



University of Manitoba
Clayton H. Riddell Faculty of Environment, Earth, and Resources
Department of Environment and Geography

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Course Details

Course Title & Number:	GEOG 2310: Introduction to Process Hydrology (Fall 2023)
Number of Credit Hours:	3.000
Class Times & Days of Week:	Lectures Tuesdays and Thursdays at 10:00
Lecture Room:	Room 243 Wallace
Lecture Materials	UM Learn
Pre-Requisites:	(GEOG 1290 or GEOG 1291 (C), or (GEOG 1200) or GEOG 1201 (C)), and (PHYS 1020 or PHYS 1021 (C), or PHYS 1050 or PHYS 1051 (C), or MATH 1500 or MATH 1501 (C), or MATH 1510 (C), or MATH 1520 (C), or MATH 1530 (C)), or permission of department head.

Instructor Contact Information

Instructor(s) Name:	Dr. Tim Papakyriakou
Preferred Form of Address:	Tim
Office Location:	Room 584 Wallace
Office Hours:	2-3 pm Tuesday by appointment or other times by appointment
Email:	Tim.Papakyriakou@Umanitoba.ca I will generally return emails during business hours (9 AM to 5 PM) within 24 hours that they are received, Monday through Friday, excluding holidays. Emails received on Friday may be answered the following Monday.
Contact:	Email is my preferred mode for contact. Also, I will often be available right after class for quick questions and during office hours.

Course Description

Hydrology is the geoscience dealing with the terrestrial waters of the Earth-Atmosphere system, their occurrence, distribution, and circulation, their chemical and physical properties and their interaction with the environment. The course will expose students to the fundamental processes that dictate the occurrence and distribution of water in the hydrologic cycle, its quality, and its role in shaping both living and non-living components of ecosystems. In practice, hydrologists need to quantify rates at which water is exchanged among the atmosphere, ground, and the ocean, and this often involves manipulating data and solving sets of equations. It's fairly easy to lose sight of the conceptual part of the discipline once you focus on techniques. Thus, a goal of the course is to give a balanced introduction of hydrology -- one that includes a description of the physical processes plus a coherent presentation of the theories and techniques that are used in practice. Emphasis in this course will be placed on the surface limb of the hydrological cycle.

General Course Information

This is a lecture only course (no laboratory section). Assignments (for credit) and practice questions (not for credit) will be posted online periodically over the term to practice the application of theory and methods discussed in class. Although the instructor will provide the lecture slides, some problem-solving exercises may be done interactively in class and not included in the slides made available to the students.

Course Goals

The objective of this course is to understand the fundamental components of the hydrologic cycle, and the relationship of water to living and non-living systems. A goal of the course is to give a balanced introduction of hydrology -- one that includes a description of the physical processes plus a coherent presentation of the theories and techniques that are used in practice.

Using Copyrighted Material

Please respect copyright. We will use copyrighted content in this course. Copyrighted works, including those created by me, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the *Copyright Act* applies or written permission has been confirmed. For more information, see the University's Copyright Office website at <http://umanitoba.ca/copyright/> or contact um_copyright@umanitoba.ca.

Recording Class Lectures

The course instructor (Tim Papakyriakou) and the University of Manitoba hold copyright over the course materials, presentations and lectures which form part of this course. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission by the course instructor. Course materials (both paper and digital) are for the participant's private study and research.

Textbook, Readings, Materials

Course Texts:

Dingman, S.L., 2015, Physical Hydrology, 3rd Edition, Waveland Press, Inc., Illinois, pp. 633

The 3rd edition is recommended. Students may be able to find previous editions at lower costs, and these versions will suffice. It is the student's responsibility however to follow the course material in different editions if the page numbering differs from the recommended text.

Material will also be taken from:

Davie, T., 2008, Fundamentals of Hydrology, 2nd Edition, Routledge Fundamentals of Physical Geography Series, New York. pp 200.

- The text is available for online viewing through the UM Library system

Other compulsory reading material may be provided online through the UM Learn course webpage throughout the term.

Course Technology

It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner. The student web connection should be on 'mute', unless needing to ask a question, or to respond to a question from the Instructor.

Course material will be provided through UM Learn, for information on access and navigation of this resource, see the [Centre For The Advancement Of Teaching & Learning](#).

Class Communication

The University requires all students to activate an official University email account. For full details of the Electronic Communication with Students please visit:

[http://umanitoba.ca/admin/governance/media/Electronic Communication with Students Policy - 2014 06 05.pdf](http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2014_06_05.pdf)

Please note that all communication between myself and you as a student must comply with the electronic communication with student policy

(http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html). You are required to obtain and use your U of M email account for all communication between yourself and the university.

Expectations: I Expect You To

Please be courteous to your fellow students by logging in on time, and refrain from social talk once the class has begun. Audio should be muted unless needing to ask a question, or to respond to a question from the Instructor. Video can be off during the class. I prefer video be on when asking a question, or responding to a question. Class attendance is compulsory. The expectation is that everyone participates in class discussions.

I will treat you with respect and would appreciate the same courtesy in return. See the University of Manitoba Respectful Work and Learning Environment Policy.

Academic Integrity:

Students should acquaint themselves with the University's policy on academic misconduct. (http://umanitoba.ca/student/studentdiscipline/academic_misconduct.html), and Academic supports (<http://umanitoba.ca/student-supports/academic-supports/academic-integrity>).

Below are some tips:

- Learn what is meant by plagiarism, cheating, impersonation and academic fraud
- Unless otherwise specified all work is to be completed independently.
- Keep track of references and sources of information used in written assignments (including web references with date)
- Attribute the source of ideas and material in your written submission
- **If in doubt, consult your instructor.**

Students Accessibility Services

If you are a student with a disability, please contact SAS for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

Student Accessibility Services <http://umanitoba.ca/student/saa/accessibility/>

520 University Centre

204 474 7423

Student_accessibility@umanitoba.ca

Class Schedule

Course material will be organized according to the following modules. Some modules require several lectures to cover. Modules may be subject to change, removal, or presented in a different order depending on the class dynamics. Text chapters associated with the module are given as a rough guide. Lectures will also incorporate material from sources other than the course text.

Module	Class content	Associated chapters and sections from course text*
1	Introduction to hydrology, physical laws, properties of water, dimensions and units, atmospheric scales, systems and balances, watersheds, water storage and residence time	1; Appendix B

2	Hydrological Cycle	2.1.5; 2.1.6; 2.2-2.3
3	Humidity: Water in the atmosphere	3.1-3.2
4	Precipitation	3.4; 4.1-4.4
5	Soils, soil water and sub-surface water flow	7; 8.1
6	Snow and Snowmelt	5.1-5.7
7	Evaporation & Evapotranspiration	3.3-3.5 & 6
8	Infiltration	8.2; 8.3
9	Runoff generation and streamflow	10.1-10.5
10	Groundwater	9.1; 9.3
11	Water quality and contemporary issues	2.2.7
	Review as time permits	

*Sections provided are a rough guideline. Areas of interest within book chapters will be highlighted within lectures. Some material is distributed between book sections. Lectures will also incorporate material from sources other than the course text.

Course Evaluation Methods

The assessments for this course are comprised of two open-book term tests (each worth 26%) and four term assignments (each worth 12%). The term tests will involve calculations using real data, in addition to short- and long answer questions relating to course material, assignments and assigned reading. Tentative dates for the tests are October 15 and December 1. The students will have 24 h to complete the tests.

Assignments will consist of short- answer questions associated with the application of basic equations, synthesis of data and other resources for characterizing water in the environment and the estimation of water flows and properties. In addition, long-answer questions focusing on assigned readings will focus the student on important methods, outcomes, and/or implications of the research contained in the material. Specific details for each assignment, including expectations and due dates will be outlined in class and posted/submitted through UM Learn.

A summary of mark allocation is as follows:

- One mid-term test: 20%
 - Tentative date: October 26.
- Four term assignments: 4 x 10% each = 40%
 - Details, including expectation and due dates surrounding the term assignments will be outlined in class and posted/submitted through UM Learn.
- One final test: 40%
- Total is 100%

Grading

Letter Grade	Percentage out of 100
A+	90-100
A	80-89
B+	75-79
B	70-74
C+	65-69
C	60-64
D	50-59
F	Less than 50

Referencing Style

Assignments should use the APA reference style as outlined [here](#).

Assignment Grading Times

Assignments which are submitted on time will be graded within 1 week of submission or sooner. The final date for voluntarily withdraw from this course is November 21, 2023. Students will have access to marks for one mid-term (worth 30% of the course grade) and two to three of the four assignments (worth 10% of the course grade each) toward of their course grade prior to this date. Students are encouraged to talk with the instructor before a decision to withdraw is made.

Assignment Extension and Late Submission Policy

Unless otherwise stated, assignments are due at **4 pm** of the due date and submitted through UM Learn. Students will not be permitted to write make-up tests or hand in assignments late, except for documented medical or compassionate reasons. Assignments will be penalized -10% for each day, or part therein, late.