

Marshall University
GLY 455/555: Hydrogeology – Spring 2015
Syllabus

Course Title/Number	GLY 455/555
Semester/Year	Spring 2015
Days/Time	MWF, 9:00-9:50am
Location	COS 165
Instructor	Bill Niemann
Office	S171
Phone	304-696-6721
E-Mail	niemann@marshall.edu
Web	http://www.science.marshall.edu/niemann/
Office Hours	MWF: 11:00-11:30am; TR: 10:30-11:00am; R: 12:30-1:00p; M: 2:00-4:00pm
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to www.marshall.edu/academic-affairs/policies/ . Academic Dishonesty/Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/Academic Forgiveness/Academic Probation and Suspension/Academic Rights and Responsibilities of Students/Affirmative Action/Sexual Harassment

Course Description

Hydrogeology is about the occurrence and movement of groundwater below the earth's surface as well as its interaction with surface water. Knowledge of this subject area is essential to geologists practicing engineering geology and environmental geology. Hydrogeology is also of interest to civil, geotechnical, and environmental engineers, environmental scientists, ecologists, watershed managers and other scientists who deal with water.

The table below shows the following relationships: How each student learning outcome will be practiced and assessed in the course.

Course student learning outcomes	How students will practice each outcome in this course	How student achievement of each outcome will be assessed in this course
Students will learn and demonstrate understanding of principles and concepts of groundwater occurrence and flow.	Practice quizzes, homework, in-class discussion	Exams, quizzes, homework
Students will learn and demonstrate problem-solving skills related to hydrogeology.	Practice quizzes, homework, in-class discussion	Exams, quizzes, homework

Students will learn and demonstrate reasoning, assessment, and analysis of groundwater problems of varying complexity.	Practice quizzes, homework, in-class discussion	Exams, quizzes, homework
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Required Texts, Additional Reading, and Other Materials

Fetter, C.J., 2001, <i>Applied Hydrogeology</i> , 4 th edition, Pearson Education / Prentice Hall, Inc. ISBN-13: 978-0130882394; ISBN-10: 0130882399
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Course Requirements/Due Dates

Exams are currently scheduled for February 20 th , April 3 rd , and May 8 th . Quizzes and due dates for homework will be announced in advance.
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Grading Policy

Exams = 60%, Quizzes = 25%, Homework = 10%, Attendance = 5%

Attendance Policy

Attendance will be taken at each class meeting. Perfect attendance for the semester is worth 5% of the course grade. Any unexcused absences will be deducted from the attendance total and students will receive a scaled portion of the 5% credit.

GLY 455/555: HYDROGEOLOGY -- SPRING 2015					
COURSE SCHEDULE					
WEEK	DATE	DAY	TOPIC	FORMAT	ASSIGNMENTS
1	12-Jan	M	Introduction to Course	Lecture	Fetter: 1, 11-21, Ch.1 HW
	14-Jan	W	The Field of Hydrogeology	Lecture	Fetter: 1, 1-10
	14-Jan	W	Mono Lake: Performing a Water Balance I	Lab	LFM: Lab 1
	16-Jan	F	The Field of Hydrogeology	Lecture	Fetter: 1, 1-10
2	19-Jan	M	MLK Day -- No Class		
	21-Jan	W	Surface Hydrology	Lecture	Fetter: 2, 24-37, Ch.1 HW due
	21-Jan	W	Mono Lake: Performing a Water Balance II	Lab	LFM: Lab 2
	23-Jan	F	Surface Hydrology	Lecture	Fetter: 2, 37-51, Ch 2 HW
3	26-Jan	M	Surface Hydrology	Lecture	Fetter: 2, 37-51
	28-Jan	W	Aquifer Properties	Lecture	Fetter: 2, 51-55, 57-60
	28-Jan	W	Stream Gaging	Lab	Fetter: 3, 66-81
	30-Jan	F	Aquifer Properties	Lecture / Quiz 1	Fetter: 2, 55-57
4	2-Feb	M	Aquifer Properties	Lecture	Fetter: 3, 81-90, Ch 2 HW due
	4-Feb	W	Aquifer Properties	Lecture	Fetter: 3, 90-93
	4-Feb	W	Measuring Porosity	Lab	LFM: Lab 6
	6-Feb	F	Aquifer Properties	Lecture	Fetter: 3, 90-93
5	9-Feb	M	Aquifer Properties	Lecture	Fetter: 3, 93-100, CH. 3 HW
	11-Feb	W	Aquifer Properties	Lecture	Fetter: 8, 283-297
	11-Feb	W	Measuring Hydraulic Conductivity I	Lab	LFM: Lab 7A
	13-Feb	F	Aquifer Properties	Lecture	Fetter: 8, 283-297

6	16-Feb	M	Aquifer Properties	Lecture / Quiz 2	Fetter: 8, 297-307
	18-Feb	W	Aquifer Properties / Review	Lecture	Fetter: 3, 100-108
	18-Feb	W	Measuring Hydraulic Conductivity II	Lab	LFM: Lab 7B
	20-Feb	F	EXAM 1		
7	23-Feb	M	Aquifer Properties	Lecture	Fetter: 8, 307-319
	25-Feb	W	Aquifer Properties	Lecture	To be announced
	25-Feb	W	Measuring a Storage Coefficient	Lab	Handout
	27-Feb	F	Aquifer Properties	Lecture	To be announced
8	2-Mar	M	Aquifer Properties	Lecture	Fetter: 8, 307-319
	4-Mar	W	Aquifer Properties	Lecture	Ch 3 HW due
	4-Mar	W	Measuring a Storage Coefficient (cont.)	Lab	Handout
	6-Mar	F	Aquifer Properties	Lecture	Fetter: 8, 307-319
9	9-Mar	M	Groundwater Flow	Lecture	Fetter: 4, 113-118,
	11-Mar	W	Groundwater Flow	Lecture / Quiz 3	Fetter: 4, 118-125
	11-Mar	W	Lab -- Midterm		
	13-Mar	F	Groundwater Flow	Lecture	Fetter: 4, 118-125
BREAK	16-Mar	M			
	18-Mar	W			
	18-Mar	W			
	20-Mar	F			
10	23-Mar	M	Groundwater Flow	Lecture	Fetter: 4, 125-131, Ch 4 HW
	25-Mar	W	Groundwater Flow	Lecture	Fetter: 4, 131-136
	25-Mar	W	Modeling Flow I	Lab	Fetter: 13, 519-523 / Handout
	27-Mar	F	Groundwater Flow	Lecture / Quiz 4	Fetter: 4, 131-136

11	30-Mar	M	Groundwater Flow	Lecture	Fetter: 4, 136-140
	1-Apr	W	Groundwater Flow / Review	Lecture	Fetter: 4, 140-146
	1-Apr	W	Modeling Flow II	Lab	Fetter: 13, 528-530 / Handout
	3-Apr	F	EXAM 2	Lecture	
12	6-Apr	M	Groundwater Flow	Lecture	Fetter: 4, 136-140
	8-Apr	W	Groundwater Flow	Lecture	Fetter: 4, 140-146
	8-Apr	W	Field-Testing Aquifer Properties I	Lab	LFM: Lab 9
	10-Apr	F	Groundwater Flow	Lecture	Fetter: 4, 140-146
13	13-Apr	M	Aquifer Testing	Lecture	Fetter: 5, 150-164. Ch 5/10 HW
	15-Apr	W	Aquifer Testing	Lecture / Quiz 5	Fetter: 5, 166-190, Ch 4 HW due
	15-Apr	W	Field-Testing Aquifer Properties II	Lab	LFM: Lab 10
	17-Apr	F	Aquifer Testing	Lecture	Fetter: 5, 166-190
14	20-Apr	M	Groundwater Contamination	Lecture	Fetter: 10, 385-400
	22-Apr	W	Groundwater Contamination	Lecture	Fetter: 10, 400-415
	22-Apr	W	Mapping Potentiometric Surface	FIELD TRIP	
	24-Apr	F	Aquifer Testing	Lecture	Fetter: 10, 400-415
15	27-Apr	M	Groundwater Contamination	Lecture	Fetter: 10, 415-426
	29-Apr	W	Groundwater Contamination	Lecture	Fetter: 10, XXX, Ch 5/10 HW due
	29-Apr	W	Lab Final	Lab	
	1-May	F	Groundwater Contamination	Lecture / Quiz 6	Fetter: 10, 426-428
	4-May	M	FINALS WEEK		
	6-May	W			
	6-May	W			
	8-May	F	EXAM 3, 8:00-1000am		

Grading Rubric

Homework may be scored by use of a v+, v, or v-, indicating above satisfactory (105%), satisfactory (90%) and less than satisfactory (75%), respectively. Significantly incomplete or sloppy work will receive a grade of v-- (50%). A detailed matrix describing this grading method is shown below.

Grade →	v - - (50%)	v - (75%)	v (90%)	v + (105%)
Criterion ↓				
Timeliness	Submitted significantly after due date/time	Submitted after due date/time	Submitted by due date/time	Submitted by due date/time
Completeness	Repeated missing answers/elements	Missing answers/elements	Complete answers/elements	Work product beyond assignment
Neatness	Illegible and/or sloppy	Difficult to read	Easy to Read	Easy to Read
Care	Obvious lack of care	Lack of care	Obvious care	Extraordinary care
Achievement	Multiple missing / incorrect answers	Incorrect answers	Reasonable answers	Correct and thorough answers
Evidence of Learning	No evidence	Lack of evidence	All objectives met	Exceeds objectives