Peptide Chemistry					
Identification number	Workload	Credit points	Term of studying	Frequency of occurence	Duration
MN-B-SM (B 2)	360 h	12 CP	1st or 2nd term of studying	Summer term, 2nd half	7 weeks

1	Type of lessons	Contact times	Self-study times	Intended group size*
	a) Lectures	25 h	50 h	max. 10
	b) Practical/Lab	154 h	103 h	max. 2
	c) Seminar	4 h	24 h	max. 4

2 Aims of the module and acquired skills

Students who successfully completed this module …

- have a general understanding about the recent developments in the field of peptides including synthetic methodologies, biology of peptides and the application of peptides and peptide conjugates in medicinal or analytical context.
- have acquired working skills to tackle the synthesis of peptides and peptide libraries, to apply deconvolution techniques, and to investigate peptide structure by biophysical methods.
- can independently carry out small scientific projects related to the topic of the module.
- have learned how to present research results in oral and written form and to critically discuss scientific publications related to the topic of the module on a professional level.
- are able to transfer the skills acquired in this module to other fields of biochemistry.

3 Contents of the module

- Synthesis of peptides and proteins (i.e. solid phase peptide synthesis, native chemical ligation, Staudinger ligation, etc.)
- Peptide modifications (i.e. mimetics, labeling strategies, cyclic peptides)
- Peptide libraries and arrays, deconvolution
- Analytical methods (mass spectrometry, Edman degradation, fluorescence techniques, CD spectroscopy)
- Antimicrobial peptides, peptide hormones, cell-penetrating peptides, peptide targeting sequences
- Peptides in diagnostics and therapy

4 Teaching/Learning methods

Lectures; Practical/Lab (Project work); Seminar; Computer exercises, Guidance to independent research; Training on presentation techniques in oral and written form

5 Requirements for participation

Enrollment in the Master´s degree course “Biological Sciences”, in the Master’s degree course “Biochemistry” or in the Master´s degree course “Chemistry”

Peptide Chemistry (MN-B-SM [B 2]) continued

6	Type of module examinations The final examination consists of three parts: Two hours written examination about topics of the lectures and the practical/lab part (50 % of the total module mark), oral presentation (25 % of the total module mark) and seminar paper (25 % of the total module mark)
7	Requisites for the allocation of credits Regular and active participation; Each examination part at least "sufficient" (see appendix of the examination regulations for details)
8	Compatibility with other Curricula Subject module in the Master's degree course "Biological Sciences", biochemical subject module in the Master´s degree course "Biochemistry", combined advanced and experimental module in the Master's degree course "Chemistry"
9	Significance of the module mark for the overall grade In the Master´s degree course "Biological Sciences": 15 % of the overall grade (see also appendix of the examination regulations)
10	Module coordinator Prof. Dr. Ines Neundorf, phone 470-8847, e-mail: ines.neundorf@uni-koeln.de
11	Additional information Subject module of the Master´s degree course "Biological Sciences", Focus of research: (B) Biochemistry, Biotechnology and Biophysics Participating faculty: Dr. C. Chollet, Prof. Dr. I. Neundorf Literature: • Sewald, N., Jakubke, H.-D. (2009) Peptides: Chemistry and Biology. 2nd edition, Wiley-VCH • Further original publications will be handed out at the introduction to the module General time schedule: Week 1-5 (Mon.-Fri.): Lectures, practical/lab, preparation for the seminar talk (topic and date will be arranged individually); Week 6 (Mon.-Fri.): Writing seminar paper; Week 7 (Mon.-Fri.): Preparation for the written examination Note: The module contains hand-on laboratory work conducted by small groups of students and individually and is taught in course rooms and research laboratories. The module does not contain computer-based practicals/ research as a main component. Introduction to the module: June 08, 2020 at 8:30 a.m., seminar room third floor, Zülpicher Str. 47a (building 301, COMB) Written examination: July 17, 2020, second/supplementary examination August 28, 2020. More details will be given at the beginning of the module.

* 2 students from the Master´s degree course"Biological Sciences", 4 students from the Master's degree course "Biochemistry" and 4 students from the Master´s degree course "Chemistry".