

PHY-M-VE 06

Effective WS 2011/2012

1. Module title:	Physics and Business as Complementary Subject
2. Field / responsibility of:	Prof. Dr. Ingo Morgenstern of the Faculty of Physics, Dean of Studies
3. Module contents:	<p>1) Lecture: Physics and Business I (3 credit hours + 2 credit hours practicum)</p> <ul style="list-style-type: none"> • Physical principles: Statistical mechanics • Modeling in physics: Solid-state theory, spin glasses • Modeling in economics: Production lines, logistical problems, portfolio <p>2) Lecture: Physics and Business II (Operation Research) (3 credit hours + 2 credit hours practicum)</p> <ul style="list-style-type: none"> • Intelligent strategies: Physical optimization, genetic algorithms, tabu search • Mathematical procedures: Simplex algorithm, integer optimization, linear programming <p>3) Lecture + practicum: Business Planning for Scientists (2 credit hours)</p> <ul style="list-style-type: none"> • Natural scientists in the economy • Starting a business • Simulations of various business situations
4. Qualification objectives of the module / competencies to be acquired:	Applying physical methods and concepts to economic problems
5. Prerequisites for participation:	
a) Recommended knowledge:	Basic knowledge of business administration
b) Prerequisite courses:	None
6. Module can be used for:	Master in Physics
7. Module is offered:	Annually upon request in the WS or SS
8. Module can be completed in:	2 semesters
9. Recommended semester of study:	1
10. Overall module workload / number of credit points:	<p>Workload: Total number of hours: 480 Allocation: 1. Attendance: 12 credit hours 2. Independent study (including exam preparation/ exam): 300 hours Credit points: 16</p>
The successful completion of all assignments listed in items 11 and 12 is a prerequisite for receiving the credit points mentioned in item 10.	

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11. Module components:					
No.	Req./req. elective	Form of teaching	Subject area/topic	Credit hours	Coursework
PHY-M-VE 0 6.1	Compulsory	Lecture Practicum	Physics and Business I	5	
PHY-M-VE 0 6.2	Compulsory	Lecture Practicum	Physics and Business II (Operation Research)	5	
PHY-M-VE 0 6.3	Compulsory	Lecture Practicum	Business Planning for Scientists	2	
12. Module exam:					
No.	Competence / topic	Type of exam	Duration	Time / notes	Weighting of module grade
PHY-M-VE 0 6.1	Oral exam	Oral	30	After part 3	1