

INTRODUCTION AREA

3 CP

I1 Study course overview (3 SWS | 3 CP):

Welcome Event S (1|1) & Introd. research groups S (2|2)

PROGRAM STRUCTURE MASTER BIOCHEMISTRY**compulsory module****coursework**

(SWS | CP)

(L = Lecture, S = Seminar, P = Practical course, T = Tutorial, Pro = Project, V = Vorlesung, Ü = Übung)

CORE AREA**CORE AREA 1: Cellular & Organismic Biochemistry (8-27 CP)
at least 2 modules****C1.1 Advanced Cell Biology (4-6 SWS | 5-8 CP):**

L (2|3) + P (2|2) or/and S (2|3)

C1.2 Cellular and Molecular Neurobiology (4-6 SWS | 5-8 CP):

L (2|3) + P (2|2) or/and S (2|3)

C1.3 Cellular Biochemistry (2 SWS | 4 CP):

L + self study (2|4)

C1.4 Infection and Pathobiology (4-6 SWS | 6-8 CP):

S (2|4) & L (2|2) or/and L (2|2)

**CORE AREA 2: Molecular Biochemistry (6-24 CP)
at least 2 modules****C2.1 Advanced Methods in Biochemistry**

(2-4 SWS | 3-7 CP): L (2|3) & optional S (2|4)

C2.2 Membrane Biology (2-3 SWS | 4-5 CP):

L + self study (2|4) & optional S (1|1)

C2.3 Advanced Molecular Biology & Microbiology

(2-3 SWS | 3-5 CP): L (2|3) & optional S (1|2)

C2.4 Biological Synthesis (4 SWS | 7 CP):

S (2|4) L (2|3)

**CORE AREA 3: Biochemical Methods (6-24 CP)
at least 2 modules & at least 1 practical module****C3.1 Methods for Structural Biology and Biophysics**

(2-4 SWS | 3-7 CP): L (2|3) & optional S (2|4)

C3.2 Advanced Methods in Membrane Biochemistry

(4 SWS | 5 CP): P Electrophysiology (2|2) &

P Reconstitution (2|3)

C3.3 Advanced Methods in Biochemistry and Biophysics(1,5-5,5 SWS | 3-9 CP): *At least 2:*

P Solution-NMR (1|2) / P Mass Spectrometry (0,5|1) /

P Solid-state NMR (1|2) / P X-Ray (1|2) / P Introduction to

biological EM with image processing (2|2)

C3.4 Structural Bioinformatics (2 SWS|3 CP): L+T (2|3)**APPLIED RESEARCH**

34 CP

A1 Group Research Proposal S (2 SWS |6 CP): A2 Developing a research project Pro (8 CP)**A3 Research Internships I & II (2x30 working days | 20 CP)**

30 CP

A4 Master Thesis

6 months

S in total 120 CP: 67 CP + max. 15 CP + min. 38 CP**ELECTIVE AREA: max. 15 CP (some imported modules are in German cf. title)****Focus Biochemistry****E1.1 Advanced biophysical methods (4 SWS | 5 CP):** S (2|3) + P (2|2)**E1.2 Solid state NMR spectroscopy (4-7 SWS| 7-10 CP):**

L (2|4) + P (3|3) and/or S (2|3)

E1.3 Liquid-state NMR spectroscopy (4-7 SWS | 6-9 CP):

L (2|3) + L (2|3) and/or P (3|3) and/or S (2|3)

E1.4 EPR spectroscopy (4-7 SWS | 7-10 CP): L (2|4) + P (3|3) or/and S (2|3)**E1.5 Einzelmolekülspektroskopie und hochauflösende Mikroskopie**

(4 SWS|6 CP): V (2|4) + Ü (2|2)

E1.6 Biophysik (2-12 SWS | 3-15 CP)

V1 + Ü (2,5+1,5|5) or V2 (2|3) optional S (2|3) und/oder P (4|4)

E1.7 Röntgenstrukturanalyse (3-7 SWS | 5-9 CP): V (3|5) optional P (4|4)**E1.8 Modeling and simulation of biomolecules (2+2 SWS | 6 CP):** L + T**E1.9 Struktur + Funktion v. Biomakromolek. (4 SWS | 7 CP):** V (3|5) + Ü (1|2)**E1.10 Statistics and Data analysis (3 SWS | 4 CP):** L + T**E1.23 iGem (2-4 SWS | 3-7 CP):** Project development (2|3) + Project implemtentation (2|4)*for details see module description***E1.24 Adv. Bottom-up Synthetic Biology (2 SWS | 4 CP):** S (2|4)**Focus Chemistry****E1.11 Fortgeschrittene Organische**

Chemie (3 SWS | 5 CP):

V (2|3) + Ü (1|2)

E1.12 Chemische Naturstoff-**synthese (4 SWS | 7 CP):**

V (3|5) + Ü (1|2)

E1.13 Chemie der Heterozyklen

(3 SWS | 5 CP): V (2|3) + Ü (1|2)

E1.14 Highlights der Organischen

Chemie & Chemischen Biologie

(2 SWS | 4 CP): S

E1.15 Laserchemie (3 SWS | 5 CP):

V (2|3) + Ü (1|2)

Focus Biology**E1.16 Molecular Biosciences**

(4 SWS | 6CP): 4 x L (1|1,5) out of 6

V (2|3) + Ü (1|2)

E1.17 Toxikologie & Ökologie

(4 SWS | 6 CP): 2 aus 3 V (2|3)

E1.18 Fortgeschrittene Chem.

Biologie (2 SWS | 5 CP): V + Ü

E1.19 Fortgeschr. Chem. Bio – Pra.

(4 SWS | 6 CP): P (3,5|5) + S (0,5|1)

Focus Pharmacology**E1.20 Pharmacology (4 SWS | 6 CP):** S**E1.21 Computational drug design**

(4 SWS | 5 CP): L (2|3) + P (2|2)

E1.22 Wirkstoff-/Arzneimittelentwickl.(2,5-4 SWS | 5-6 CP): *Medizialchemie od.**Biochemie* V (2|3) + S (0,5|2) opt. S (1,5|1)**Free elective area max. 10 CP****E2.1 Schlüsselqualifikationen**

(2-6 SWS | 3-9 CP): S

· Mentoring/Tutoring (2|3),

· Patentrecht (2|3),

· Scientific English (2|3),

· Deutsch als Fremdsprache (2|3)

E2.2 Wirtschaftswissen-**schaften (3-9 SWS | 5-15 CP):**

· V+Ü:

· Einführung in die VWL (5 CP)

· Accounting 5 CP)

· Marketing 1 (5 CP)

· Finanzen 1 (5 CP)

· Politik und Wirtschaft (5 CP)

· Mikroökonomik 1 (10 CP)

on request every other GU module