where a late submission is agreed upon, a penalty of 10% per day will be assessed.