BIO-M-PM-SMR

1.	***Name des Moduls*** ***Module title***	Praktisches Modul / Practical module: Single molecule analysis of RNA-protein complexes	
2.	***Verantwortlich / person responsible***	Prof. Dr. Neva Caliskan	
3.	***Inhalte des Moduls/ Module contents*** - Introduction into RNA structure analysis - Introduction into single-molecule force spectroscopy and microscopy - Generation fluorescence tags or reporters to monitor dynamics of RNA and protein complexes - Mediation of basic molecular biological and biochemical applications - Consolidation of biochemical and single molecule analysis methods corresponding to the research project - Independent theoretical processing of the whole project - Presentation and discussion of own experimental data in a written and an oral presentation		
4.	***Qualifikationsziele des Moduls / zu erwerbende Kompetenzen*** ***Qualification objectives of the module / skills to be acquired*** After successful completion of the module, students - are able to handle basic practical and theoretical problems under supervision - learn methodical practice and approaches to solve complex problems in RNA biology and single molecule field - are able to perform independently scientific experiments involving RNA and protein complexes - achieve the ability to record their own project aims and their experimental results and interpret them in an appropriate and critical way - are capable to present and discuss their own research results in a coherent way		
5.	***Teilnahmevoraussetzungen / Prerequisites for participation***		
	a) empfohlene Kenntnisse / recommended knowledge	Grundlegende Kenntnisse in Biochemie, Biophysik und/oder molekularer Biologie / A basic understanding of biochemistry, biophysics and/or molecular biology	
	b) verpflichtende Nachweise / mandatory courses	keine / none	
6.	***Verwendbarkeit des Moduls / Module can be used for***	Master Biologie - Schwerpunkt Biochemie / Master Biology - focus subject Biochemistry	
7.	***Angebotsturnus des Moduls / Module is offered***	Jedes Semester / every semester	
8.	***Das Modul kann absolviert werden in / Module can be completed in***	einem Semester / one semester	
9.	***Empfohlenes Fachsemester / Recommended semester of study***	1.- 3. Semester	
10.	***Arbeitsaufwand des Moduls / workload***	*Arbeitsaufwand in Stunden (Std.) / workload (hrs):* *Gesamt / total* *davon: / including:* *1. Präsenzzeit / attendance* *2. Selbststudium inkl. Vorbereitung z. Prüfung / independent study including exam preparation*	 360 Std./hrs 210 Std./hrs 150 Std./hrs
		Leistungspunkte / credit points (= ECTS)	12 LP/CP
		Semesterwochenstunden (SWS) / hours per week	14 SWS/CHs
11.	*Das Modul ist erfolgreich absolviert, wenn die unten näher beschriebenen Leistungen erfüllt sind.*		

	The module is successfully completed when the prerequisites described in detail below have been fulfilled.

12. *Modulbestandteile / Module components*

Nr./ No.	*P/WP C/CE*	*Lehrform / Type of course*	*Themenbereich / subject area*	*SWS /CHs*	LP /CP	*Studienleistung/ academic achievement*
1	P / C	Laborpraktikum (6 Wochen) laboratory course (6 weeks)	Single molecule analysis of RNA-protein complexes	14	12	

13. *Modulprüfung/ Module examination*

Kompetenz, Thema / Competence, topic	*Art der Prüfung / Type of examination*	*Dauer / Duration*	*Zeitpunkt / Time of examination*	*Anteil an Modulnote / percentage module grade*
RNA Biology, single molecule data analysis	Portfolio* Portfolio examination*	siehe 14. see 14.	nach Vereinbarung / by arrangement	100%

14. *Bemerkungen / notes*

* Das Portfolio beinhaltet:

a. Praktikumsbericht mit 4.000-10.000 Wörtern inkl. Literaturverzeichnis,
b. wissenschaftlicher Vortrag (15-30 min),
c. Versuchsdurchführung (z.B. experimentelle Arbeit, Programmieren, Datenanalyse),
d. Daten, Protokolle und Aufzeichnungen, auch elektronische Daten, der wissenschaftlichen Arbeit nach den Prinzipien der guten wissenschaftlichen Praxis.

* The portfolio examination contains following:

a. Internship report of 4.000–10.000 words, including a bibliography,
b. Scientific presentation (15-30 min),
c. Experiment implementation (e.g. experimentation, programming or data analysis),
d. Data, protocols, and records -including electronic data- from scientific work, prepared in accordance with the principles of good scientific practice.

Es wird empfohlen das Theoretische Modul BIO-M-TM-RITS RNA–Protein Interactions in Time and Space gleichzeitig zu belegen.

It is recommended to simultaneously attend the theoretical module BIO-M-TM-RITS RNA–Protein Interactions in Time and Space.