PHY-M-VE 08

Effective WS 2011/2012 / Please also see remarks in item 13.

1. Module title:	**Biophysics as Complementary Subject**
2. Field / responsibility of:	Faculty of Biology, Dean of Studies
3. Module contents:	Introductory topics of modern biophysics and structural biology will be discussed, focusing on physical foundations, concepts and procedures. • Lecture and seminar / labs Biophysics I (physical methods to determine the structure of biomolecules) • Lecture and seminar / labs Biophysics II (bioinformatics and modeling of unknown structures) • Lecture Data Analysis and Machine Learning • Lecture Fundamentals of Biological NMR Spectroscopy
4. Qualification objectives of the module / competencies to be acquired:	Teaching fundamental knowledge of the concepts and physical procedures in biophysics. This will enable students to classify biophysical problems and to solve them effectively. In addition, they will be able to analyze and interpret NMR and ESR spectra. In the area of machine learning, students will be able to program modern learning algorithms and to apply them to problems of data and image analysis.
5. Prerequisites for participation:	
a) Recommended knowledge:	None
b) Prerequisite courses:	None
6. Module can be used for:	Master in Physics
7. Module is offered:	On a yearly basis
8. Module can be completed in:	2 semesters
9. Recommended semester of study:	1 to 2
10. Overall module workload / number of credit points:	**1. Attendance: 12 credit hours** **2. Independent study (including exam preparation / exam): 300 hours** **Credit points: 16**
The successful completion of all assignments listed in items 11 and 12 is a prerequisite for receiving the credit points mentioned in item 10.	

11. Module components:

No.	Req./req. elective	Form of teaching	Subject area/topic	Credit hours	Coursework
PHY-M -VE 0 8.1	Compulsory	Lecture Seminar Labs	Biophysics I	9	Written exam, seminar presentation
PHY-M -VE 0 8.2	Compulsory	Lecture Seminar Labs	Biophysics II	9	Written exam, seminar presentation
PHY-M -VE 0 8.3	Compulsory	Lecture Practical course	Machine Learning I or II with practical exercises	4	Written exam
PHY-M -VE 0 8.4	Compulsory	Lecture	Fundamentals of Biological NMR Spectroscopy	2	Written exam

12. Module exam:

No.	Competence / topic	Type of exam	Duration	Time / notes	Weighting of module grade
PHY-M -VE 8 .5	Biophysics	Oral	30 minutes	Following the module components	1

13. Notes:

The complementary subject may only be used for a master in Physics if the module components have not yet counted towards the bachelor degree.