Quantitative Optical Microscopy for Cell Biology

November 9 – November 13, 2009 (9:30 am to 6:00 pm)

Quarter course

This five-day total immersion quarter course aims to bring together cell biologists and light microscopy specialists to explore requirements and opportunities offered by advance fluorescence light microscopy techniques applied to the quantitative observation in real-time of single molecules and molecular assemblies in living cells and in isolation.

This advanced imaging course is directed towards students, post-doctoral fellows and faculty with previous working experience using fluorescent light microscopy. The course will combine lectures with daily hands-on laboratory practices followed by discussion.

The course is open to all members of the Harvard community, spanning from HMS to all other faculties, Harvard- affiliated research institutions and hospitals. The course is free of charge and can be taken for quarter course credit by FAS or HMS graduate students (students must take TWO quarters before being eligible to receive credit). The experimental component of the course is limited to 12 participants.

Faculty for the lectures includes Tom Kirchhausen (HMS), Colin Monks (3I) and Gaudenz Danuser (HMS). Faculty for the development of course components and the laboratories includes Till Boecking (HMS/IDI), Ema Cocucci (HMS/IDI), David Cureton (HMS/IDI), Comert Kural (HMS/IDI) and Lu Lei (HMS/IDI). Technical support is provided by Regan Baird (3I), Ben Freiberg (3I), Karl Kilborn (3I), Glen Redford (3I) and Eric Marino (IDI).

To ensure maximum participation, each laboratory exercise will be done with a small group of up to 3 students. Laboratory exercises will be done using a total of 4 microscopes equipped with 3 spinning disk confocal heads, 2 total internal reflection fluorescence (TIRF) setups, 2 fluorescence recovery after photobleaching (FRAP)/ photoactivation devices and one Förster resonance energy transfer (FRET)/ fluorescence lifetime imaging microscopy (FLIM). The course is sponsored by the Department of Cell Biology and by the Center for Molecular and Cellular Dynamics at HMS.

For registration and/or further information please contact Tom Kirchhausen (Kirchhausen@crystal.harvard.edu). The deadline for registration is October 30, 2009.