2015	
16.03	**Introduction, cameras and detectors**
09:00-09:45	Welcome
09:45-10:20	Types of light microscope systems
10:30-12:00	Camera and PMT properties
	How to select the correct camera for your application
13:00-14:00	Student presentations: imaging challenge (group 1 and 2)
14:15-15:15	workshops
15:30-16:30	workshops
16:30-17:00	answer exam questions
17.03	**Sample preparation and avoiding bleedthrough**
9:00-10:00	The different types of carriers by Corning
	the different types of mounting media (hardware autofocus)
10:00-10:20	how to seed cells to get even distribution
	How to clean the objectives and the samples. Objective coatings are fragile
	how to fix, stain. DAPI and Hoechst
10:30-12:00	Matching fluorophores and filters spectra
	how to identify and avoid bleedthrough
	Sequential vs simultaneous imaging vs Spectral detectors, virtual filters and unmixing
13:00-14:00	Student presentations: imaging challenge (group 3 and 4)
14:15-15:15	workshops
15:30-16:30	workshops
16:30-17:00	answer exam questions
18.03	**Objectives, resolution and contrast**
09:00-09:50	Specifications of objectives: magnification, WD, NA, ring, immersion, brightness, xyz resolution, depth of field
	Which objective for which application?
	How to care for the objectives?
	comments about exam questions from previous days
10:00-12:00	Resolution and contrast
	Aberrations and diffraction
	Point Spread Function
	Confocal aperture size
	Airy unit, Rayleigh criterion, Abbe's limit and MTF curves
	What is the Nyquist sampling theory and how to use it. scanning density
13:00-14:00	High throughput yeast imaging
14:15-15:15	workshops
15:30-16:30	workshops
homework	answer exam questions about objectives, resolution and contrast
19.03	**Confocal settings and Fluorophores**
9:00-10:20	spherical aberrations
	typical workflow of how to set a confocal: question, objective, sequential or simultaneous, scan area, pixel density, laser po
	When do we care about resolution?
	Saturation, underexposure, bit depth and fluorophore saturation. show tomas figure to demo wrong offfset
	comments about exam questions from previous days
10:30-12:00	What is light?
	What is fluorescence: excitation, emission and lifetime?
	The different types of fluorophores
	Fluorophore specifications (quantum yield, brightness…) and how to judge what a good fluorophore is
	Fluorophore saturation
13:00-14:00	Colocalization
14:15-15:15	workshops
15:30-16:30	workshops
homework	answer exam questions about objectives, resolution and contrast
20.03	**xyz automation and fast imaging**
9:00-10:20	Large image/overview/tiling
	How to find the area of interest in a large sample with minimum bleaching
	Hardware versus software autofocus, focus surface
	Options for fast imaging
10:30-11:15	Stereology by Visiopharm
11:15-12:00	presentation of literature studies group 3 and 4
13:00-14:00	FRAP
14:15-15:15	workshops
15:30-16:30	workshops
23.03	**Volume imaging**
9:00-10:20	The problem of imaging a fluorescent volume: Refractive index matching and scale distortion
	introduction to 2P: Widefield vs confocal vs multiphoton including NDDs, clearing
10:30-11:15	Two photon microscopy theroy, practice, advantages and limitations. Intravital imaging. SHG, THG
11:15-12:00	In vivo imaging of pancreatic beta cell mass and function
13:00-14:00	Light sheet microscopy and Airyscan by Zeiss
14:15-15:15	workshops
15:30-16:30	workshops
24.03	**Special applications, trends and challenges in light microscopy**
9:00-10:20	Imaging live cells: how to assess the cell's health, how to prevent light toxicity
	Special applications: TIRF, Super resolution
	Trends and future challenges in light microscopy
	comments about exam questions from previous days
10:30-11:15	PLA
11:15-12:00	FRET and FLIM
13:00-13:15	comments about exam questions from previous days
13:15-14:00	presentation of literature studies group 1 and 2
14:15-15:15	workshops
15:30-16:30	workshops
25.03	**Data handling, data management, statistics**
09:00-10:00	awareness about potential problems in image processing
	recommendations by major scientific journals about modifying images for publication
10:10-12:00	the different image formats
	clarifying or manipulating?
	the safe way of saving images and backing them up
	how to format images for publishing or poster printing
13:00-14:00	statistics in imaging
14:15-15:15	workshops
15:30-16:30	workshops
26.03	**Image processing and quantitative analysis**
09:00-09:30	quick presentation of ImageJ. microscopy wiki websites, Omero
	Analysis strategy and what to think about before you start imaging
09:30-10:30	Cell Profiler. Students work as pairs
10:40-12:00	Cell Profiler. Students work as pairs
13:00-15:00	Image processing workshop for all groups. Students work as pairs
15:15-17:00	Image processing workshop for all groups. Students work as pairs
27.03	**Minisymposium: Innovation through advanced microscopy- examination**
9:30-10:15	Nobel Prize superresolved fluorescence microscopy
10:15-11:00	Innovation through advanced microscopy
11:00-12:00	Examination
13:00-13:15	Conclusion and feedback