

Forest Ecosystem Ecology 2024-2025 (BI1443)

Course leaders: Maja Sundqvist and Maria Myrstener

24-10-18

Introduction to Forest Ecosystem Ecology + Group project intro					
Date	Time	What	Topic	Who	Room
Fri 1 Nov	09.00-09.45	Introduction	Course introduction	MS + MM	Aspen
	10.00-10.45	Lecture	Introduction to boreal forest ecosystems	MS+MM	Aspen
	10.45-12.00	Group projects	Introduction to group projects + dividing students into groups	VB+OA+RB H	Aspen
	13.00-14.00	Lecture	Fennoscandian landscapes		JK Aspen
	14.15-16.00	Group projects	Project group meeting / reading		
Mon 4 Nov	09.00-12.00	Group projects	Group meeting with supervisors. experimental design, etc.		Decide with supervisor
	13.00-16.00	Group projects	Experimental set-up / Field work		Decide with supervisor
Tue 5 Nov	All day	Group projects	Field work / Experimental work		Decide with supervisor
Wed 6 Nov	09.00-10.30	Group projects	Literature seminar with supervisor - mandatory	VB+OA+RB H	Decide with supervisor
	10.30-16.00	Reading	Reading for carbon week		

Carbon					
Date	Time	What	Topic	Who	Room
Thu 7 Nov	09.00-10.00	Lecture	Principles of C-stores and C-fluxes. production, consumption and physical transport	MP	Sälgen
	10.00-11.00	Lecture	Carbon allocation, carbon budgets of managed forests	HL	Sälgen
	11.00-12.00	Lecture	Methods to estimate carbon stores and fluxes	AK	Sälgen
	13.00-16.00	Reading			
Fri 8 Nov	09.00-10.00	Lecture	Carbon loss from the ecosystem to the atmosphere	JR	Björken
	10.00-12.00	Lecture	Degradation of organic matter and soil organic matter accumulation in the boreal landscape	JR	Björken
	13.00-16.00	Reading			

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Mon 11 Nov	09.00-10.00	Lecture	Carbon fixation and individual plant growth, water-use efficiency, controls	NH	Sälgen
	10.00-12.00	Exercise	Demonstration. measurements of C-fixation and water use efficiency Response curve analysis	NH	Sälgen
	13.00-16.00	Reading			
Tue 12 Nov	09.00-12.00	Exercise	Biosphere – Atmosphere CO ₂ exchange	JR, AK (MP)	Computer room 3
	13.00-16.00	Exercise	Biosphere – Atmosphere CO ₂ exchange	JR, AK (MP)	Computer room 3
Wed 13 Nov	9.00-16.00	Writing	Summary report writing from exercises. Deadline report. 17.00		Computer room 3

Cycling of nutrients and element biogeochemistry

Date	Time	What	Topic	Who	Room
Thu 14 Nov	09.00-12.00	Reading		JK	
	13.00-16.00	Lecture	Sustainable forest: the geochemical perspective	JK	Aspen
Fri 15 Nov	09.00-11.00	Lecture	Nutrient cycling	JK	Aspen
	12.00-17.00	Independent field work			
Mon 18 Nov	09.00-16.00	Lecture and exercise	Elemental analysis	JK	Bokskogen
Tue 19 Nov	09.00-12.00	Exercise	Analysis of soil chemistry datasets	JK	Bokskogen
	13.00-15.00	Lecture	Nitrogen Cycling	TN	Aspen
Wed 20 Nov	09.00-12.00	Exercise	Remediation of forested ecosystems		Aspen
	13.00-16.00	Exercise	Reading case studies		Bokskogen
Thu 21 Nov	09.00-12.00	Seminar	Seminar case studies. Mandatory.	JK	Aspen
	13.00-16.00	Seminar (continued)			Aspen

Water

Date	Time	What	Topic	Who	Room
Fri 22 Nov	All day	Group projects			

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Mon 25 Nov	09.00-12.00	Lecture	Water cycle in boreal forests, aquatic biogeochemistry (including assignment instructions)	LK	Aspen
	13.00-16.00	Reading	Reading for water week		
Tue 26 Nov	09.00-12.00	Lecture	Eco-hydrology of individual plants	NK	Aspen
	13.00-16.00	Assignment (individual)	Human influences on water		
Wed 27 Nov	09.00-10.00	Lecture	Aquatic-Terrestrial links and effects on ecosystem functioning	MM	Aspen
	10.30-12.00	Interactive lecture	Human influences on the water cycle	LK+MM	Aspen
	13.00-16.00	Assignments (individual + voluntary)	Hydrological modelling assignment Extra assignment 2 (water cycle)		
Thu 28 Nov	09.00-12.00	Assignment (individual)	Hydrological modelling assignment (deadline report and extra assignment 2. 24.00)		
	13.00-16.00	Group projects			

Microbes, soil fauna, and soil food webs

Date	Time	What	Topic	Who	Where
Fri 29 Nov	09.00-09.10		Introduction to reading assignment and seminar	MS	Vita Havet + Zoom (KC)
	09.10-11.00	Lecture	Forest microbial ecology. An introduction	KC	Vita Havet + Zoom (KC)
	13.00-16.00	Group projects			
Mon 2 Dec	09.00-11.00	Lecture	Mycorrhizal symbiosis	NH	Aspen
	12.00- 16.00	Reading	Reading + Work on individual assignments		
Tue 3 Dec	09.00-11.00	Lecture	Microbial nitrogen fixation	SH	Aspen
	13.00-15.00	Lab demo	Cyanobacteria, mycorrhizal fungi, tardigrades, collembola, mites. Mandatory.	SH+ MG + PK + EK	Forest Veg. Ecology lab
Wed 4 Dec	09.00-10.00	Lecture	Soil food web ecology	PK	Vita Havet
	10.00-11.00	Lecture	Plant-soil biota interactions and feedbacks	PK	Vita Havet
	13.00-16.00	Reading	Reading for seminar	MS	

The role of biodiversity in ecosystem functioning

Date	Time	What	Topic	Who	Room
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Thu 5 Dec	09.00-09.15	Assignment	Introduction to assignment on <i>species and ecosystem functions</i> (ignite talks)	MS	Aspen
	09.15-11.30	Lecture	Plant functional ecology	MG	Aspen
	13.00-16.00	Assignment	Own work on the assignment on <i>species and ecosystem functions</i>		
Fri 6 Dec		Catch-up	Catch up on individual assignments / work on extra assignments for higher grades / prepare for seminar		
Mon 9 Dec	9.00-10.00	Seminar	Soil organisms and biodiversity. Mandatory.	MS	Aspen
	10.00-11.00	Lecture	Biodiversity under global change	MS	Aspen
		Own work	Own work on the assignment on <i>species and ecosystem functions</i>		
Tue 10 Dec	09.00-12.00	Assignment	Ignite talks and discussions on <i>species and ecosystem functions</i> . Mandatory.	MS + EK	Aspen
Wed 11 Dec	All day	Group projects			
Thu 12 Dec	09.00-10.15	Lecture	How to write papers that are precise and easy to grasp	MS	Aspen
	10.30-12.00	Lecture	Biodiversity-ecosystem functioning and ecosystem resilience	MG	Aspen
	13.00-16.00	Lecture and group work	“Introduction to assignment “Design your boreal biosphere”, followed by group work.	MS	Vita Havet
Fri 13 Dec	9.00-16.00	Group work	“Design your boreal biosphere”		
Mon 16 Dec	09.00-10.30	Own work	Reading		
	10.45-12.00	Lecture	Multi-functionality of terrestrial ecosystems	MS	Vita Havet
	13.00-16.00	Group projects	Final harvest/data analyses		
Tue 17 Dec	09.00-12.00	Presentations	“Design your boreal biosphere” Mandatory.	MS, MP, MM, JK	Aspen
	11.00-16.00	Group projects	Final harvest/data analyses		
Wed 18 Dec	09.00-16.00	Group projects	Final harvest/data analyses		

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Thu 19 Dec	All day	Own work	Extra assignments, group projects or individual assignments		Book a time with MK + MM
Fri 20 Dec	All day	Own work	Analysis of group project data help	MK + MM	
Mon 23 Dec	All day	Own work	Extra assignments, group projects or individual assignments		

Christmas break

Global change experiments					
Date	Time	What	Topic	Who	Room
Fri 3 Jan	All day	Own work	Extra assignments, group projects or individual assignments		
Mon 6 Jan					
Tue 7 Jan	13.00-15.00	Lecture	Global changes in forest ecosystem ecology – experiments & methods. Mandatory. Deadline Extra assignment 3 at 17.00.	MK	Vita Havet + Zoom

Group projects. data analysis, interpretation, writing, oral presentations + course wrap-up					
Date	Time	What	Topic	Who	Room
Wed 8 Jan	All day	Group projects	Data analyses and report writing	Group leaders	
Thu 9 Jan	All day	Group projects	Report writing	Group leaders	
Fri 10 Jan	All day	Group projects	Report writing + presentation preparation	Group leaders	
Mon 13 Jan	All day	Group projects	Report writing + presentation preparation	Group leaders	
Tue 14 Jan	All day	Group projects	Report writing		
We 15 Jan	12.00-15.00 15.00-16.00	Group projects	Group presentations. Mandatory. Course evaluation + fika	Group leaders MM+MS	Aspen/Vita havet Computer room (3)
Thu 16 Jan		Group projects	Deadline written report group projects 17.00		

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Fri 17 Jan		Assignments	Deadline extra assignment 1 and 4 at 17.00		
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AK = Alisa Krasnova

EK = Eliska Kutakova

HL = Hyugwoo Lim

JR = Joss Ratcliffe

KC = Karina Clemmensen

KV = Kishore Vishwanathan

LK = Lenka Kuglerová

MG = Michael Gundale

MK = Marcus Klaus

MM = Maria Myrstener

MP = Matthias Peichl

MS = Maja Sundqvist

MÖ = Mats Öquist

NK= Nataliia Kozii

VB = Vincent Buness

NH = Nils Henriksson

PK = Paul Kardol

RBH = Ruben Baan Hofman

SH = Stefan Hupperts

TN = Torgny Näsholm

US = Ulf Skyllberg

OA = Olivia Anderson