

## Soil biology and biogeochemical cycles, 15 credits VT2024, BI1322

### Course coordinators:

Eva Krab (EK), Department of Soil and Environment, SLU, [eveline.krab@slu.se](mailto:eveline.krab@slu.se), phone: 018-672470

Karina Clemmensen (KC), Department of Forest Mycology and Plant Pathology, SLU, [karina.clemmensen@slu.se](mailto:karina.clemmensen@slu.se), phone: 018-671874

\* Activities marked with a star are mandatory.

### Course literature |

S: *Schlesinger and Bernhardt: Biogeochemistry*

P: *Paul: Soil microbiology, ecology, and biochemistry*

B: *Bardgett and Wardle: Aboveground-Belowground linkages*

Time slots in blue italics are suggested activities for these times. Meetings with project group members and supervisors will be planned within these blue time slots and/or after agreement. Please note that this schedule may be subject to changes before and during the course. Remember to check for schedule changes regularly on the course websites SLUNIK and Canvas.

Week #	Date	Time	Room	Type	Subject	Book	Teacher	Teacher
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Mon	15-jan		<i>Online Canvas</i>		<i>self study (register, project groups, course prep, learning outcomes etc)</i>			
Tue	16-jan	9.15- 11.00	Sal U	Lecture	Introduction to the course*		Eva Krab	
		11.00 -12.30 <i>12.30-17.00</i>	Sal U	Lecture	Introduction to project work* <i>project work</i>		Eva Krab	
Wed	17-jan	9.15-12.00	Sal U	Lecture	Biogeochemical element cycles	<i>S11,12,13</i>	Jon-Petter Gustafsson	
		<i>12.00-17.00</i>			<i>project work / self study</i>			
Thu	18-jan	9.15-11.00	Sal U	Lecture	Introduction lab practicals*		Karina Clemmensen	
		13.15-17.00	BÖL 1	Practical	Practical work sample preparation*		Karina Clemmensen	Eva Krab/ Péter Garamszegi
Thu	19-jan	9.15- 11.00 <i>11.00-17.00</i>	Sal U	Lecture	Isotopes in biogeochemistry <i>project work / self study/ academic writing 1</i>	<i>S11,12,13</i>	Jon-Petter Gustafsson	
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Mon	22-jan	9.15-11.00 <i>11.00-17.00</i>	Sal U	Lecture	Interactions of the C, N, P and S cycles <i>project work / self study</i>		Marie Spohn	
Tue	23-jan	9.15-11.00	Sal U	Lecture	Greenhouse gasses and climate change	<i>S11,12,13</i>	Katharina Meurer	
		<i>11.00-17.00</i> 17.00			<i>project work / self study</i> <u>Deadline project working plan*</u>	<i>S11,12</i>		
Wed	24-jan	9.15-13.00 <i>13.00-17.00</i>	BÖL 1	Practical	Practical work greenhouse gasses* <i>project work / self study</i>		Maria Hellman	Andreas Lundgren

Thu	25-jan	9.15-11.00 <i>13.00-17.00</i>	Sal U	Lecture	SOM stabilization <i>project work / self study</i>	<i>P12,13</i>	Katharina Meurer	
Fri	26-jan	9.15-13.00 <i>13.00-17.00</i>	BÖL 1	Practical	Practical work greenhouse gasses* <i>project work / self study</i>		Maria Hellman	Andreas Lundgren

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Mon	29-jan	<i>9.00-10.15</i> 10.15-12.00 13.15-15.00 <i>15.00-17.00</i> 17.00	Sal S Sal Z	Lecture Exercise	<i>project work / self study</i> Metabolism Metabolism exercise <i>project work / self study</i> <u>Deadline peer review project working plan*</u>	<i>P9</i>	Chris Jones Chris Jones	
Tue	30-jan	9.00-13.00 14.00-17.00	Datorsal 1 & 2, Biblioteket Sal T	Practical Lecture	Data analyses greenhouse gasses* The Bacteria and Archea <i>project work / self study</i> <u>Deadline revised working plan*</u>		Maria Hellman Sara Hallin	Andreas Lundgren
Wed	31-jan	<i>9.00-17.00</i> 17.00						
Thu	01-feb	9.15-12.00 <i>12.00-17.00</i>	Sal S	Lecture	The Fungi <i>project work / self study</i>	<i>P4</i>	Björn Lindahl	
Fri	02-feb	9.15-11.00 <i>11.00-17.00</i> 17.00	Sal U	Lecture	Fungal ecology <i>project work / self study</i> <u>Deadline lab report 1*</u>	<i>P4</i>	Björn Lindahl	

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Mon	05-feb	9.15-12.00 13.15-17.30	Sal S BÖL 1	Lecture Practical	Molecular community analyses Practical work molecular methods*	<i>P6,7</i>	Stephanie Turner Maria Hellman	Anastasios Samaras
Tue	06-feb	9.15-17.00	BÖL 1	Practical	Practical work molecular methods*		Maria Hellman	Anastasios Samaras
Wed	07-feb	9.15-12.30 <i>12.30-17.00</i>	Datorsal 1 & 2, Biblioteket	Practical	Data analyses molecular methods* <i>project work / self study</i> <i>project work / self study</i> <i>Questions project report</i>		Maria Hellman	Anastasios Samaras
Thu	08-feb	<i>9.00-13.00</i> <i>13.00-17.00</i>					<i>project supervisors</i>	
Fri	09-feb	9.15-12.00 13.15-15.00 <i>15.00-17.00</i>	Sal U Sal T	Lecture Exercise	Ecological concepts Ecological concepts assignment <i>project work / self study/ academic writing 2</i>	<i>P10</i>	Karina Clemmensen Karina Clemmensen	

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Mon	12-feb	9.15-12.00 <i>12.00-17.00</i> 17.00	Sal U	Lecture	The soil fauna <i>project work / self study</i> <u>Deadline lab report 2*</u>	<i>P5</i>	Maria Viketoft	
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Tue	13-feb	9.15-11.00 <i>12.00-17.00</i>	Sal U	Lecture	Soil architecture and structure formation <i>project work / self study</i>	P2	Elsa Arrazola	
Wed	14-feb	9.15-12.00 <i>12.00-17.00</i> 17.00	Sal U	Lecture	Decomposition <i>project work / self study</i> <u>Deadline obs. and exp. approaches assignment*</u>	P12,13	Björn Lindahl	
Thu	15-feb	9.15-12.00 13.15 -15.00 <i>15.00-17.00</i>	Sal U BÖL 1	Lecture Practical	Mycorrhiza Microscopy mycorrhiza <i>project work / self study</i>	P11	Björn Lindahl Tarquin Netherway	Erica Packard
Fri	16-feb	9.15-12.00 <i>12.00-17.00</i>	Sal A132	Lecture	Trophic interactions <i>project work / self study/ academic writing 3</i>	P10,B2	Nadia Maaroufi	

8 *sportlov*

Mon	19-feb	<i>9.00-13.15</i>			<i>project work / self study</i>			
Tue	20-feb	13.15-17.00 9.15-11.00 <i>11.00-17.00</i>	Sal Z	Exercise Lecture	Observational and experimental approaches in soil biology and biogeochemistry Rhizosphere biology <i>project work / self study</i>	S12,13 P11	Marie Spohn Tarquin Netherway/Aurélien Saghai?	
Wed	21-feb	9.15-12.00 <i>12.00-16.00</i> <i>16.00-17.00</i>	Sal Z	Seminar	Group assignment discussing human impacts* <i>project work / self study</i> <i>Supervisor feedback to presentation</i>	P18	Katharina Meurer	Eva Krab
Thu	22-feb	9.15 - 12.00 <i>12.00-17.00</i>	BÖL 1		Soil fauna practical <i>project work / self study</i>		<i>project supervisors</i> Péter Garamzegi	Eva Krab
Fri	23-feb	10.15-17.00	Sal N	Seminar	Oral presentations project work*		Eva Krab	<i>project supervisors</i>

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Mon	26-feb	9.15-12.00 13.15-17.00	Sal S Sal Z	Lecture Exercise	Nitrogen Transformations N-cycling exercise	P14,15	Sara Hallin Chris Jones	
Tue	27-feb	9.15-17.00	BÖL 1	Practicals	Practicals C and N cycling*		Tamlyn Gangiah	Erica Packard
Wed	28-feb	9.15-12.00 <i>12.00-17.00</i>	BÖL 1	Practicals	Practicals C and N cycling* <i>project work / self study</i>		Tamlyn Gangiah	Erica Packard
Thu	29-feb	9.15 - 12.00 13.15-17.00	Sal U Datorsal 1 & 2, Biblioteket	Lecture Practicals	Mineralization Data analysis C and N cycling* <i>project work / self study</i>		Björn Lindahl Tamlyn Gangiah	Erica Packard
Fri	01-mar	<i>9.00-17.00</i>						

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Mon	04-mar	<i>9.00-17.00</i> 17.00			<i>project work / self study</i> <u>uploading deadline data compilation*</u>			
Tue	05-mar	<i>9.00-17.00</i>			<i>project work / self study</i>			

Wed	06-mar	17.00 <i>9.00-17.00</i> 17.00			<i>Deadline project report*</i> <i>project work / self study</i> <i>Deadline peer review project report*</i>		
Thu	07-mar	8.30 -13.00 13.00-14.00 14.00-15.00 <i>15.00-17.00</i>	Datorsal 1 & 2, Biblioteket	Practicals	Data compiling day, analysis and discussion* Course lunch	Karina Clemmensen	Eva Krab
			Sal T	Evaluation	Course evaluation <i>project work / self study</i>	Karina Clemmensen	Eva Krab
Fri	08-mar	9.00-13.00 <i>13.00-17.00</i>			Excursion Norunda <i>project work / self study</i>	Björn Lindahl	Eva Krab

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Mon	11-mar	9.15-12.00 <i>12.00-17.00</i> 17.00	Sal T	Lecture	C/N and modeling in agriculture <i>project work / self study</i> <i>Deadline lab report 3*</i> <i>project work/self study</i> <i>Deadline revised project report*</i>	Thomas Kätterer	
Tue	12-mar	<i>9.00-17.00</i> 17.00			<i>self study</i>		
Wed	13-mar	<i>9.00-17.00</i>			<i>self study</i>		
Thu	14-mar	<i>9.00-17.00</i>			<i>self study</i>		
Fri	15-mar	<i>9.00-13.00</i> 13.15-15.00 <i>15.00-17.00</i>	Zoom/Online	Questions	Questions exam <i>self study</i>	all teachers (0)	

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Mon	18-mar	<i>9.00-17.00</i>			<i>self study</i>		
Tue	19-mar	<i>9.00-13.00</i> 13.00-18.00	Tentamensal 1, Undervisningshuset		Exam		

### Planned examinations

The following written examinations are planned for the course:

1. Regular written examination during the course: *Tuesday the 19th of March 2024, 13.00-18.00, location: to be determined*
2. First re-examination in connection with the course: *Wednesday the 24th of April 2024, 13.00-18.00, Location: to be determined*
3. Additional re-examination: *Wednesday the 27th of August 2024: time and location to be determined*

If you plan to attend a written examination, you must register at the latest 10 weekdays (usually two weeks) beforehand. Registration is made via Ladok. For a regular examination, registration can be done from the start of the course; for re-examination, it opens about four weeks before the examination. Re-examination dates are preliminary. Information on exact time and location for re-examinations will become available when the time approaches.

For access to extended time, separate location or computer for examination, you must inform our course secretary at [mark-kurssektariat@slu.se](mailto:mark-kurssektariat@slu.se); this requires a special decision from the disabled-student office (see <https://www.slu.se/en/education/contact-and-support/disabilities/>).

<b>Teachers</b>	<b>Teaching labs</b>	<b>Literature project supervisors</b>
<i>Elsa Arrazola Vasquez</i>	<i>Karina Clemmensen</i>	<i>Katharina Meurer</i>
<i>Karina Clemmensen</i>	<i>Tamlyn Gangiah</i>	<i>Péter Garamszegi</i>
<i>Jon-Petter Gustafsson</i>	<i>Maria Hellman</i>	<i>Elsa Lagerqvist</i>
<i>Sara Hallin</i>	<i>Eveline Krab</i>	<i>Nadia Maaroufi</i>
<i>Chris Jones</i>	<i>Andreas Lundgren</i>	<i>Rebecca ter Borg</i>
<i>Thomas Kätterer</i>	<i>Tarquin Netherway</i>	<i>Chloe Maclaren</i>
<i>Björn Lindahl</i>	<i>Erica Packard</i>	<i>Andreas Lundgren</i>
<i>Katharina Meurer</i>	<i>Stephanie Turner</i>	<i>Miyanda Chilipamushi</i>
<i>Marie Spohn</i>	<i>Péter Garamszegi</i>	<i>Margaux Boeraeve</i>
<i>Nadia Maaroufi</i>		<i>Monique Smith</i>
<i>Stephanie Turner</i>		
<i>Tarquin Netherway</i>		
<i>Maria Viketoft</i>		