Integrative Topics in Microbiology (M4452)					Stand: 4.2.2019
ECTS-Punkte	Arbeitsaufwand [h]	Dauer	Turnus	Semester	
14	420	1 Semester	WiSe	2 oder 3	

Lehrveranstaltungen	Typ	Umfang [SWS]	Präsenz [h]	Eigenstud. [h]	Gruppengr.
Lecture	V	2	30	90	
Practical	PExp	18	240	60	16

Modulverantwortlicher	Prof. Dr. M. Feldbrügge
Beteiligte Dozenten	I. Axmann, M. Bott, M. Eisenhut, M. Feldbrügge J. Frunzke, S. Gould, J. Hegemann, K.-E. Jaeger, E. Nowack, H. Schaal, L. Schmitt, M. Zurbriggen
Sprache	English

Verwendbarkeit des Moduls	Studiengang	Modus
	M.Sc. Biochemie M.Sc. Biochemistry International M.Sc. Biologie	Elective

Lernziele und Kompetenzen

Students have learned the concepts and methods of modern microbial science and are capable of using them. They have adopted genetic, molecular biological and biochemical techniques and can apply these techniques independently. Students are familiar with the major scientific equipment and are capable of using the instruments precisely and independently.

Inhalte

Lecture:
Microbial cell biology: Cell biology of eukaryotic microorganisms - Filamentous fungi - RNA biology - Membrane trafficking - From endosymbionts to cellular organelles - Cyanobacteria
Microbial pathogenicity: Chlamydia - Bacterial and fungal pathogens - Plant microbe interactions - Virology and splicing - Bacteriophages
Microbial biotechnology: Corynebacterium biology and applied sciences - Bacterial biotechnology and lipases - Lov domain proteins: bacterial sensing and signalling - Heterologous protein expression in fungi -
Structural biology and protein expression in *E. coli* – Cyanobacteria – Synthetic Biology
Practical: *The practical course will cover modern methods in molecular biology*:
e.g. DNA - and RNA isolation methods, fluorescence microscopy, gel-electrophoresis, PCR;
and biochemistry:
e.g. immuno-localization and purification of proteins, analysis of enzyme kinetics and regulatory properties of proteins.
The practical course will consist of research projects in the laboratories of the participating lecturers. The laboratory can be chosen according to the student's interest. The methods to be learned will depend on the research project.

Teilnahmevoraussetzungen	Keine
Studienleistungen	Regelmäßige, aktive Teilnahme
Zulassungsvoraussetzung zur Abschlussprüfung	Erfüllung der Studienleistungen des Praktikums

Prüfung und Bewertung	Prüfungsform	Dauer [min]	Gewichtung in Modulnote
	Klausur	120	70%
	Wissenschaftlicher Bericht		30%

Gewichtung in Gesamtnote	Gewichtet mit 14 von ca. 100 benoteten LP (ca. 14%)
Weitere Informationen	
Literatur	Wird zur Vorbereitung vor Beginn des Moduls bekannt gegeben