

CH-601(y)

**Basic and advanced NMR - Level 1 B (Sion)**

Bornet Aurélien

Cursus	Sem.	Type
Chemistry and Chemical Engineering		Obl.

Language of teaching	English
Credits	2
Session	
Exam	Oral
Workload	60h
<b>Hours</b>	<b>40</b>
Courses	20
TP	20
<b>Number of positions</b>	<b>6</b>

**Frequency**

Every year

**Remark**

Next time: Fall 2019

**Summary**

Basic theoretical and experimental aspects of NMR. Students will be familiarized with modern NMR spectrometers.

**Content**

Basic theoretical and experimental aspects of NMR will be taught. Students will be familiarized with modern NMR spectrometers (shimming, locking, tuning, pulse length determination etc). Furthermore they will learn basic NMR experiments:  $^1\text{H}$  and  $^{13}\text{C}$  NMR, different decoupling schemes, relaxation measurements, spin echo techniques, coherence transfer experiments (INEPT), etc. NMR of quadrupolar nuclei and of nuclei with low sensitivity will be treated. The primary intention is to teach PhD students and post-docs so that they can benefit from the NMR spectrometers available at EPFL, and to give them a sound foundation in NMR for various applications in organic and inorganic chemistry. PhD students and post-docs who have followed the course successfully should be able to perform standard NMR experiments independently. They should also be able to help colleagues in various research groups who wish to use NMR.

Passing the theoretical and practical exams will give 2 credits to PhD students.

**Note****Spring semester (Next session Spring semester 2017)**

The course "Basic and Advanced NMR - Part 1" will comprise a theoretical part with mainly ex-cathedra teaching, and practical exercises on research NMR spectrometers. Participation in the practical work will be limited to 6 participants.

**Keywords**

NMR

**Learning Prerequisites****Recommended courses**

Résonance magnétique nucléaire(3rd year course by G. Bodenhausen) or equivalent