

Course schedule: Plant biology for breeding and protection VT2022 (BI1296)

	Scheduled time	Lectures	Teachers	Lecture room (Ultuna/Alnarp)	Literature
Week 3	Mon 17-jan 9-10	Introduction to the course	EALex	Zoom	<b>Mandatory</b>
	Mon 17-jan 10-12	Introduction plant protection biology and history of plant protection	EALex	Zoom	Tronsmo Ch 1+2; Denis Murphy Ch 7, section 7.5 + Ch 9, sections 9.1-9.3
	Tue 17-jan 13-15	Scenario Based learning (SBL) introduction and assignments	AC, Ealex, AM	Zoom	<b>Mandatory</b>
	Tue 18-jan 13-14	Introduction to plant breeding	RO	Zoom	Ortiz_1; Ortiz_2; Ortiz_3
	Tue 18-jan 14-15	Crop domestication	CH	Zoom	Fernie and Yan 2019; Purugganan 2019
	Tue 18-jan 15-16	Domestication of tropical trees	AM	SalH/Plantan	
	Wed 19-jan 10-12	Breeding methods for cereals	AC	Zoom	Tee et al. 1975; El-Hosarya et al. (2014). George Acquah Ch 16
Thu 20-jan 10-12	Phenotyping of climate resilience	ER	Zoom		
Fri 21-jan 13-15	Phenotyping and phenomics	AC	Zoom	George Acquah Ch 12	
Week 4	Mon 24-jan 10-12	Breeding for grain and product quality	RK	Zoom/Plantan	Trocchi et al 2000; Nuttall et al 2017; Guzman et al 2016
	Tue 25-jan 10-12	Plant genetic resources	JS	Zoom/Stora sessionsalen	
	Wed 26-jan 9-11	Horticulture breeding	LG	Zoom	Nocker and Gardiner 2014
	Thu 27-jan 10-12	Challenges in potato breeding	MA	Zoom	
	Fri 28-jan 9-10	Breeding for oil crops	CH	Zoom	Rahman and Jiménez 2016
	Fri 28-jan 10-12	Bioinformatics introduction	GVS	Zoom	
Week 5	Mon 31-jan 9-12	Phenotyping data analysis lab	AC	Zoom	<b>Mandatory</b>
	Tue 01-feb 9-10	Biotechnology - tissue culture and genome editing methods	LZ	Zoom	Songstad et al 2017; Zhu et al 2020; Li et al 2021
	Wed 02-feb 10-12	Introduction to quantitative genetics	MG	Zoom	Bazakos 2017; Nordborg and Weigel 2008; Hill 2010
	Thu 03-feb 13-15	Crop traits of importance for IPM	JAS	Zoom	Stenberg 2017
	Thu 03-feb 15-16	Resistance breeding	MR	Zoom/Plantan	Buerstmayr et al 2019
	Fri 04-feb 10-12	Bioinformatics tools for plant breeding	AC	Zoom	
Fri 04-feb 13-15	SBL discussion and introduction to bioinformatics exercise	AC, ÅL/KKG, AM, EALex/GVS	Zoom	<b>Mandatory</b>	
Week 6	Mon 07-feb 10-12	Methods for Marker Assisted Selection (MAS)	PV	Zoom	
	Tue 08-feb 10-12	Phenotyping the hidden half of the plant to identify traits for edaphic stress tolerance	TC	Zoom	Bishop and Lynch, 2015, Nature Plants
	Wed 09-feb 10-12	Bioinformatics lab	EALex, GVS	Zoom	<b>Mandatory</b>
	Thu 10-feb 10-12	Bioinformatics lab	EALex, GVS	Zoom	<b>Mandatory</b>
	Fri 11-feb 10-12	Forestry breeding	TK	Zoom/Plantan	<a href="#">the-status-of-tree-breeding-low.pdf (skogforsk.se)</a>
Week 7	Mon 14-feb 9-16	Bioinformatics lab, reporting	EALex, GVS	Zoom	<b>Mandatory</b>
	Tue 15-feb 13-15	Bioinformatics gene expression + introduction to seminars	EALex	Zoom/Plantan	<b>Mandatory</b>
	Wed 16-feb 10-12	Overview plant pests and pathogens	EALex	Zoom/Plantan	Ramsak et al 2018
	Wed 16-feb 13-15	Challenges in South Africa: Biofortification of crops and Stem rust in wheat	WB/AB	Zoom	Tronsmo Ch 3-8; Dean et al 2012; Newton et al 2010
	Thu 17-feb 11-12	Seminar: Challenges in South Africa	EALex	Zoom	
	Thu 17-feb 13-14	Viruses	AK	SalH/Plantan	Tronsmo Ch 7; Mansfield et al 2012; Csorba et al 2015
	Thu 17-feb 14-15	Bacteria	RV	Zoom	Tronsmo Ch 6; van der Does and Rep 2017; Fawke et al 2015; Whisson et al 2016
	Fri 18-feb 9-10	Fungi and oomycetes	RV	Zoom	Tronsmo Ch4+5
	Fri 18-feb 10-12	Pest insects - plant-insect interactions, resistance problems and invasive species	KKG	Zoom/Plantan	Tabashnik et al 2008; Izzo et al 2014; Goergen et al 2016
Fri 18-feb 13-16	Microscopy lab	RV/MD	Bö11/Mikroskopisal	<b>Mandatory</b>	
Week 8	Mon 21-feb 13-14	Weeds and weed management	TBC	?	
	Tue 22-feb 9-10	Monitoring pests and pathogens	EALex	Zoom/Stora session	Maes et al 2018; Tedersoo et al 2018
	Tue 22-feb 10-12	Seminar: Pests and pathogens	EALex	Zoom/Stora session	<b>Mandatory</b>
	Tue 22-feb 13-15	Plant innate immunity and defence 1	EALex	Zoom/Plantan	Dean et al 2012; Mansfield et al 2012; Izzo et al 2014
	Wed 23-feb 9-10	Plant innate immunity and defence 2	EAnd	Zoom/Plantan	Tronsmo Ch 10-12; Taiz and Zeiger Ed 6 Ch 23; Su et al 2018; Saijo et al 2018
	Wed 23-feb 10-12	Regulatory perspectives on access to plant genetic resources and biosafety of gene technologies	AS	Zoom	Lenman et al 2015
	Thu 24-feb	Study day			
Fri 25-feb	Study day				
Week 9	Mon 28-feb 10-12	Epidemiology and plant-pathogen interaction in cultivated and wild study systems	ÅL	Zoom/Plantan	Berg and Koskella 2018; Karasov et al 2018; Jousimo et al. 2014
	Mon 28-feb 13-15	Pesticides and biologicals	SR	Zoom/Plantan	Tronsmo Ch 16; Shafi et al 2017; Pandin et al 2017
	Tue 01-mar 10-12	Induced resistance	EALex	Zoom	Bengtsson et al 2014; Balmer et al 2013; Sandroni et al 2020
	Tue 01-mar 13-15	Plant biotech for plant protection and future protection strategies	EALex	Zoom/Plantan	Tronsmo Ch 19; Murphy Ch 9, sections 9.4-9.6
	Wed 02-mar 10-12	Seminar: host resistance	EALex	Zoom/Plantan	<b>Mandatory</b>
	Thu 03-mar 9-11	Plant protection and climate change	EALex	Zoom/Stora sessionsalen	Rayapurama et al 2020; Ngou et al 2021; Arora et al 2019
	Fri 04-mar 9-12	Using mathematical modelling to manage plant resistance and pathogen evolution	LR	Zoom	Mikkelsen et al 2015; Lehsten et al 2017
Fri 04-mar 13-14	SBL discussions	Ealex, ÅL/KKG, AM	Zoom/Plantan	Djidjou-Demasse et al 2017; Rimbaud et al 2018	
Week 10	Mon 07-mar 13-15	Seminar: monitoring, prediction, epidemiology and climate change	EALex	Zoom/Plantan	<b>Mandatory</b>
	Mon 07-mar 15-16	Invasive pests and pathogens and their impacts in our nature (forest as an example)	PS	Zoom	Ramsak et al 2018; Karasov et al 2017; Courbier et al 2020

	Tue	08-mar	10-11	SBL questions	Ealex	Zoom	
	Wed	09-mar		Hand-in of SBL group latest 17:00 CET			<b>Mandatory</b>
	Thu	10-mar	11-12	Impact of combined Abiotic and Pathogen stress on plant growth	Sajeevan Radha Sivarajan	In place Alnarp	Nielsen & Abuley 2017
	Thu	10-mar	13-16	Open seminar NordCrop Plant Health		Crafoord Hall, Alnarp + Zoom	
	Fri	11-mar		SBL preparation for oral presentations			
Week 11	Mon	14-mar		SBL preparation for oral presentations			<b>Mandatory</b>
	Tue	15-mar	10-12	Oral presentations of SBLs for ELLS	EALex, ÅL/KKG, AM, AC	Zoom	
	Tue	15-mar	13-14	Questions before exam	AC, EALex	Zoom	
	Wed	16-mar					
	Thu	17-mar					
	Fri	18-mar	8-11	Exam	AC, EALex	Tentamensal1	

Protection
Breeding
Bioinformatics
SBL

#### Teachers

AB	Angeline Van Biljon, University of the Free State, South Africa
AC	Aakash Chawade
AK	Anders Kvarnheden
AM	Anna Manourova, CZU
AS	Aysegul Sirakaya, Lund University
CH	Cecilia Hammenhag
EALex	Erik Alexandersson
EAnd	Erik Andreasson
ER	Eva Rosenqvist, University of Copenhagen
GVS	Ganaparthi Varma Saripella
JS	Jan Svensson, NordGen
JAS	Johan A Stenberg
KKG	Kristina Karlsson-Green
LG	Larisa Gustavsson
LR	Loup Rimbaud; INRAE
LZ	Lihua Zhu
MA	Muath Alsheikh, Graminor
MD	Mukesh Dubey
MG	Mulatu Geleta
MR	Mahbubjon Rahmatov
PS	Patrick Sherwood
PV	Pernilla Vallenback, Lantmännen
RK	Ramune Kuktaite
RO	Rodomiro Ortiz
RV	Ramesh Vetukuri
SR	Svante Resjö
TC	Tino Colombi
TK	Thomas Kraft, Skogforsk
WB	Willem Boshoff, University of the Free State, South Africa
ÅL	Åsa Lankinen