PLEASE READ VERY CAREFULLY

UNIVERSITY OF TORONTO SCARBOROUGH 2017/18
Department of Physical and Environmental Sciences

EESC07F GROUNDWATER - Fall Term 2017

Prerequisites: EESA06H3 and 1.0 full credit in B-level EES courses. This year, these prerequisites will be STRICTLY enforced. Note that these are PRE-requisites, not CO-requisites

Ken Howard EV-348 (416 287-7233) gwater@utsc.utoronto.ca (**Note! * See below!!)**
http://www.utsc.utoronto.ca/~gwater/index.html

Your T. A. is **Ana Zaknic-Catovic** azcatovic@utsc.utoronto.ca (**Note! * See below!!)**

This is a basic groundwater hydrology course emphasising the science of groundwater flow. The course begins with the scientific theory of groundwater flow and aquifer storage, and follows with a review of typical hydrogeological environments. Subsequently during the term, more applied subjects are introduced until all the major elements of a quantitative groundwater resource investigation program are covered including some aspects of contaminant transport. **Please note that the course relies heavily on the fundamental principles of physics (notably fluid mechanics).** Students who do not have a good knowledge of basic physics and are not comfortable with complex calculations and numerical problem solving should seriously consider whether this course is appropriate for them.

The course website can be found at http://www.utsc.utoronto.ca/~gwater/EESC07/index.html Most, if not all, the material you need will be found here. All assigned readings are examinable. Material is copyrighted. i.e. feel free to print the lecture material and readings (for **PERSONAL USE ONLY**), but under no circumstances should you print, re-post or redistribute lecture material and assignments in any way.

TEACHING METHOD

The course will comprise 10 or 11 classes starting **SHARP** at **7.10 pm** in **IC230 (on Wednesdays)**. There will also be one very important tutorial given on Darcy's Law by your T.A. **Please do not arrive late.** There will also be about 6 or 7 tutorial assignments/problem sets (for practice), one or two marked problem sets, two mid-term tests (approx.1.5 hours each) and a final exam. Classes normally end between 9.30 and about 10 pm but we sometimes take a short break around 8.30/9.00. Please note that due to my duties as Past-President of the International Association of Hydrogeologists (IAH), (see iah.org), I will be absent from the University on occasion but will schedule one or more extra classes if required. Please visit the website regularly for the latest updates.

Make sure you attend the first class as it will include important material/equations needed for the term.

BIBLIOGRAPHY

You will not need a course text (materials will be supplied). For those who like to have a book on hand, I recommend Applied Hydrogeology by Fetter, C.W. (MacMillan), Freeze, A. and Cherry, J., 1979 - Groundwater (Prentice-Hall), and Domenico, P. and Schwartz, F., 1990 - Chemical and Physical Hydrogeology (Wiley). Other useful texts include Todd: Groundwater Hydrology (Wiley) and, Walton: Water Resource Evaluation (McGraw-Hill). Text books on groundwater usually (though not exclusively) appear under the classifications GB and TC/TD. Please do not "hog" these key books or I'll put them on a strict reserve.

MARKS DISTRIBUTION

One (possibly two) Marked Tutorial Exercises: 15%;
Mid-term Test(s): 30% (dates to be arranged);
Final Exam: 55%.

TUTORIAL EXERCISES

You will be able to access these via the website. The tutorial exercises will usually involve desk-or computer-based problems; no practical work (lab and field work) will be necessary. Typically, only one or two of the assignments/problem sets will be formally marked – the remainder will be self-assessed (essentially practice questions with no associated mark). You will be told which assignments will be marked. At present, only the lecture periods are specifically timetabled. Time will be allocated after the lecture period to discuss the tutorial exercises as and when necessary. You can also visit the TA.

Due to the large number of students in the course, late assignments will not be accepted.

*** Please DO NOT ask questions to either of us via e-mail that need answers longer than 5 words. Answering e-mail queries is very time consuming and is often ineffective. Come to see us during office hours or arrange an appointment. I am also available as long as necessary after class.**