Module Name
Advanced Organic Chemistry

Type of Module	**Module Code**
Advanced Module	AM-C-OC

Identification Number	**Workload**	**Credit Points**	**Term**	**Offered Every**	**Start**	**Duration**
MN-C-A-OC	180 Hours	6 CP	1. – 3. Semester	SuSe/WiSe	both	1 Semester

1	**Course Types**	**Contact Time**	**Private Study**	**Planned Group Size**
	a) Lecture b) Seminars	60 h	120 h	20-30 Students

2 Module Objectives and Skills to be Acquired

Students who successfully completed this module…

- have acquired detailed knowledge on current aspects of organic chemistry and related fields with relevance to organic chemistry,
- are able to analyze on a high level the relation between structures, bonding, and physico-chemical properties of organic compounds,
- are able to describe modern synthetic techniques,
- are able to refer about challenging and advanced topics from different areas of modern organic chemistry,
- are able to perform an in-depth analysis of a specific publication to identify its relevant contents and to bring into context with other studies in this area, and to present the results to in form of a brief presentation and discuss them with other students and docents.

3 Module Content

In this course, the Master students will learn, recapitulate and deepen their understanding of modern organic chemistry. The lecture course conveys general knowledge in advanced organic chemistry, and prepares for the more specialized modules in organic chemistry.

Topics:
Physical Organic Chemistry: general concepts, thermodynamics and kinetics, isotopic labeling and isotope effects, Hammett- and related correlations, Marcus theory, pericyclic reactions
Catalysis: General concepts, acid-base catalysis, transition-metal catalysis, organocatalysis, biocatalysis
Heterocycles and Nastural Products: Methods for the synthesis of heterocycles, classes of natural products, occurrence and relevance of heterocycles and natural products
Advanced Synthesis: Retrosynthesis, total synthesis of complex natural products

4 Teaching Methods

Lectures, seminars

5 Prerequisites (for the Module)

Formal: none
With regard to contents: none

6 Type of Examination

Written exam (after successful completion of the seminar)

7	**Credits Awarded** Passed written exam
8	**Compatibility with other Curricula** None
9	**Proportion of Final Grade** 6/114
10	**Module Coordinator** Prof. Dr. A. Berkessel, Prof. Dr. H.-G. Schmalz, Prof. Dr. B. Goldfuss, Prof. Dr. A. G. Griesbeck, Prof. Dr. R. Giernoth, PD Dr. D. Blunk
11	**Further Information** Literature as well as seminar topics will be provided via **ILIAS**.