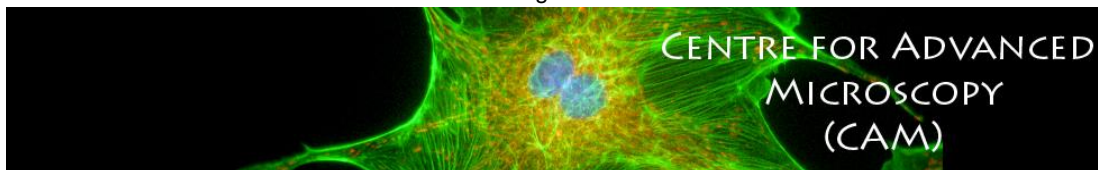


Leeuwenhoek Centre for Advanced Microscopy

of the Swammerdam Institute for Life Sciences
of the Science Faculty
of the University of Amsterdam
organizes



PhD Course

“Confocal Light Microscopy: Fundamentals, Advanced techniques and Biological Applications

May 9-12, 2011

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. In this course we will focus on basic technologies that can be used in biology such as multi-colour confocal microscopy, the use of co-localization coefficients, phototoxicity and how to keep cells alive under the microscope. Furthermore, students will be introduced in 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. PALM, TIRF), 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 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, Co-localization 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), Super resolution microscopy (TIRF, PALM, STED)

Faculty: Prof. dr T.W.J. Gadella (Univ. Amsterdam), Dr M. Hink (Univ. Amsterdam), Dr J. Goedhart (Univ. Amsterdam), Ir. R. Breedijk (Univ. Amsterdam), Dr A. Houtsmuller (Erasmus Univ. Rotterdam), Dr U. Engel (Univ. Heidelberg), Dr R.A. Hoebe (Academic Medical Centre, Amsterdam), Prof. dr. H. Gerritsen (Utrecht University) Dr. H. van der Voort (Scientific Volume Imaging BV), Prof. dr. G.J. Brakenhoff (Univ. Amsterdam), Prof. dr. E. Manders (Univ. Amsterdam)

Credits: 2 EC

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

Registration: See: <http://www.science.uva.nl/research/mc/cam/courses.htm>

Location: Centre for Advanced Microscopy, Swammerdam Institute for Life Sciences, University of Amsterdam, Science Park 904 (Room C2.68), 1098 XH Amsterdam

General supervision and information:

Prof. dr Erik Manders, confocal.amsterdam@Gmail.com, +31-(0)20-525-6225