

GEOL 674 – Hydrogeology, Section 1001, Fall 2016

M-W 5:30– 6:45 PM, GUA 2213

Course Format: Lecture twice a week, outside exercises by arrangement

Textbook: Applied Hydrogeology by Fetter, 2nd, 3rd, or 4th Edition is recommended

Books on Reserve: Applied Hydrogeology by Fetter, 2nd edition
Applied Hydrogeology by Fetter, 3rd edition
Ground-water Hydrology and Hydraulics by McWhorter and Sunada
Groundwater and Wells by Driscoll
Groundwater Hydrology by Todd
Physical and Chemical Hydrogeology by Domenico and Schwartz
Others to be determined at a later date

Prerequisites: MATH 127, PHYS 151

Learning Outcomes: After successfully completing this course, students will be able to: 1) explain where groundwater fits within, and interacts with the hydrologic cycle; 2) employ the hydrologic equation to estimate unknown components of the groundwater cycle; 3) describe steady-state groundwater flow through use of Darcy's Law; 3) quantify the principal factors that control saturated groundwater flow (e.g., porosity, hydraulic conductivity, hydraulic head); 4) interpret transient aquifer tests; and 5) explain the advection-dispersion equation in conceptual terms.

Grading policy: Final grades will be assigned in manner consistent with the following schedule. The instructor may also elect to curve the final grades in the students favor.

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<u>Grade</u>	<u>Semester average</u>
A- to A	90 to 100
B- to B+	80 to 89
C- to C+	70 to 79
D- to D+	60 to 69
F	Below 60

Final Grades will be computed as follows:

Three lecture exams (20% each)	60%
Assignments	40%

Notes:

1. Required reading means that you are responsible for knowing the assigned material. Your instructor may test you on that material even if it has not been covered in lecture.
2. No extra credit will be given.
3. No make-up exams, make-up quizzes, or make-up exercises will be given unless you provide a written military or university excuse. So plan to attend class.
4. Students registered for graduate credit will be expected to complete a more extensive set of assignments than those registered for undergraduate credit. The exams for GEOL 674 may also differ from those administered for GEOL 474.

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TENTATIVE CLASS SCHEDULE

Week of:	Planned activities	Reading assignment Fetter, 3 rd ed.
8/29/16	Hydrologic Equation, Evaporation, Transpiration	Chapter 1,2
9/5/16	Labor Day, Stream flow, Infiltration, Discharge	Chapter 3
9/12/16	Darcy's Experiment	Chapter 4
9/19/16	Aquifer Properties	Chapter 4
9/26/16	Hydraulic Head	Chapter 5
10/3/16	Groundwater Mechanics, 1st Exam	Chapter 5
First Exam, Wednesday October 5th		
10/10/16	Groundwater Mechanics	Chapter 5
10/17/16	Flow to Wells	Chapter 7
10/24/16	Flow to Wells	Chapter 7
10/31/16	Flow to Wells, Vadose Zone	Chapter 6
11/7/16	Regional Flow, 2nd Exam	Chapter 8
Second Exam, Wednesday November 9th		
11/14/16	Geology and Groundwater	Chapter 9
11/21/16	Groundwater Chemistry, Thanksgiving	Chapter 10
11/28/16	Groundwater Contamination	Chapter 10
12/5/16	Groundwater Modeling	Chapter 14
Final Exam, Tuesday December 12 th , 6 PM		

Changes to Syllabus: The above lecture schedule is tentative; adjustments to the schedule of topics and reading assignments may be made in accordance with the rate of progress in the classroom. The instructor also reserves the right to change a lecture topic to reflect world events. Students will be provided with an updated syllabus if significant changes are necessary.

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Logistics and Policies

1. Participation - Students in this class will have different backgrounds and levels of educational training. As a result, you may find some material difficult, feel that you are already familiar with some of the concepts, or have personal experiences that can inform us all. Whatever your situation, please share your position with us through class participation. Most importantly, however, if you are confused about a concept, please ask questions in class for clarification and further explanation. You will not be alone in your confusion. There are many ways to present this material, and I will attempt to find one that works for you. If you do not feel comfortable asking questions in class, please contact me for an office appointment.

2. Attendance - It is important that you attend class daily because we cover a lot of material, and I will provide guidance for reading assignments and exam questions regularly. You are responsible for all material covered in lectures no matter what causes your absence. If you miss a lecture, get the notes from a classmate. Topics covered may vary from the schedule somewhat, but the exam dates will remain fixed. If you are absent from a scheduled exam without a written military, or university excuse, you will receive a zero for that exam. If a make-up exam is required due to the excuses listed above, the nature of the make-up exam will be at the instructors' discretion. The final exam is required of all students.

3. Religious Holidays - Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.

4. Official Extracurricular Activity - All students who represent UNLV at any official extracurricular activity have the opportunity to make up an assignment. However, you must provide official written notification to me at least 1 week prior to the missed class(es).

5. Learning Environment - The classroom is intended to be a place of learning. As such, and as specified in the UNLV Undergraduate Catalog, no pagers, cell phones, or other potentially disruptive devices are allowed in either lecture or laboratory. Student usage of laptop computers, recording equipment, or similar devices is only allowed with explicit permission of the instructor, and is restricted to taking notes for this course. Disruptive behavior including, but not limited to those described above, chatting, sleeping, watching video, playing games or texting may result in an administrative withdrawal from the course.

6. Administrative Drops/Classroom Conduct - You are required to be familiar with university policies and procedures in the current UNLV Undergraduate Catalog. Importantly, we follow the policies on Administrative Drops/Classroom Conduct as stated in the most recent UNLV Undergraduate Catalog. Any student that does not comply with these requirements, and conducts themselves in a manner that is disruptive and interferes with the right of other students to learn, or of the instructor to teach will be administratively dropped from the course.

7. Academic Misconduct - Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the Student Academic Misconduct Policy (approved December 9, 2005) located at: <https://www.unlv.edu/studentconduct/student-conduct>. This course operates under a "zero tolerance" policy, meaning that if a student commits cheating or plagiarism they will receive a grade of F for the class.

8. Disability Resource Center (DRC) - The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu/>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the

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course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

9. Incomplete Grades - The grade of I—Incomplete—can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student’s control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

10. Transparency in Learning and Teaching - The University encourages application of the transparency method of constructing assignments for student success. Please see these two links for further information:

<https://www.unlv.edu/provost/teachingandlearning>

<https://www.unlv.edu/provost/transparency>

11. UNLV Writing Center - One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student’s Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>.

12. Tutoring and Coaching - The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit <http://www.unlv.edu/asc> or call 702-895- 3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of the SSC (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TEB second floor.

13. Copyright - The University requires all members of the University Community to familiarize themselves **with** and to follow copyright and fair use requirements. **You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws.** Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at: <http://www.unlv.edu/provost/copyright>.

14. Rebelmail - By policy, faculty and staff should e-mail students’ Rebelmail accounts only. Rebelmail is UNLV’s official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students’ e-mail prefixes are listed on class rosters. The suffix is always **@unlv.nevada.edu**. **Emailing within WebCampus is acceptable.**

15. Library Resources - Students may consult with a librarian on research needs. For this class, the subject librarian is https://www.library.unlv.edu/contact/librarians_by_subject. UNLV Libraries provides resources to support students’ access to information. Discovery, access, and use of information are vital skills for academic work and for successful post-college life. Access library resources and ask questions at <https://www.library.unlv.edu/>.

16. Final Examinations - The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule. See the schedule at: <http://www.unlv.edu/registrar/calendars>.