Processing and analysis of microscopic images in biomedicine, 20.-24.4.2020

	Monday 20.4.	Tuesday 21.4.	Wednesday 22.4.	Thursday 23.4.	Friday 24.4.
8.30	*Registration*	X	X	X	X
9.00 - 9.45	Digital image formation	Image acquisition conditions and deconvolution	I am watching you or what it means "tracking"	Fiji: Macros - Introduction into IJM language	Estimation of volumes using point counting, Cavalieri principle and physical sections (2D stereology)
	Michaela Efenberková	*Ivan Novotný*	*Michaela Efenberková*	*Martin Čapek*	--------------------------------------- Estimation of surface/volume by fakir and particle numbers by disector (3D stereology) **9.00-12.30 (2 parallel groups)**
9.50 - 10.35	Digital image terminology	Huygens: Image deconvolution I	Fiji: Tracking - practicals	Fiji: Using macros for data processing and analysis	
	Ivan Novotný	*Ivan Novotný*	*Michaela Efenberková*	*Martin Čapek*	*Barbora Radochová*
10.35 - 10.55	**coffee**	**coffee**	**coffee**	**coffee**	**coffee**
10.55 - 11.40	Digital image terminology / Introduction into Fiji 1	Huygens: Image deconvolution II	Evaluation of colocalisation in microscopic images	FRAP data analysis	3D analysis: Scale setting, 3D image filtration and measurement in Fiji
	Ivan Novotný / Helena Chmelová	*Ivan Novotný*	*Martin Čapek*	*Michaela Efenberková*	--------------------------------------- Triangulated surfaces reconstruction **9.00-12.30 (2 parallel groups)**
11.45 - 12.30	Introduction into Fiji 2	Huygens: Image deconvolution III (stand-alone practical tasks)	Fiji: Evaluation of colocalisation in microscopic data	Fiji: FRAP data analysis	
	Helena Chmelová	*Ivan Novotný*	*Martin Čapek*	*Michaela Efenberková*	*Jiří Janáček*
12.30 - 13.30	**Lunch**	**Lunch**	**Lunch**	**Lunch**	**Informal lunch with pizza 12.30-13.00**
13.30 - 14.15	Introduction into Fiji 3	Segmentation methods	3D/4D image visualization and analysis in Imaris	3D image processing and geometrical modelling	**Final course evaluation + Certificate handover 13.00-14.00**
	Helena Chmelová	*Martin Čapek*	*Daniel Reisen*	*Jiří Janáček*	
14.20 - 15.05	Image analysis in Fiji	Fiji: Using segmentation for detection of structures in various microscopic images	Imaris: Examples of interactive image analysis and visualization **14.20-16.30 (2 parallel groups)**	Fiji: Image filtration / Morphological image processing and analysis	
	Michaela Efenberková	*Martin Čapek*	*Daniel Reisen*	*Jiří Janáček*	
15.10 - 15.55	Fiji: Stand-alone practical tasks	Fiji: Using Trainable Weka Segmentation for cell finding	Ellipse/Fiji: Evaluation of clustering and colocalisation of point patterns **14.20-16.30 (2 parallel groups)**	Stereological methods and measurement of 3D data	
	Michaela Efenberková	*Martin Čapek*	*Vlada Philimonenko*	*Lucie Kubínová*	
16.00 - 16.20	Short participant test	Short participant test	Short participant test **16.35-16.55**	Short participant test	

Theoretical Lectures

Practicals in One Group

Practicals in Two Parallel Separated Groups