**Advanced Microscopy for Life Science**

Seitz Arne

<table>
<thead>
<tr>
<th>Coursus</th>
<th>Sem.</th>
<th>Type</th>
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<tr>
<td>Approches moléculaires du vivant</td>
<td>Obl.</td>
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<td>Neurosciences</td>
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**Language**: English  
**Credits**: 3  
**Session**: Oral presentation  
**Exam**: Presentation  
**Workload**: 90h  
**Hours**: 45  
**Lecture**: 15  
**Exercises**: 5  
**Practical work**: 25  
**Number of positions**: 16

**Frequency**  
Every year

**Remarque**  
Every year in September. To register, contact EDMS Administration

**Summary**  
For further information, please get in contact with the instructor or have a look on the following web-site:  
http://biop.epfl.ch/

**Content**

- Basic optical principles  
- Light microscopy, fluorescence microscopy  
- Confocal microscopy  
- Fluorescence Resonance Energy Transfer (FRET)  
- Photobleaching, photoactivation techniques, Fluorescence Recovery after Photobleaching (FRAP)  
- Structured Illumination microscopy  
- Localization techniques (PALM, STORM)  
- Stimulated emission depletion microscopy (STED)

**Note**  
Places are limited (16 students) due to hand-on sessions. The selection (if necessary) will be made based on the scientific needs, expressed in a letter of intent (maximally 2000 characters) by the PhD student. It should contain a brief description of the project emphasizing the need of advanced light-microscopy methods. For further information please get in contact with the instructor or have a look on the following web-site:  
http://biop.epfl.ch/

**Keywords**  
Light-microscopy, live-cell imaging, high/super resolution light microscopy.

**Assessment methods**  
Presentation

**Resources**
Websites

- http://biop.epfl.ch/