

COURSE INFORMATION GEO 3020/4020: SOIL- AND GROUNDWATER, AUTUMN 2008

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Exercises: Anne Fleig (AF), room 329B, anne.fleig@geo.uio.no

LECTURES: Thursday 10¹⁵ - 12⁰⁰, Auditorium III, Geology. Starts August 28

EXERCISES: Friday 12¹⁵ - 14⁰⁰, Auditorium III, Geology. Starts August 29

New exercises will be made available each Thursday in classfronter. The exercises will be divided into **training exercises** and **obligatory exercises**. During the first hour on Friday we will go through the training exercises. During the second hour you will have time to work on the obligatory exercises and ask questions. The obligatory exercises have to be handed in (to Anne) no later than the following Wednesday.

SEMINAR: During the seminar research articles will be presented in groups of 2 -3 students. Each group presentation should last ca. 15 – 20 min. After the presentation a few questions will be asked by the audience. Suggestions for articles will be handed out on Thursday October 23rd and students can suggest their own articles (on the topic of soil- and groundwater). Each group has choose an article by Thursday October 30th.

EXCURSIONS: Field day: Gardermoen: Thursday, **October 16th**
NVE (Norwegian Water Resources and Energy Directorate), **November 6th**

EVALUATION: The obligatory exercises have to be approved, but will not be marked.
20% Report (field, exercises): individually; due: **November 24th**
20% Seminar (student presentations): group evaluation: **November 20-21st**
60% Written exam, **December 12th**

In all written exercises and the exam the answers can be given in either English or Norwegian. The seminar presentation has to be in English, but questions can be answered in Norwegian.

COURSE PLAN GEO4020/3020

Week	Date	Lecturer	Subject	Reading material
35	Thu 28.08.08	CX	Meteorological elements	App. D.1-3, E (in App E no equations)
35	Fri 29.08.08	Exercises: AF		
36	Thu 04.09.08	CX	I. Energy balance II. Evapotranspiration (i): Definitions, Governing factors, Measurements	I. Ch. 5.4.2 (p.192-203), Ch. 7.3.4 (s.281- 282), App. D.4 II. Ch. 7 - 7.1.2 (272-273) Ch. 7.3.6 (288-290)
36	Fri 05.09.08	Exercises: AF		
37	Thu 11.09.08	Lecture: CX	Evapotranspiration (ii): Physics of evaporation, Estimation methods	Ch. 7.1 - 7.3 (p.273-288), App.D.6
37	Fri 12.09.08	Exercises: AF in Visjonariet	Energy balance, Evapotranspiration	
38	Thu 18.09.08	CX	Evapotranspiration (iii): Bare soil, Transpiration, Interception, Potential and Actual Evapotranspiration	Ch. 7.4-7.8 (291-322)
38	Fri 19.09.08	Exercises: AF		
39	Thu 25.09.08	KRL	Soil- and groundwater introduction	
39	Thu 25.09.08	KRL,CX	Introduction of field assignment	
39	Fri 26.09.08	lab	Porosity and hydraulic conductivity	
40	Thu 02.10.08	KRL	Soil water (i): Definitions (soil and water), soil water tension, capillary rise	Ch. 6.1- 6.2 (220-227) Ch. 6.4.1, App.B.2.2 (542-544)
40	Fri 03.10.08	Exercises: AF	Water binding characteristics	
41	Thu 09.10.08	KRL	Basis for hydrogeology and groundwater flow	Ch. 8.1.1 – 8.1.4 Additional materials
41	Fri 10.10.08	Lab:	Water content and suction	
42	Thu 16.10.08	CX, KRL	Excursion	Compulsory
42	Fri 17.10.08	KRL	Soil-water flow, Water saturation, tension, unsaturated conductivity	Ch. 6.3. & part of 6.4 Additional materials
43	Thu 23.10.08	KRL	Groundwater systems, groundwater flow	Ch. 8.1.1 – 8.1.4 Additional materials
43	Fri 24.10.08	Lab:		
44	Thu 30.10.08	KRL	Water chemistry	Ch. 8.1.1 – 8.1.4 Additional materials
44	Fri 31.10.08	Lab:	Aquifer flow Confined & Phreatic aquifers	Lab exercise 4.1 & 4.2
45	Thu 06.11.08	CX	Visit at NVE	Compulsory
45	Fri 07.11.08	KRL	Transport, dispersion and retardation	Additional materials
46	Thu 13.11.08	KRL	Transport, dispersion and retardation	Additional materials
46	Fri 14.11.08	Lab:	Dispersion and retardation	Additional materials
47	Thu 20.11.08	CX, KRL	Seminar	Compulsory
47	Fri 21.11.08	CX, KRL	Seminar	Compulsory
48	Mon 24.11.08		Delivery of field report	Compulsory
48	Thu 27.11.08	TS	Precipitation-runoff processes	
48	Fri 28.11.08	Exercises: TS	Precipitation-runoff processes	
49	Thu 04.12.08	TS	Precipitation-runoff processes	
49	Fri 05.12.08	CX, KRL, TS	Summary, questions	
51	Fri 12.12.08		Exam	Compulsory