DEPARTMENT OF MOLECULAR BIOTECHNOLOGY
COURSE SYLLABUS

Course Details						
Code				**Academic Year**		**Semester**
MBT206				2		4
Title			**T**	**A**	**L**	**ECTS**
Bioinformatics			2	0	2	6

Language	German					
Level	**Undergraduate**	X	**Graduate**		**Postgraduate**	
Department / Program	Molecular Biotechnology					
Forms of Teaching and Learning	Face-to-face					
Course Type	**Compulsory**	X	**Elective**			
Objectives	Bioinformatics combines questions, methods and concepts from biology, computer science and statistics. The contents of this module are chosen in such a way that they enable the students to get a first coherent overall picture of bioinformatics.					
Content	Sequence Analysis, Magic RNA, Genomes, Metabolism Modeling, System Biology and Diseases, Signaling Cascades, Complex Systems, Evolution, Design Principles of a Cell and R Programming.					
Prerequisites	-					
Coordinator	Assoc. Prof. Dr. Orkide Coşkuner Weber					
Lecturer(s)	Assoc. Prof. Dr. Orkide Coşkuner Weber					
Assistant(s)	-					
Work Placement	-					

Recommended or Required Reading	
Books / Lecture Notes	Thomas Dandekar und Meik Kunz, Bioinformatik: Ein Einführendes Lehrbuch, Springer Spektrum, ISBN 978-3-662-54697-0
Other Sources	-

Additional Course Material	
Documents	-
Assignments	-
Exams	-

Course Composition		
Mathematics und Basic Sciences		%
Engineering		%
Engineering Design		%
Social Sciences		%

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Educational Sciences		%
Natural Sciences	100	%
Health Sciences		%
Expert Knowledge		%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	40%
Quiz	-	-
Assignments	-	-
Attendance	-	-
Recitations	-	-
Projects	-	-
Final Exam	1	60%
Total		**100**

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	13	2	26
Self-Study	7	10	70
Assignments	4	10	40
Presentation / Seminar Preparation	1	10	10
Midterm Exam	1	4	4
Recitations	-	-	-
Laboratory	13	2	26
Projects	-	-	-
Final Exam	1	4	4
Total Work Load			**180**
ECTS Points (Total Work Load / Hour)			**6**

Learning Outcomes

1	Knowledge of biological databases and software.
2	Be able to use bioinformatic tools to perform proteomic and genomic analysis.
3	To be able to combine biology, computer science and statistics.
4	Learning R programming.

Weekly Content

1	Sequence analysis

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2	Magic RNA
3	Genomes
4	Modelling metabolism
5	Systems Biology and Diseases
6	Antibiotics discovery
7	Detect superfast sequence comparisons
8	Signal cascades
9	When does a computer stop calculating?
10	Complex systems
11	Evolution
12	Design principles of a cell
13	New informatics languages in biology

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
1	1	2	3	-	-	-	-
2							
3							
4							

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

https://obs.tau.edu.tr/oibs/bologna/progLearnOutcomes.aspx?lang=en&curSunit=5707

Compiled by:	Assoc. Prof. Dr. Orkide Coşkuner Weber
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