Introduction to fluorescence imaging for the analysis of living cells

Prof. Jean-Yves CHATTON

Dept. Fundamental Neurosciences, Univ. Lausanne

- The course will be given online, along with one in-person Q&A session at the end of the course
  - Recorded video lectures (ca. 2-hour each week) available every week from Tuesdays on
  - Live kick-off session on Tuesday January 5, 2027 (12:15-12:45) on TEAMS
  - In person/hybrid Q&A session with Prof. Chatton on Friday 6, 2026 (12:15 -14:00)
- Lectures will be given in English
- Validation of *ONE* credit for students of the local doctoral schools (FBM and LNDS)

Topics per week:

5 January 2027 : Basics of transmitted light and fluorescence microscopy

12 January 2027 : Confocal microscopy

19 January 2027 : Modes of image formation, acquisition, signal sampling

26 January 2027 : Dynamic recording of cellular functions by fluorescence imaging
Intracellular ion imaging and cellular signaling.
Issues related to imaging of living cells

2 February 2027 : Other optical applications (proposed topics):
Fluorescence recovery after photobleaching (FRAP), photoactivation - optogenetics, multiphoton microscopy, fluorescence resonance energy transfer (FRET), optical contrasting methods (phase contrast, DIC), super-resolution microscopy

5 February 2027 12:15-14:00: Q&A session in person / hybrid (TEAMS)
(Petit Auditoire DNF, rue du Bugnon 9, 1005 Lausanne)

Registration: ***register before Monday 4 January 2027 via the link https://tinyurl.com/FluorescenceImaging***

→ ***Admission to the course is free and open to anyone interested***

Course materials:

- available on Moodle: https://moodle.unil.ch/course/view.php?id=18515
- log in with your institutional address (UNIL, CHUV, EPFL)
- click on "Faculté de Biologie et de Médecine" > "Ecole doctorale / doctoral school" > "Lemanic Neuroscience Doctoral School"
- course materials will be stored under "Introduction to Fluorescence Imaging for the Analysis of Living Cells"
- the login password will be sent to registered participants the day before course start. Please contact Ulrike.toepel@unil.ch in case of problems.