

CH-340

**Methods in spectroscopy and dynamics**

Osterwalder Andreas

Cursus	Sem.	Type
Chemistry	BA6	Obl.
HES - CGC	E	Opt.

Language of teaching	English
Credits	3
Session	Summer
Semester	Spring
Exam	During the semester
Workload	90h
Weeks	14
<b>Hours</b>	<b>3 weekly</b>
Courses	2 weekly
Exercises	1 weekly
<b>Number of positions</b>	

**Summary**

We will review modern technique for the determination of structure and dynamics in chemistry. Recent developments in spectroscopy as well as methods that target the fundamentals of chemical reactions will be discussed, and applications will be studied.

**Content**

Recent developments in spectroscopy  
 Reaction dynamics experiments  
 Control of chemical reactions  
 Studies of dynamics in the gas phase, on solid/liquid surfaces, and in bulk liquid

**Learning Prerequisites****Important concepts to start the course**

Quantum Mechanics  
 Spectroscopy  
 Kinetics

**Learning Outcomes**

By the end of the course, the student must be able to:

- Compare different techniques for spectroscopy and dynamics
- Decide on the optimum method for any given problem
- Judge the quality of spectroscopic and dynamic studies
- Describe different experimental methods
- Anticipate the outcome of a particular experiment
- Explain control concepts in chemical dynamics

**Transversal skills**

- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Use a work methodology appropriate to the task.
- Demonstrate a capacity for creativity.
- Demonstrate the capacity for critical thinking

**Expected student activities**

Ask questions, read journal articles