

BIOR17 LIMNOLOGY 15 cr

Fall 2009

Final schedule

TLA = teaching/learning activity. Lec = lecture, Peer = peer group discussions/work, Lab = laboratory or taxonomic training, Exe = in class exercises, Field = field Exeursion, Pres = oral presentations by students, Quiz = physical-chemical limnology and taxonomy tests, Exam = final exam. **All TLA's Except lectures are mandatory.** Note that the class is sometimes divided into two groups for lab work; grp 1 and grp 2. Color coding: **GREEN** = field, **YELLOW** = quizzes, exams, **MAGENTA** = project advisors.

Day	Date	Time	Activity	Location	TLA	Teacher
Tue	1/9	09.15-10.00	Introduction, mandatory attendance	Ä	Exe	KR
		10.15-12.00	Introduction to Limnic ecosystems		Lec	
		13.15-16.15	Physical limnology: light, heat		Lec	
Wed	2/9	09.15-12.00	Chemical limnology: inorganic carbon, salinity	Ä	Lec	KR
Thu	3/9	9.15-11.30	Chem: Phosphorus	Ä	Lec	KR
		11.30 -12.00	Preparation chemistry lab	Ä	Exe	KR
		13.15- 14:00	Introduction: lake data exercise	Ä	Exe	
Fri	4/9	08.15-12.00	Water Chem Lab I, grp 1	Abb	Lab	KR, KL
			Lake data exercise, grp 2 & 3	Ä	Peer	
		13.15-17.00	Water Chem Lab I, grp 1	Abb	Lab	KR, KL
			Lake data exercise, grp 2 & 3	Ä	Peer	
Mon	7/9	08.15 -12.00	Water Chem Lab I, grp 2	Abb	Lab/ Peer	KR, KL
			Lake data exercise, grp 1 & 3	Ä		
		13.15-17.00	Water Chem Lab I, grp3	Abb	Lab/ Peer	KR, KL
			Lake data exercise, grp 1 & 2	Ä		
Tue	8/9	08.15 -12.00	Water Chem Lab II, grp 3	Abb	Lab/Peer	KR, KL
			Lake data exercise, grp 1 & 2	Ä		
		13.15-17.00	Water Chem Lab II, grp 2	Abb		

			Lake data exercise, gr 1 & 3	Ä		
Wed	9/9	09.15-9.45	Lab review: Water chemistry	Ä	Exe	KR
		10.00-12.00	Macrophytes & periphyton ecology	Ä	Lec	HS
		13.15-16.00	Macrophyte Excursion	Field	Field	HS, PH
Thu	10/9	09.15-12.00	Macrophytes, species knowledge, gr A	Ä	Exe	HS, PH
		13.15-16.00	Macrophytes, species knowledge, gr B	Ä	Exe	
Fri	11/9	09.15-12.00	Chem: Nitrogen	Ä	Lec	KR
		13.15-16.00	Presentations lake data exercise	Ä, Blåsippan Gulsippan	Pres	KR
Mon	14/9	09.15-12.00	Macroinvertebrates ecology	Ä	Lec	CB
		13.15-16.00	River Ecology	Ä	Lec	CB
Tue	15/9	09.15-16.00	River and macroinvertebrate excursion	Field	Field	CB, PH
Wed	16/9	09.15-12.00	Macroinvertebrates, species, grA+B	Ä	Exe	CB, PH
		13.15-16.00	Macroinvertebrates, species, grA+B	Ä	Exe	
Thu	17/9	09.15-12.00	Fish Ecology	Ä	Lec	AP, MS
		13.15-16.00	Fish, species knowledge, grA+B	Ä	Exe	AP, MS
Fri	18/9	10.00 -12.00	Zooplankton Ecology	Ä	Lec	SH
		13.15-14.00	Zooplankton Ecology cont.	Ä		KR
		14 - 17.00	Gr A:QUIZ: Phys-chem limnology	Vit- mossan	Quiz	SH, JvE
			Gr B: Zooplankton, species knowledge	Ä	Exe	
Mon	21/9	09.15-12.00	Microbial Ecology	Ä	Lec	EK
		13.15-17.00	Gr. A: Zooplankton, species knowledge	Ä	Exe	SH, JvE
			Gr B:QUIZ: Phys-chem limnology	Mask- rosen	Quiz	KR
Tue	22/9	08.15-12.00	Phytoplankton, species knowledge I, gr A	Ä	Lab	KR, RF
		13.15-17.00	Phytoplankton, species knowledge I, gr B	Ä		
Wed	23/9	09.15-12.00	Phytoplankton Ecology	Ä	Lec	KR

		13.15-15.00	Introduction to Excursion projects: Planning purpose, hypotheses, predictions, methods and equipment productivity & biomass	Ä	Exe	KR, EK, PH
Thu	24/9	08.15-12.00	Phytoplankton, species knowledge II, gr B	Ä	Lab	KR, RF
		13.15-17.00	Phytoplankton, species knowledge II, gr A	Ä	Lab	RF, KR
Fri	25/9	08.15-12.00	Microbial prod. & biomass, part I, grp 3, Abborren ,	Abb	Lab	EK, SE
		13.15-17.00	Microbial prod. & biomass part I, grp 2, Abborren	Abb	Lab	
Mon	28/9	08.15-12.00	Microbial prod. & biomass I, grp 1,	Abb	Lab	EK, SE
			Gr. 2 & 3: QUIZ: Plankton	Ä	Quiz	KR, RF
		13.15-17.00	Microbial prod. & biomass II, grp 3,	Abb	Lab	EK, SE
			Gr. 1: QUIZ: Plankton	Ä	Quiz	KR, RF
Tue	29/9	08.15-12.00	Microbial prod. & biomass II, grp 2,	Abb	Lab	EK, SE
		13.15-17.00	Microbial prod. & biomass II, grp 1,			
Wed	30/9	8.15-12.00	Oral presentations by all project groups.	Ä	Pres	KR, EK et al.
		13.15-14.00	Acidification		Lec	KR
		14-16.00	Preparation of equipment lists, collection of equipment		Peer	KR, EK et al.
Thu	1/10	09.15-12.00	Eutrophication & trophic planktonic interactions	Ä	Lec	KR
		13.15-16.00	Preparation of equipment lists, collection of equipment, protocols		Exe	KR, EK et al.
Fri	2/10	9.15-12:00	Collection of equipment for the Aneboda Excursion	Ä	Exe	KR, EK et al.
		13.00-16.00	Distribution of final plans to all groups and teachers.		Exe	
Mon-Fri	5-9/10	See separate schedule	Aneboda Limnology Excursion See separate schedule!	Aneboda	Field	KR, EK & PH
Mon	12/10	09.15-12.00	Analysis field data	Abb	Lab	KR, EK et al.
		13.15-16.00	QUIZ: Macrophytes,	Ä	Quiz	

macroinvertebrates, fish							MS, PH
Tue	13/10	09.15-16.00	Analysis Field data	Abb	Lab	KR et al.	
Wed	14/10	09.15-16.00	Project work		Exe		
Thu	15/10	09.15-16.00	Project work		Exe		
Fri	16/10	09.15-16.00	Project work		Exe		
Mon	19/10	09.15-16.00	Project work		Exe		
Tue	20/10	09.15-16.00	Project work		Exe		
Wed	21/10	09.15-16.00	Printing of reports Submission deadline: 12.00 hrs Pick-up written reports 15.00 hrs		Exe		
Thu	22/10	09.15-16.00	Prepare oral presentations		Exe		
Fri	23/10	09.15-16.00	Prepare oral presentations		Exe		
Mon	26/10	09.15-16.00	Student oral presentations of project reports	Ä	Pres	KR, EK et al.	
Tue	27/10						
Wed	28/10						
Thu	29/10	09.15-12.00	Review for exam: questions	Ä		T-team	
Fri	30/10						
Mon	2/11	09.15-16.00	FINAL EXAM	Ä	Exam	KR et al.	
Thu	12/11	13 -19	Written final exam re-take	Ä	Exam	KR et al.	

Main course book: Brönmark, C. & Hansson, L.-A. 2005, 2nd edition. The biology of lakes and ponds. Oxford University Press. 285 pp. **and** Kalff, J. 2002. Limnology: inland water ecosystems. Prentice-Hall Inc., Upper Saddle River, NJ., 592 pp.

These books are expected to be available in the KFS & A-F bookstore.

As **supplementary reading or reference book** for those who want a more comprehensive literature: Wetzel, R.G. 1983. Limnology; CBS College Publishing, 767 pp., or Wetzel, R.G. 2001. Limnology, Lake and River Ecosystems, Academic Press, 1006 pp. The department can lend you ca. 10 books of Wetzel 1983 edition.

For each module the responsible teacher will also provide you with **extra reading material** (articles, reports, compendia, etc).

Lecture hall/laboratory. All teaching activities, Except labs, are taught, or at least start, in Ängen ("The Meadow") on the ground floor in the Ecology Building, Sölvegatan 37, Lund. Water chemistry and microbial labs are taught in Abborren ("The Perch") in the middle wing on the ground floor of the Ecology Building.

Attendance. Attendance is mandatory at all teaching/learning activities (TLAs), except lectures. This means presence at all scheduled exercises, taxonomy exercises, labs, presentations and quizzes in order to pass the course. No Excuses except medical issues are accepted (provide doctor's certificate). Labs must be finished, results turned in, and benches cleaned up before you can leave at the end of the day. Attendance during the field Excursions is a requisite to pass the course.

Photocopies. Copying of course material can be done with the course copy card, marked "Limnology", that is available in the copy room on the bottom floor. Private copying is allowed but is charged 65 öre per page. Should be paid to the course coordinator.

Card passes can be checked out at Carl Sjöqvist's office. You need to deposit 120 SEK, but 100 SEK will be returned to you when you return the card at the end of the course. You need cards to get into the Limnology hallways.

Teachers

KR	Karin Rengefors	Professor, course director
CB	Christer Brönmark	Professor
AP	Anders Persson	Associate Professor
EK	Emma Kritzberg	Assistant Professor
RF	Rosa Figueroa	PhD, Postdoctoral Fellow
PHa	Per Hallgren	PhD student
AN	Anders Nilsson	Associate Professor
SH	Samuel Hylander	PhD
SE	Sara Ekström	PhD student
KL	Karen Le Bret	PhD student
JvE	Jessica von Einem	PhD student
MS	Martin Stålhammar	PhD student
HS	Håkan Sandsten	PhD

T-team: ALL lecturers

LUND, 31 August 2009

Karin Rengefors / course coordinator