

Centre for Advanced Microscopy ([CAM](#))

of the Swammerdam Institute for Life Sciences ([SILS](#)), University of Amsterdam ([UvA](#)) organizes

PhD Course: “Confocal Microscopy”

Fundamentals, Advanced techniques and Biological Applications

January 26-30, 2009

The course “*Confocal Light Microscopy*” is an advanced course for PhD students and technicians in biology and biomedical science who need confocal microscopy and other light microscopy technique for their experiments. It is our aim to teach how advanced light microscopy techniques can be used in biological research.

After this course, students will understand the basic optical principles of the confocal microscope and its limitations due to the laws of physics. Furthermore, students will get familiar with the latest developments in advanced technologies like measurement of molecular interaction (FRET, FLIM), of molecular mobility (FRAP, FLIP), live-cell imaging (CLEM, spinning disk), high resolution imaging techniques (e.g. TIRF, 4PI, STED), spectral imaging and image analysis. The course consists of theoretical lectures (50%) and hands-on experiments (50%).

The faculty consists of experts in the field of light microscopy from the Centre of Advanced Microscopy and from other universities. Students are encouraged bring their own samples and to discuss their specific problems with the faculty.

- Topics:**
- Confocal principle and the effect of the pinhole
 - Geometrical optics, optical waves and diffraction
 - Aberrations, magnification and resolution
 - Laser and detectors
 - Fluorescence and fluorescent probes
 - Nyquist sampling theorem
 - Image deconvolution and restoration
 - Colocalisation measurement and image analysis
 - Live cell microscopy, Controlled Light Exposure Microscopy (CLEM)
 - Measurement of FRET, Fluorescence Lifetime Imaging (FLIM)
 - Measurement of molecular mobility (FRAP, FLIP)
 - High resolution microscopy (TIRF, PALM, STED)
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General supervision: Dr. E.M.M. Manders

Faculty: Prof. Dr N. Nanninga, Prof. Dr. G.J. Brakenhoff, Prof. Dr T.W.J. Gadella, Dr M. Hink, Dr J. Goedhart, Dr A. Houtsmuller, Dr R. Hoebe, Dr. E. Manders

Credits: 2 EC

Course fee: EUR 750,- (reduced fee for SILS students). The course fee includes the course book and lunches.

Registration: Fill out the [on-line pre-registration form](#) and press the ‘submit’ button (dead-line for pre-registration: December 18th, 2008). This form should give us information on your level of experience in microscopy and on your expectations of the course. We will make a selection of 8 to 16 students and inform you about your acceptance to the course on December 19th, 2008 (week before X-mass). After your confirmation, we will send out a invoice for the course fee.

Location: Centre for Advanced Microscopy, Swammerdam Institute for Life Sciences, University of Amsterdam Building III, room 1.02, [Kruislaan 316, 1098 SM Amsterdam](#).

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