

2. Topic area Organic Chemistry

Module: Advanced Synthetic Methods			
University/department/institute: Freie Universität Berlin/Department of Biology, Chemistry and Pharmacy/Institute of Chemistry and Biochemistry			
Responsible for the module: module lecturers			
Admission requirements: none			
Qualification aims: The students have mastered advanced synthesis methods, in particular processes for C-C bonding. They are familiar with the properties of organometallic reagents and catalysts and recognize reactivity patterns in challenging target molecules. They can apply chemoselective and regioselective reactions in syntheses and synthesis planning and apply the principles of polarity reversal ("Umpolung") and protecting group strategies. They are familiar with new methods in radical and heterocyclic chemistry. They can analyze target molecules in view of suitable synthetic methods and develop suitable syntheses using the organic reactions introduced in this module, working independently and in groups.			
Content: Synthetically important organometallic compounds and their reactions (main group and transition metals); metal-catalyzed C-C bonding processes and functionalization; polarity reversal ("Umpolung"); use of protecting groups for different functional groups; modern and (stereo) selective radical reactions; synthesis and chemistry of heterocycles			
Teaching and learning units	Attendance (Semester hours per week = SH)	Forms of active participation	Study time (hours)
Lecture	2	-	Attendance L 30 Preparation and follow-up L 30
Tutorial	2	Working on problem sets, contributing to discussions	Attendance T 30 Preparation and follow-up T 30 Examination preparation, examination 30
Language of instruction		German or English	
Compulsory regular attendance		Attendance recommended	
Study time, total hours		150 hours	5 CP
Duration of module		One semester	
Module offered		Every winter semester	
Application		Master's program in Chemistry	