SCIENCE AND EDUCATION FOR SUSTAINABLE LIFE

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BI1044

SLU's ADVANCED PLANT PATHOLOGY MASTER COURSE

FALL SEMESTER 2020
COURSE SCHEDULE

Version June 25, 2020

Department of Forest Mycology and Plant Pathology.
Swedish University of Agricultural Sciences.
Almas Allé 5, 75007. Uppsala. Sweden.

WEEK 36

	- ***Disease diagnostics***: recognizing symptoms and identifying the causing agents. - ***Diseases caused by viruses***: understanding their diversity, life cycles, and impacts on crops.				
	MONDAY 31 AUG.	**TUESDAY 1 SEP.**	**WEDNESDAY 2 SEP.**	**THURSDAY 3 SEP.**	**FRIDAY 4 SEP.**
9:00 **10:25**	# SLU Introduction	**# Lecture [BA]** - Fungal Pathogens Disease Cycle. **Room: BioC-C216 - ZOOM**	# Work on Theoretical Exercise 1.	**# Excursion [DFJ, BA]** - Survey of Field Diseases at SLU (Campus Ultuna). **Field Work**	**# Lecture [AK]** - Transmission of plant viruses **Room: BioC-C216 - ZOOM**
Break					
10:35 **12:00**	**# Theoretical Exercise_1 available on Canvas [AK].**	**# Lecture [AK]** - Introduction to Plant Virology. **Room: BioC-C216 - ZOOM**	# Work on Theoretical Exercise 1.	**# Excursion [DFJ, BA]** - Survey of Field Diseases at SLU (Campus Ultuna). **Field Work**	**# Theoretical Exercise 1** - Group Discussion **Room: BioC-C216 - ZOOM**
Break					
13:00 **14:25**	**# Course Introduction [SB]** - Individual Case Studies. - Course Assignment (TEx1). - Course Canvas. - Contact your Case Study Supervisor. **Room: BioC-C216 - ZOOM**	**# Excursion [AK]** - Survey of Plant Viruses at Uppsala Botanical Garden. **Field Work**	# Work on Case Study.	**# Lab work [DFJ, AB, BA]** - Diagnostics of plant disease from field collected samples. **Room: BÖL 1 – [Secured]**	# Work on Case Study
Break					
14:35 **16:00**	**# Lecture [SB]** - Koch Postulates. **Room: BioC-C216 - ZOOM**	**# Excursion [AK]** - Survey of Plant Viruses at Uppsala Botanical Garden. **Field Work**	# Work on Case Study.	**# Lab work [DFJ, AB, BA]** - Diagnostics of plant disease from field collected samples. **Room: BÖL 1 – [Secured]** **# Submit TEx_1 on Canvas**	# Work on Case Study

WEEK 37

	- ***Diseases caused by fungi***: understanding their diversity, life cycles, and impacts on crops.				
	MONDAY 7 SEP.	**TUESDAY 8 SEP.**	**WEDNESDAY 9 SEP.**	**THURSDAY 10 SEP.**	**FRIDAY 11 SEP.**
9:00 **10:25**	**# Lecture [MK]** - Systematics of the Fungal Kingdom **Room: BioC-C216 - ZOOM**	**# Lab Work [MD, AG, CK]** - Biological Control of Plant Diseases. **Room: BÖL 1 - [Secured]**	**# Lecture [AB]** - The Biology of Rust Diseases. **Room: BioC-C216 - ZOOM**	# Work on Theoretical Exercise_2.	**# Lecture [MK]** - Molecular Characterization of Fungal Pathogens. **Library Data Room-1**
Break					
10:35 **12:00**	**# Lecture [MK]** - Systematics of the Fungal Kingdom. **Room: BioC-C216 - ZOOM** **# Theoretical Exercise_2 available on Canvas [MK]**	**# Lab Work [MD, AG, CK]** - Biological Control of Plant Diseases. **Room: BÖL 1 - [Secured]**	**# Lab Work [AB]** - Diagnostics of Rust Diseases / Rust Stages. **Room: BÖL 1 – [Secured]**	# Work on Theoretical Exercise_2.	**# Theoretical Exercise 2 [MK]** - Group Work **Library Data Room-1**
Break					
13:00 **14:25**	**# Lab Work [MD. AG, CK]** - Biological Control of Plant Diseases. **Room: BÖL 1 – [Secured]**	**# Lab Work [MD, AG, CK]** - Biological Control of Plant Diseases. **Room: BÖL 1 - [Secured]**	# Work on Case Study	# Work on Theoretical Exercise_2.	# Work on Case Study
Break					
14:35 **16:00**	**# Lab Work [MD, AG, CK]** - Biological Control of Plant Diseases. **Room: BÖL 1 – [Secured]**	**# Lab Work [MD, AG, CK]** - Biological Control of Plant Diseases. **Room: BÖL 1 - [Secured]**	# Work on Case Study	# Work on Theoretical Exercise_2. **# Submit TEx_2 on Canvas**	# Work on Case Study

WEEK 38

	- ***Diseases caused bacteria, nematodes, and soil born pathogens***: understanding their diversity, life cycles, and impacts on crops.				
	MONDAY 14 SEP.	**TUESDAY 15 SEP.**	**WEDNESDAY 16 SEP.**	**THURSDAY 17 SEP.**	**FRIDAY 18 SEP.**
9:00 **10:25**	# Work on Case Study	**{moved to the 22}** **# Lecture [JS]** - Invasive Species and New Emerging Diseases. **Room: BioC-C216 - ZOOM**	#Work on Theoretical Exercise 3.	**# Lecture [BA]** - Air Borne and Foliar Pathogens. **Room: BioC-C216 - ZOOM**	**# Lecture [DFJ, MK]** - Damping-Off, Root Rot and Soilborne Pathogens. **Room: BioC-C216 - ZOOM**
Break					
10:35 **12:00**	**# Video Lecture [MP]** (Uni. Helsinki) - Plant Pathogenic Bacteria **Arenander Videokonferens ZOOM** **# Theoretical Exercise_3 available on Canvas [SB]**	**{moved to the 22}** **# Exercise [JS]** - Invasive Species and New Emerging Diseases. **Room: BioC-C216 - ZOOM**	#Work on Theoretical Exercise 3.	**# Lecture [MV]** - Plant Pathogenic Nematodes. **Room: BioC-C216 - ZOOM**	**[moved to Monday 9:00]** **# Theoretical Exercise 3** - Group Discussion. **Room: BioC-C216 - ZOOM**
Break					
13:00 **14:25**	**# Lecture [SB]** - Next Generation Phenomics: Principles and Applications in Plant Pathology. **Room: BioC-C216 - ZOOM**	#Work on Theoretical Exercise 3.	# Work on Case Study	**Mind The Time [14:00]** **# Lab work [MV]** - Plant Pathogenic Nematodes. **Room: BÖL 1 - [Secured]**	# Work on Case Study
Break					
14:35 **16:00**	# Work on Case Study	#Work on Theoretical Exercise 3.	# Work on Case Study	**# Lab work [MV]** - Plant Pathogenic Nematodes. **Room: BÖL 1 – [Secured]**	# Work on Case Study **# Submit TEx_3 on Canvas**

WEEK 39

	- ***Post harvest diseases***: crop depreciation and mycotoxin production - ***Molecular basis of plant pathogen interactions***: From genetic concepts to field applications.				
	MONDAY 21 SEP.	**TUESDAY 22 SEP.**	**WEDNESDAY 23 SEP.**	**THURSDAY 24 SEP.**	**FRIDAY 25 SEP.**
9:00	**# Theoretical Exercise 3** - Group Discussion.	**# Lecture [JS]** - Invasive Species and New Emerging Diseases.	# Work on Case Study	**# Lecture [AB]** - Population Genetics.	**# Lab Work [MD. AG, CK]** - Biological Control of Plant Diseases
10:25	**Room: BioC-C216 - ZOOM**	**Room: BioC-C216 - ZOOM**		**Room: BioC-C216 - ZOOM**	**Room: BÖL 3 – [Secured]**
Break					
10:35	**# Lecture [SB]** - The Gene-For-Gene Interaction Model(s) **Room: BioC-C216 - ZOOM** **# Theoretical Exercise_4 available on Canvas [AB]**	**# Exercise [JS]** - Invasive Species and New Emerging Diseases.	# Work on Case Study	**# Theoretical Exercise 4** - Group Discussion	**# Lab Work [MD. AG, CK]** - Biological Control of Plant Diseases
12:00		**Room: BioC-C216 - ZOOM**		**Room: BioC-C216 - ZOOM**	**Room: BÖL 3 – [Secured]**
Break					
13:00	**# Lecture [MD]** - How Pathogens attack Plants.	# Work on Theoretical Exercise_4	# Work on Case Study	# Work on Case Study	**# Lab Work [MD. AG, CK]** - Biological Control of Plant Diseases
14:25	**Room: BioC-C216 - ZOOM**				**Room: BÖL 3 – [Secured]**
Break					
14:35	**# Lecture [MD]** - The Molecular Basis of Plant Defense.	# Work on Theoretical Exercise_4	# Work on Case Study	# Work on Case Study	**# Group Presentations [MD. AG, CK]** - Biological Control of Plant Diseases
16:00	**Room: BioC-C216 - ZOOM**		**# Submit TEx_4 on Canvas**		**Room: BÖL 3 – [Secured]**

WEEK 40

	- ***Epidemiology of pathogen populations and communities***: How do pathogens spread, persist, and adapt to new crops.				
	MONDAY 28 SEP.	**TUESDAY 29 SEP.**	**WEDNESDAY 30 SEP.**	**THURSDAY 1 OKT.**	**FRIDAY 2 OKT.**
9:00 **10:25**	[Moved to the afternoon] **# Lecture [JZ]** - Plant Disease Epidemiology **Room: BioC-C216 - ZOOM**	**# Lab Work [MD, CK]** - Molecular Detection of Pathogens **Room: BÖL 3 – [Secured]**	# Work on Theoretical Exercise_5	**[moved to Friday 2nd]** ~~**# Lecture [SB]**~~ ~~- Effector assisted breeding.~~	**# Lecture [SB]** - Effector assisted breeding. **Room: BioC-C216 - ZOOM**
Break					
10:35 **12:00**	[Moved to the afternoon] **# Lecture [JZ]** - Plant Disease Epidemiology: Statistical Models **Room: BioC-C216 - ZOOM** **# Theoretical Exercise_5 available on Canvas [MD]**	**# Lab Work [MD, CK]** - Molecular Detection of Pathogens **Room: BÖL 3 – [Secured]**	# Work on Theoretical Exercise_5	**# Theoretical Exercise 5** - Group Discussion **Room: BioC-C216 - ZOOM**	**# Lecture [SB]** - Mechanisms of Adaptation of Plant Pathogens to New Hosts. **Room: BioC-C216 - ZOOM**
Break					
13:00 **14:25**	**[mind the new time]** **# Lecture [JZ]** - Plant Disease Epidemiology **Room: BioC-C216 - ZOOM**	**# Lab Work [MD, CK]** - Molecular Detection of Pathogens **Room: BÖL 3 – [Secured]**	# Work on Case Study	**# Lab Work [MD, CK]** - Molecular Detection of Pathogens **Room: BÖL 3 – [Secured]**	# Work on Case Study
Break					
14:35 **16:00**	**[mind the new time]** **# Lecture [JZ]** - Plant Disease Epidemiology: Statistical Models **Room: BioC-C216 - ZOOM**	**# Lab Work [MD, CK]** - Molecular Detection of Pathogens **Room: BÖL 3 – [Secured]**	# Work on Case Study **# Submit TEx 5 on Canvas**	**# Lab Work [MD, CK]** - Molecular Detection of Pathogens **Room: BÖL 3 – [Secured]**	# Work on Case Study

WEEK 41

	- ***Plant protection:*** How to predict, prevent, and control diseases.				
	MONDAY 5 OKT.	**TUESDAY 6 OKT.**	**WEDNESDAY 7 OKT.**	**THURSDAY 8 OKT.**	**FRIDAY 9 OKT.**
9:00	**# Lecture [Anders Lindgren]** - Plant Protection Extension (Swedish Board of Agriculture) **Room: BioC-C216 - ZOOM**	**# Lecture [BA]** - Chemical Disease Control. **Room: BioC-C216 - ZOOM**	# Work on Theoretical Exercise_6	**# Lecture [BA]** - Fungicide Resistance **Room: BioC-C216 - ZOOM**	**# Lecture [SB]** - Genetic Disease Control **Room: BioC-C216 - ZOOM**
10:25					
Break					
10:35	**# Lecture [Anders Lindgren]** - Plant Protection Extension (Swedish Board of Agriculture) **Room: BioC-C216 - ZOOM** **# Theoretical Exercise_6 available on Canvas [BA]**	**# Lecture [BA]** - Forecasting of Plant Disease Epidemics. **Room: BioC-C216 - ZOOM**	# Work on Theoretical Exercise_6	**# Lecture [DFJ]** - Biological Disease Control **Room: BioC-C216 - ZOOM**	**# Theoretical Exercise 6** - Group Discussion **Room: BioC-C216 - ZOOM**
12:00					
Break					
13:00	# Work on Theoretical Exercise_6	**# Practical Exercise [BA]** - Predicting the need for spraying [Bring Your Computer] **Room: BioC-C216 – Basic Room**	# Work on Case Study	# Work on Theoretical Exercise_6	# Work on Case Study
14:25					
Break					
14:35	# Work on Theoretical Exercise_6	**# Practical Exercise [BA]** - Predicting the need for spraying [Bring Your Computer] **Room: BioC-C216 – Basic Room**	# Work on Case Study	# Work on Theoretical Exercise_6 **# Submit TEx_6 on Canvas**	# Work on Case Study
16:00					

WEEK 42

	- ***Plant protection:*** How to predict, prevent, and control diseases. - ***Integrated Pest Management (IPM)***: How to integrate current knowledge into strategies for durable disease control.				
	MONDAY 12 OKT.	**TUESDAY 13 OKT.**	**WEDNESDAY 14 OKT.**	**THURSDAY 15 OKT.**	**FRIDAY 16 OKT.**
9:00 **10:25**	# Work on Lab Report	**# Group Work [DFJ BA SB]** - Integrated Pest Management **Room: BioC-C216 - ZOOM**	**# Lecture [DFJ]** - Post harvest diseases: principles. **Room: BioC-C216 - ZOOM**	**[New Start 9:55]** **# Group Work [DFJ BA SB]** - Integrated Pest Management **Room: BioC-C216 - ZOOM** **# Finalize and Submit Group Presentations on Canvas Before 9:45**	**# Video Lecture [Tina Henriksson]** - Practical Resistance Breeding. **Arenander Videokonferens ZOOM**
Break					
10:35 **12:00**	**# Lecture [HF]** - Suppressive Soils **Room: BioC-C216 - ZOOM**	**# Group Work [DFJ BA SB]** - Integrated Pest Management **Room: BioC-C216 - ZOOM**	**# Lecture [DFJ]** - Post harvest diseases: mycotoxins. **Room: BioC-C216 - ZOOM**	**# IPM Group Work Presentations** **Room: BioC-C216 - ZOOM**	**# Q&A Course Exams [SB]** Poster exam, case study, and compendium for the oral exam. **#Opponents selection – explanation.** **Arenander Videokonferens ZOOM**
Break					
13:00 **14:25**	**# Lecture [MD]** - RNAi technologies for disease control. **Room: BioC-C216 - ZOOM**	**# Group Work [DFJ BA SB]** - Integrated Pest Management **Room: BioC-C216 - ZOOM**	# Work on Case Study	# Work on Case Study	# Work on Case Study
Break					
14:35	# Work on Lab Report **# Submit Lab Report on Canvas**	**# Group Work [DFJ BA SB]** - Integrated Pest Management **Room: BioC-C216 - ZOOM**	# Work on Case Study	# Work on Case Study	# Work on Case Study

16:00					

WEEK 43

	- ***Final reports***				
	MONDAY 19 OKT.	**TUESDAY 20 OKT.**	**WEDNESDAY 21 OKT.**	**THURSDAY 22 OKT.**	**FRIDAY 23 OKT.**
9:00 **10:25**	# Finalize Poster # Finalize Case Study Report	# Finalize Case Study Report **# Submit Case Study Report Before 10:00 on Canvas.**	# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam	# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam	# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam
Break					
10:35 **12:00**	# Finalize Poster # Finalize Case Study Report	**# Opponents Selection [SB]** **Randomized pairs will be sent by email.**	# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam	# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam	# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam
Break					
13:00 **14:25**	# Finalize Poster # Finalize Case Study Report **# Submit Poster for Printing Before 15:00 on Canvas.**	# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam		# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam	# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam
Break					
14:35	# Finalize Case Study Report	# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam		# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam	# Read Case Study Reports of Others # Prepare Poster Presentations of Your Own Case Study # Prepare for the Exam

16:00					

WEEK 44

	- ***Final exams***				
	MONDAY 26 OKT.	**TUESDAY 27 OKT.**	**WEDNESDAY 28 OKT.**	**THURSDAY 29OKT.**	**FRIDAY 30 OKT.**
9:00 **10:25**	# Poster presentations Students – Take Turns Those at Risk Present Online **Room: BioC-C216 – Basic Room**	# Prepare for the Exam	# Prepare for the Exam	# Final exam **BioC. Room A332** **BioC. Room A336**	
Break					
10:35 **12:00**	# Poster presentations Students – Take Turns Those at Risk Present Online **Room: BioC-C216 – Basic Room**	# Prepare for the Exam	# Prepare for the Exam	# Final exam **BioC. Room A332** **BioC. Room A336**	
Break					
13:00 **14:25**	# Poster presentations Students – Take Turns Those at Risk Present Online **Room: BioC-C216 - Basic Room**	# Prepare for the Exam	# Prepare for the Exam	# Final exam **BioC. Room A332** **BioC. Room A336**	**# Teachers Fika**
Break					
14:35	**# Exam Schedule and Student's Order.** **# Course Evaluation.**	# Prepare for the Exam	# Prepare for the Exam	# Final exam	

16:00	**Room: BioC-C216 - ZOOM**			**BioC. Room A332** **BioC. Room A336**	

Course Leaders

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Teachers

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