Day 1 (Tuesday 4th of June)		Day 2 (Wednesday 5th of June)		Day 3 (Thursday 6th of June)		Day 4 (Friday 7th of June)	
1000-1015	Welcome, intro	0900-1100	Software presentation and demonstration - group B	0900-1000	Imaris (H)	0900-0945	"Do and don't" in image processing (M)
1015-1130	Basics of confocal microscopy (H)	1100-1115	Coffee break	1015-1030	Cofee break	0945-1000	Coffee break
1130-1215	Lunch	1115-1215	Image representation and processing (E)	1030-1130	Image J (E)	1000-1200	**Workshop 4**
1215-1330	Optimal image acquisition (E)	1215-1300	Lunch	1130-1215	Lunch	1200-1245	Common lunch with evaluation
1330-1415	Fluorochromes & fluorescent proteins (H)	1300-1400	Photoshop CS4 (J)	1215-1415	**Workshop 2**	1245-1445	**Workshop 5**
1345-1400	Coffee break	1400-1415	Coffee break	1415-1430	Coffee break	1445-1500	Coffee break
1400-1445	Sample preparation (?)	1415-1615	**Workshop 1**	1430-1630	**Workshop 3**	1445-1645	**Workshop 6**
1445-1645	Software presentation and demonstration - group A						
1900-	Common dinner						

H: Hege A Dale *J: Jonathen Soulé* *E: Endy Spriet*

The lectures:

Basics of confocal microscopy:
We will compare conventional fluorescence microscopy and confocal microscopy, focusing on the basic principles of confocal imaging.

Optimal image acquisition:
What is a digital image? Resolution in 3 dimensions. What limits the resolution of confocal images? How to acquire the optimal image?

Fluorochromes and fluorescent proteins (FPs):
How to combine different fluorochromes?
An overview will be given of the many different FPs, focusing on advantages and disadvantages of the most commonly used ones.

Sample preparation:
Optimal sample preparation is the most important prerequisite of successful confocal imaging. We will focus on different strategies of preparing your samples, potential problems and tricks to try when things get tough.

Imaging representation and processing:
A digital image can be processed in many ways, either to make it look better or to carry out measurements or quantifications. We will see how simple display adjustments change the perception of an image. We will learn how to use the histogram and lookup-table to optimize image representation. We will also briefly cover the role of human perception.

Software presentation of Leica/Zeiss software:
Introduction to the Leica or Zeiss hardware and software.

Presentation of Adobe® Photoshop® software:
Introduction to the commercial Adobe® Photoshop® software.

Presentation of Imaris software:
Introduction to the commercial, scientific image visualization and analysis software Imaris.

Presentation of Fiji software:
Introduction to the free, scientific image visualization, processing and analysis software Fiji.

DO's and DON'Ts in image processing:
What is image processing and what is manipulation? Which guidelines do I have to follow when creating a figure panel for a publication? What is a "representative" image?

The workshops:

Software presentation and demonstration will be with Endy on the Leica confocal and Hege on the Zeiss confocal. We will go through the most common operating modes of the confocal microscopes, learn how to acquire a correct image and how to acquire Z-stacks, and if time allows it go through more specialized operation modes. Full versions of the confocal software will also be available on the software PC-stations which make it possible to get to know the software better by simulations.

We will have two **confocal hands on** sessions where people are divided into groups of 3 people. On the second session you will be at the microscope mostly on your own and practice what they have recently learned. In the second session you can also bring your own samples.

Software sessions on Photoshop, Imaris and Fiji will be held at a PC-station with 4 PCs. We will give out some tasks for you to solve to learn simple image processing, and tip you on some useful freeware to download at "home".

In order to fit everyone into the schedule, you will all receive two periods of free time (90 min and 2 h) during the course.

We invite participant to bring their own samples to the course. The second confocal hands on session is dedicated to be imaging of own samples.